

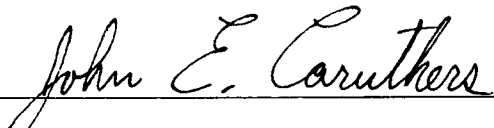
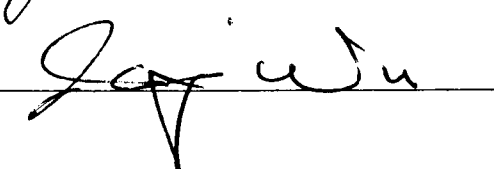
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Mitsuru Kurosaka, Major Professor

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THE EFFECT OF VISCOSITY UPON AN UNSTEADY VORTEX

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Khanh Quang Dang

August 1986

ACKNOWLEDGMENTS

The author's deepest thanks are extended to Dr. M. Kurosaka, chairman of the thesis committee and faculty advisor, for invaluable guidance, support and encouragement throughout the study.

Special thanks are also extended to Dr. J. E. Caruthers and Dr. J. M. Wu, for their suggestions.

The author would like to thank his parents, his brother, Minh, and his sisters, Nguyet and Nga, for their support and inspiration. This work is dedicated to them.

The author expresses his gratitude to some special persons at U.T.S.I. for their understanding and help.

ABSTRACT

The effect of viscosity upon an unsteady vortex had been investigated analytically by M. Kurosaka (University of Tennessee Space Institute). He created the Circumferential Average Method and divided a vortex into two parts: a rotational core and several outer spiral turns in order to analyze the problem. In general, the solutions for circumferentially averaged vorticity and tangential velocity are in the form of integral representations. The integrand is products of a modified Bessel function, exponential function and others. He also briefly analyzed these solutions in some special cases corresponding to power-law growth.

The Gaussian quadrature with Labatto integration is the numerical method used to calculate the circumferential average vorticity and tangential velocity as the functions of radial positions. Provision of sub-intervals near the singularities of integrand is needed in order to control the error of numerical calculations. The polynomials are approximated for modified Bessel function. Some exact solutions from certain limit cases such as inviscid limit and far field are used to check the numerical results.

The effect of viscosity on radial vorticity and tangential velocity is predicted to be substantial. Before the separation from the mother body, the viscosity removes the inviscid singularity at the center of vortex and smoothes out the inviscid discontinuity near the outer edge of the rotational core. After the separation, the viscosity causes transformation of the radial profiles into the Lamb-Oseen one.

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LIST OF SYMBOLS

$f(t)$	Radius of rotational core
H	Step function
I_0	Modified Bessel function
K	As defined in equation (28)
m	Power of time in Power-Law Growth
$Q(t)$	Flux of vorticity through the feeder line
q_t	Tangential velocity in feeder line
r	Radial position
R^*	Non-dimensionally radius position
$\bar{R}$	As $\frac{r\alpha^{\frac{1}{2m-1}}}{\nu^{\frac{1}{2m-1}}}$
t	Time
$\bar{t}$	As $\frac{t\alpha^{\frac{2}{2m-2}}}{\nu^{\frac{1}{2m-1}}}$
$\frac{t}{\tau_s}$	Non-dimensionally time parameter for after separation
$\bar{U}_\theta$	C. A. tangential velocity
X_1	As defined in equation (21)

Greek Letters

α	Proportional constant in Power-Law Growth equation for outer edge of rotational core
β	Proportional constant in Power-Law Growth equation for flux of vorticity through the feeder line
δ	Delta function
δ_f	Thickness of feeder line
$\epsilon, \epsilon_1, \epsilon_2$	Very small numbers as 10^{-20}
η	Dummy variable in integrations

Γ_{∞}	The total sum of the vorticity fed to the vortex before cutoff
ν	Viscosity
ν^*	Non-dimensionally viscosity
$\bar{\omega}$	Circumferential average vorticity
τ	Time when seperation occurs

CHAPTER I

INTRODUCTION

When a bluff body is immersed in flow, it is well known that the unsteady vortices are formed periodically and shed alternatively in the form of double rows: this is the so-called Kármán vortex street. Besides these array of vortices, a single vortex can also be formed and shed when a body with a sharp edge, for instance a wedge or half wing, is suddenly set in motion. As soon as the body starts to move, a spiral form of the vortex is formed (figure 1(a)) and grows in size (figure 1(b)) by the vorticity fed through the boundary layer separated at the sharp edge. Once the vortex becomes of sizable magnitude, the rotational velocity induced by the vortex itself attains such a strength that it serves to cut off the supply line and the vortex becomes detached. The separated vortex (figure 1(c)) without any additional supply of vorticity decays due to diffusion. This description for the life of a single vortex is more or less applicable to vortices in the Kármán street as well.

In the early stage of the vortex formation, the effect of viscosity is small. Therefore in the past, investigations have been conducted to analyze this as inviscid roll-up. Such inviscid treatment, however, is not only limited to the initial process of evolution but also suffers from singularities of the vorticity at the center of the vortex. Physically viscosity of course removes this inviscid singularity and it also plays an important role in the later development of the vortex. Due to the difficulty associated with the viscous analysis, however, this effect of viscosity has not adequately been taken into account.

Recently Kurosaka (Ref. 1) devised a circumferential averaging method to incorporate the viscous effect upon the entire life of the vortex. The objective of

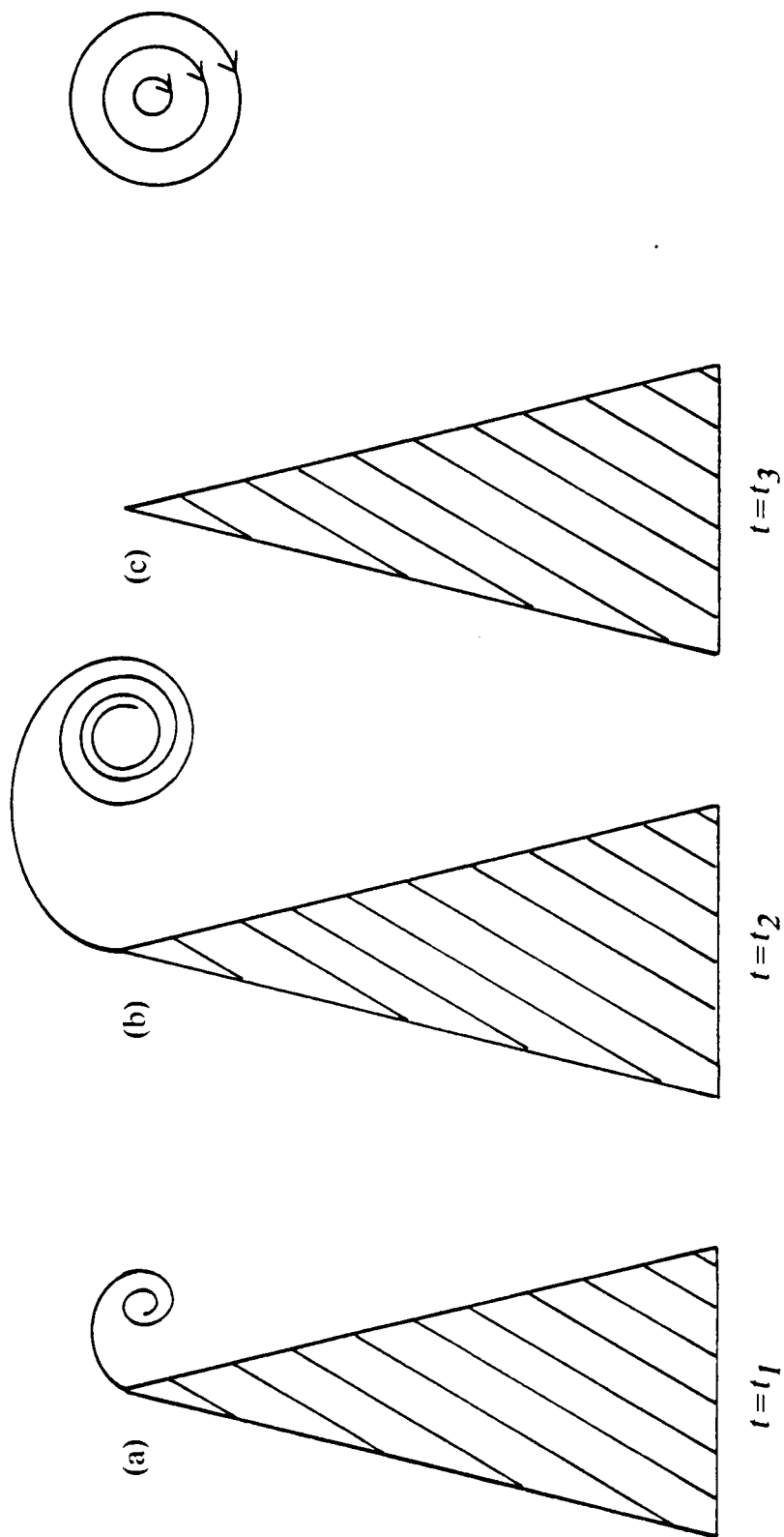


Figure 1. The formation of a vortex.

the present work is to present the numerical results based upon such a formulation.

CHAPTER II

THE METHOD OF CIRCUMFERENTIAL AVERAGE AND THE SOLUTION FOR DIFFUSION EQUATION WITH A SOURCE TERM

In the method of circumferential averaging, the governing equations are averaged in the azimuthal direction. First consider the formation stage where the supply line is still feeding vorticity to the vortex. As a good approximation, the spiral vortex can be represented by a combination of a circular rotational core and a few outer spiral turns, shown in Figure 2 (a), (b). The outer edge of the rotational core corresponds to $r = f(t)$. One first writes down the governing Navier-Stokes equation for incompressible flows in terms of the cylinder coordinates (r, θ) with its origin is located at the vortex center. Then one integrates them in the θ direction, and in doing so for those region outside of the rotational core, one excludes the feederline on the ground that it becomes a surface of discontinuity in the inviscid limit. Then the equation for the circumferential averaged vorticity, in $\bar{\omega}$, becomes

$$\frac{\partial \bar{\omega}}{\partial t} = \frac{1}{2\pi r} Q(t) \delta(r - f(t)) + \nu \frac{1}{r} \frac{\partial}{\partial r} \left(r \frac{\partial \bar{\omega}}{\partial r} \right), \quad (1)$$

where $Q(t)$ is the flux of vorticity ω_f fed through the feederline of thickness δ_f

$$Q(t) = \int_0^{\delta_f} q_t \omega_f dn \quad (2)$$

and δ is the delta function, ν the kinematic viscosity.

Equation (1) is a diffusion equation, similar to that of heat conduction with a source term associated with $Q(t)$; the source is concentratedly distributed at the outer edge of the rotational core. Thus the circumferential averaging results in smearing out the discrete supply of vorticity through the feeder line and replacing it with an equivalent source now distributed at $r = f(t)$.

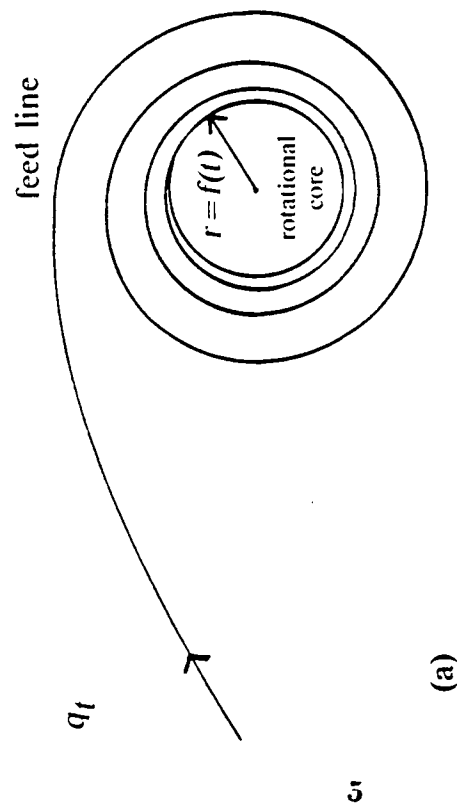
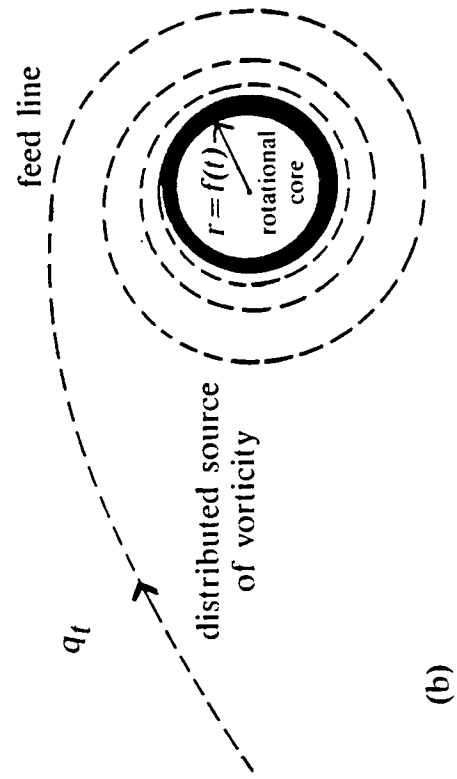


Figure 2. The division of a vortex

Once the vortex becomes separated from the body at $t = \tau$, $Q(t)$ becomes simply equal to zero. Thus in the past cut-off stage, (1) takes the form of the diffusion equation without source:

$$\frac{\partial \bar{\omega}}{\partial t} = \nu \frac{1}{r} \frac{\partial}{\partial r} \left(r \frac{\partial \bar{\omega}}{\partial r} \right). \quad (3)$$

Equations (1) and (3) can be combined into the single equation of

$$\frac{\partial \bar{\omega}}{\partial t} = \frac{1}{2\pi r} Q(t) \delta(r - f(t)) H(\tau - t) + \nu \frac{1}{r} \frac{\partial}{\partial r} \left(r \frac{\partial \bar{\omega}}{\partial r} \right), \quad (4)$$

where H is the step function. Its solution, subjected to the conditions

$$\bar{\omega}(r, t = 0) = 0, \bar{\omega}(r \rightarrow \infty, t = 0) = 0 \quad (5)$$

can be found from that of heat conduction in solids (Ref. 2) and given as

$$\bar{\omega}(r, t) = \int_0^\chi \frac{Q(\eta)}{2\pi} \frac{1}{2\nu(t - \eta)} \exp \left[-\frac{r^2 + f^2(\eta)}{4\nu(t - \eta)} \right] I_0 \left[\frac{rf(\eta)}{2\nu(t - \eta)} \right] d\eta, \quad (6)$$

where

$$\chi = \begin{cases} t & \text{for } t < \tau \\ \tau & \text{for } t > \tau, \end{cases}$$

and I_0 is the zeroth-order modified Bessel Function of the first kind. It can be shown that

$$\int_0^\infty \bar{\omega}(r, t) 2\pi r dr = \int_0^\chi Q(\eta) d\eta. \quad (7)$$

The circumferential averaged tangential velocity, $\bar{u}_\theta$ is given as

$$\bar{U}_\theta(r, t) = \frac{1}{r} \int_0^r \eta \bar{\omega}(\eta, t) d\eta. \quad (8)$$

CHAPTER III

POWER-LAW GROWTH

When the outer edge of the rotational core obeys the power-law

$$r = \alpha t^m, \quad (9)$$

then it can be shown that the flux of vorticity fed through the supply line, $Q(t)$, becomes

$$Q(t) = 2\pi\beta t^{2m-2}, \quad (10)$$

where α and β are constant. Substitution of (9) and (10) into (6) yields

$$\bar{\omega}(r, t) = \beta \int_0^x \frac{\eta^{2m-2}}{2\nu(t-\eta)} \exp\left[-\frac{r^2 + (\alpha\eta^m)^2}{4\nu(t-\eta)}\right] I_0\left[\frac{r\alpha\eta^m}{2\nu(t-\eta)}\right] d\eta. \quad (11)$$

The case of linear growth corresponds to $m = 1$. The second special case when $m = 2/3$ corresponds to the roll-up of a wing tip vortex when the loading distribution is elliptic; this is often called the Kaden's problem. When $m = 1/2$, it can be shown that the vorticity $\bar{\omega}(r, t)$ becomes singular at $r = 0$ even in the presence of viscosity. To investigate the behavior near $m = 1/2$, the third case to be considered corresponds to $m = 0.55$. The numerical calculations to be described hereafter correspond to the four values of m : $m = 2, 1, 2/3$ and 0.55 .

For the special case of the inviscid limit, $\nu = 0$ and $t < \tau_s$, equation (4) becomes,

$$\frac{\partial \bar{\omega}}{\partial t} = \frac{Q(t)}{2\pi r} \delta(r - f(t)),$$

or

$$\frac{\partial \bar{\omega}}{\partial t} = \frac{\beta t^{2m-2}}{r} \delta(r - \alpha t^m). \quad (12)$$

Integration of equation (12) from $t = 0$ to $t = t$, subject to the initial condition $\bar{\omega}(t = 0) = 0$ one gets

$$\bar{\omega} = \frac{1}{r} \int_0^t \beta t^{2m-2} \delta(r - \alpha t^m) dt. \quad (13)$$

Let $r - \alpha t^m = \eta$, then $r - \eta = \alpha t^m$, or $t = \left(\frac{r-\eta}{\alpha}\right)^{\frac{1}{m}}$.

From the above, one gets

$$dt = \frac{1}{m} \left(\frac{r-\eta}{\alpha}\right)^{\frac{1}{m}-1} - \frac{d\eta}{\alpha}. \quad (14)$$

At $t = 0$, $\eta = r$, and $t = t$, $\eta = r - \alpha t^m$.

Changing variable of integration in (13) from t to η , one obtains

$$\bar{\omega} = \frac{1}{r} \int_r^{r-\alpha t^m} \beta \left(\frac{r-\eta}{\alpha}\right)^{\frac{2m-2}{m}} \delta(\eta) \frac{1}{m} \left(\frac{r-\eta}{\alpha}\right)^{\frac{1}{m}-1} - \frac{d\eta}{\alpha},$$

becomes

$$\bar{\omega} = \frac{1}{r} \int_{r-\alpha t^m}^r \beta \left(\frac{r-\eta}{\alpha}\right)^{-\frac{1}{m}} \delta(\eta) \frac{1}{\alpha m} d\eta. \quad (15)$$

If $r - \alpha t^m > 0$,

$$\bar{\omega} = 0. \quad (16.a)$$

If $r - \alpha t^m < 0$,

$$\begin{aligned} \bar{\omega} &= \frac{1}{r} \beta \left(\frac{r}{\alpha}\right)^{-\frac{1}{m}} \frac{1}{\alpha m}, \text{ or} \\ \bar{\omega} &= \frac{\beta}{m \alpha^2} \left(\frac{r}{\alpha}\right)^{-\frac{1}{m}}. \end{aligned} \quad (16.b)$$

CHAPTER IV

NUMERICAL PROCEDURE

Let R^* and ν^* be the dimensionless radius and viscosity defined by

$$R^* = \frac{r}{\alpha t^m}, \quad \nu^* = \frac{\nu}{\alpha^2 t^{2m-1}}. \quad (17)$$

Then equation (11) becomes, after replacing η by $t(1 - \eta)$, as

$$\frac{\alpha^2}{\beta} t\omega = \frac{1}{2\nu^*} \int_0^1 \frac{(1 - \eta)^{2m-2}}{\eta} \exp\left[-\frac{R^{*2} + (1 - \eta)^{2m}}{4\nu\eta^*}\right] I_0\left[\frac{R^*(1 - \eta)^m}{2\eta\nu^*}\right] d\eta. \quad (18)$$

Let the integrand of (18) be f :

$$f = \frac{(1 - \eta)^{2m-2}}{\eta} \exp\left[-\frac{(R^{*2} + (1 - \eta)^{2m})}{4\eta\nu^*}\right] I_0\left[\frac{R^*(1 - \eta)^m}{2\eta\nu^*}\right]. \quad (19)$$

Rewrite this in the following form,

$$\begin{aligned} f &= \frac{(1 - \eta)^{2m-2}}{\eta} \exp\left[-\frac{(R^{*2} + (1 - \eta)^{2m})}{4\eta\nu^*}\right] \exp\left[\frac{2R^*(1 - \eta)^m}{4\eta\nu^*}\right] \exp\left[-\frac{2R^*(1 - \eta)^m}{4\eta\nu^*}\right] \\ &\quad \times I_0\left[\frac{R^*(1 - \eta)^m}{2\eta\nu^*}\right], \\ &= \frac{(1 - \eta)^{2m-2}}{\eta} \exp\left[\frac{-[R^* - (1 - \eta)^m]^2}{4\eta\nu^*}\right] \exp\left[\frac{-R^*(1 - \eta)^m}{2\eta\nu^*}\right] I_0\left[\frac{R^*(1 - \eta)^m}{2\eta\nu^*}\right]. \end{aligned} \quad (20)$$

Define,

$$X1 = \frac{R^*(1 - \eta)^m}{2\eta\nu^*}, \quad (21)$$

then

$$f = \frac{(1 - \eta)^{2m-2}}{\eta} \exp\left[-\frac{[R^* - (1 - \eta)^m]^2}{4\eta\nu^*}\right] \exp(-X1) I_0(X1).$$

In what is to follow, we give at first polynomial approximation for in $I_0(A)$, then consideration on the end - point singularities in (B) and finally details of numerical computation in (C).

A. Polynomial approximations for $\exp(-X1)Io(X1)$

In ref. 3, the following polynomial approximations of $\exp(-X1)Io(X1)$ are given:

(i) $-3.75 < X1 < 3.75$

$$\begin{aligned} \exp(-X1)Io(X1) = & \left[1 + 3.5156229(X1/3.75)^2 + 3.0899424(X1/3.75)^4 \right. \\ & + 1.206792(X1/3.75)^6 + 0.2659732(X1/3.75)^8 + 0.03606768(X1/3.75)^{10} \\ & \left. + 0.0045813(X1/3.75)^{12} \right] \exp(-X1), \end{aligned} \quad (22)$$

with $|\epsilon| \leq 1.610^{-7}$, where ϵ is the error of approximation.

(ii) $3.75 < X1$

$$\begin{aligned} \exp(-X1)Io(X1) = & X1^{-\frac{1}{2}} [0.39894228 + .01328592(X1/3.75)^{-1} \\ & + 0.00225319(X1/3.75)^{-2} - 0.00157565(X1/3.75)^{-3} + 0.00916281(X1/3.75)^{-4} \\ & - 0.02057706(X1/3.75)^{-5} + 0.02635537(X1/3.75)^{-6} - 0.01647633(X1/3.75)^{-7} + \\ & 0.00392377(X1/3.75)^{-8}], \end{aligned} \quad (23)$$

with $|\epsilon| \leq 1.910^{-7}$.

B. End-point singularities for the integral of (24)

The integrand of (18) contains two singularities corresponding to the lower and upper limits.

1) Singularity associated with lower limit.

For all m , the lower limit of the integral $\eta = 0$ corresponds to the singularity of the integrand. Therefore we first isolate $\eta = 0$ singularity by dividing the

integral into the following two parts:

$$\frac{1}{2\nu^*} \int_0^1 f(\eta) d\eta = \frac{1}{2\nu^*} \int_0^{\epsilon 1} f(\eta) d\eta + \frac{1}{2\nu^*} \int_{\epsilon 1}^1 f(\eta) d\eta. \quad (24)$$

In the first integral of (24) valid for $0 \leq \eta \leq \epsilon 1$, rewrite the integrand f as

$$\begin{aligned} & \frac{(1-\eta)^{2m-2}}{\eta} \exp\left[-\frac{R^{*2} + (1-\eta)^{2m}}{4\eta\nu^*}\right] I_0\left[\frac{R^*(1-\eta)^m}{2\eta\nu^*}\right] = \\ & = \frac{(1-\eta)^{2m-2}}{\eta} \exp\left[-\frac{R^{*2} + (1-\eta)^{2m}}{4\eta\nu^*}\right] \frac{\exp\left[\frac{R^*(1-\eta)^m}{2\eta\nu^*}\right]}{\sqrt{\frac{R^*(1-\eta)^m \pi}{\eta\nu^*}}} \\ & = \sqrt{\frac{\nu^*}{R^* \pi}} \frac{(1-\eta)^{1.5m-2}}{\sqrt{\eta}} \exp\left[-\frac{(R^* - (1-\eta)^m)^2}{4\eta\nu^*}\right], \end{aligned} \quad (25)$$

now in the following definition of the delta function,

$$\lim_{h \rightarrow \infty} \sqrt{\frac{h}{\pi}} \exp(-hX^2) = \delta(X),$$

let $h = \frac{1}{4\eta\nu^*}$; then expression (25) becomes,

$$\begin{aligned} & = \sqrt{\frac{\nu^*}{R^* \pi}} \frac{(1-\eta)^{(1.5m-2)}}{\sqrt{\eta}} \sqrt{\frac{\pi}{h}} \sqrt{\frac{h}{\pi}} \exp\left[-h(R^* - (1-\eta)^m)^2\right] \\ & = \sqrt{\frac{4\nu^{*2}}{R^*}} (1-\eta)^{1.5m-2} \delta[R^* - (1-\eta)^m]. \end{aligned} \quad (26)$$

Thus,

$$K = \frac{1}{2\nu^*} \int_0^{\epsilon 1} f(\eta) d\eta = \frac{1}{\sqrt{R^*}} \int_0^{\epsilon 1} (1-\eta)^{1.5m-2} \delta[R^* - (1-\eta)^m] d\eta. \quad (27)$$

Let

$$\theta = (1-\eta)^m$$

then,

$$d\theta = -m(1-\eta)^{m-1} d\eta$$

or

$$d\theta = -m\theta^{\frac{m-1}{m}} d\eta$$

at $\eta = 0$, θ corresponds to 1, and at $\eta = \epsilon$, θ to $(1 - \epsilon)^m$.

Substituting these above into equation (27), one obtains

$$K = \frac{1}{m\sqrt{R^*}} \int_{(1-\epsilon)^m}^1 \theta^{\frac{(0.5m-1)}{m}} \delta(R^* - \theta) d\theta. \quad (28)$$

Let $\alpha = -\theta$, then

$$K = \frac{1}{m\sqrt{R^*}} \int_{-1}^{-(1-\epsilon)^m} (-\alpha)^{(0.5m-1 \text{ over } m)} \delta(\alpha + R^*) d\alpha. \quad (29)$$

If either $-R^* < -1$ or $-R^* > -(1 - \epsilon)^m$ i.e. $R^* > 1$ or $R^* < (1 - \epsilon)^m$, then

$$K = 0.$$

If $-1 < -R^* < -(1 - \epsilon)^m$, or $1 > R^* > (1 - \epsilon)^m$, then

$$K = \frac{1}{m\sqrt{R^*}} R^{*\frac{(0.5m-1)}{m}} = \frac{1}{mR^{*m}}. \quad (30)$$

Summarizing, K takes the following values:

$$K = \begin{cases} 0 & \text{for } R^* > 1 \text{ or } R^* < (1 - \epsilon)^m \\ \frac{1}{mR^{*m}} & \text{for } 1 > R^* > (1 - \epsilon)^m \end{cases} \quad (31)$$

Thus,

$$\frac{\alpha^2}{\beta} t\omega = K + \int_{\epsilon 1}^1 \frac{(1 - \eta)^{(2m-2)}}{\eta} \exp\left[-\frac{R^{*2} - (1 - \eta)^2 m}{4\eta\nu^*}\right] I_0\left[\frac{R^*(1 - \eta)^m}{2\eta\nu^*}\right] d\eta. \quad (32)$$

2) Singularity associated with the upper limit

For $2m - 2 < 0$ or $\frac{1}{2} < m < 1$, the integrand of (18) becomes singular at the upper limit of integral. In order to avoid this singularity, we divide the range of

integration $[\epsilon_1, 1]$ into $[\epsilon_1, 1 - \epsilon_2]$ and $[1 - \epsilon_2, 1]$ with $\epsilon_2 \ll 1$. Thus equation (32) becomes

$$\begin{aligned} \frac{\alpha^2}{\beta} t\omega = K + \frac{1}{2\nu^*} \int_{\epsilon_1}^{1-\epsilon_2} \frac{(1-\eta)^{2m-2}}{\eta} \exp\left[-\frac{(R^* - (1-\eta)^m)^2}{4\eta\nu^*}\right] \\ \exp\left[-\frac{R^*(1-\eta)^m}{2\eta\nu^*}\right] I_0\left[\frac{R^*(1-\eta)^m}{\eta\nu^*}\right] d\eta + \frac{1}{2\nu^*} \int_{(1-\epsilon_2)}^1 \frac{(1-\eta)^{2m-2}}{\eta} \\ \exp\left[-\frac{(R^* - [1-\eta]^m)^2}{2\eta\nu^*}\right] \exp\left[-\frac{R^*(1-\eta)^m}{2\eta\nu^*}\right] I_0\left[\frac{R^*(1-\eta)^m}{2\eta\nu^*}\right] d\eta. \end{aligned} \quad (33)$$

Let ϵ_2 (also ϵ_1) be small (for instance 10^{-15}). As $\eta \rightarrow 1$,

$$X1 = \frac{-R^*(1-\eta)^m}{2\eta\nu^*} \rightarrow 0.$$

Therefore,

$$\exp\left[\frac{-R^*(1-\eta)^m}{2\eta\nu^*}\right] I_0\left[\frac{R^*(1-\eta)^m}{2\eta\nu^*}\right] \rightarrow 1,$$

as one can see from polynomial approximation for $\exp(-X1)I_0(X1)$. Then the last integral term on the right side of equation (33) becomes

$$\exp\left(\frac{-R^{*2}}{4\nu^*}\right) \int_{(1-\epsilon_2)}^1 \frac{1}{(1-\eta)^{2-2m}} d\eta = \exp\left(\frac{-R^{*2}}{4\nu^*}\right) \frac{\epsilon_2^{(2m-1)}}{(2m-1)}, \quad (34)$$

from (33), (34) becomes,

$$\begin{aligned} \frac{\alpha^2}{\beta} t\omega = K + \frac{1}{2\nu^*} \int_{\epsilon_1}^{(1-\epsilon_2)} \frac{(1-\eta)^m}{\eta} \exp\left[-\frac{(R^* - [1-\eta]^m)^2}{4\eta\nu^*}\right] \exp\left[-\frac{R^*(1-\eta)^m}{2\eta\nu^*}\right] \\ I_0\left[\frac{R^*(1-\eta)^m}{2\eta\nu^*}\right] d\eta + \frac{1}{2\nu^*} \exp\left(\frac{-R^{*2}}{4\nu^*}\right) \frac{\epsilon_2^{(2m-1)}}{(2m-1)}. \end{aligned} \quad (35)$$

The tangential velocity is computed by

$$\frac{\alpha}{\beta} \frac{U_\theta}{t^{(m-1)}} = \frac{1}{R^*} \int_0^{R^*} R^* \left(\frac{\alpha^2 t\omega}{\beta}\right) dR^*, \quad (36)$$

when $R^* = 0$, then $\frac{\alpha}{\beta} \frac{U_\theta}{t^{(m-1)}} = 0$.

C. Numerical Methods:

We use the following Gaussian quadrature with Labatto's integration formula:

$$\int_0^1 X^k F(X) dX = \sum_{i=1}^n W_i F(X_i),$$

for the single integral, and

$$\int_0^1 \int_0^1 X^{k_1} Y^{k_2} F(X, Y) dx dy = \sum_{i=1}^n \sum_{j=1}^m W_i W_j F(X_i, Y_j),$$

for the double integral, where $k = k_1 = k_2 = 0$ and $n = m = 10$ and W_i, W_j, X_i, Y_j are given ref 3.

- (i) Even though we divide the range of integral $[0, 1]$ into $[0, \epsilon]$ and $[\epsilon, 1]$, in the neighborhood of ϵ , $f(\eta)$ is numerical unstable. So we divide it into smaller sub-intervals near ϵ .

Let $\epsilon = 10^{-25}$, then, $[10^{-25}, 1] \rightarrow [10^{-25}, 0.0001], [0.0001, 0.001], [0.001, 0.01], [0.01, 0.1], [0.1, 0.15], [0.15, 0.25], [0.25, 0.5], [0.5, 1]$.

- (ii) If $m < 1$, $f(\eta)$ also becomes numerically unstable in the neighborhood of $(1 - \epsilon)$. Therefore, we divide the interval $[10^{-25}, 1 - \epsilon]$ into smaller sub-intervals in the neighborhood of $1 - \epsilon$, $[10^{-25}, 1 - \epsilon]$ to:

$[10^{-25}, 0.0001], [0.0001, 0.001], [0.001, 0.01], [0.01, 0.1], [0.1, 0.25], [0.25, 0.5], [0.5, 0.9], [0.9, 0.99], [0.99, 0.999], [0.999, 0.999999], [0.999999, (1 - 10^{-25})]$

- (iii) Each of these sub-intervals is divided into "sub-subintervals". Also in each of these subintervals, n will be kept doubling until numerical integration converges to some constant. Let n_0 is the initial n ; when ν is smaller, the bigger n_0 is needed.

(iv) Double precision is used throughout the calculation.

(v) Gaussian quadrature with Labatto integration is applied into each of these "sub-subintervals".

(vi) For "Post - Separation" problem, if $m < 1$, for integral in $[(1 - \frac{\tau_s}{t}), (1 - \epsilon_2)]$, we divide it into subintervals $[Xa(1), Xa(2), \dots, Xa(10)]$, where

$$Xa(1) = 1 - \frac{\tau_s}{t}$$

$$Xa(10) = 1 - \epsilon_2$$

$$Xa(I) = Xa(I - 1) + [Xa(10) - Xa(I - 1)] * 0.9$$

with $I = 2, 3, \dots, 9$

We divide each of these subintervals into n equal 'sub - subintervals' and apply the Gaussian quadrature in each of these 'sub - subintervals'

If $m > 1$, for integral in $[(1 - \frac{\tau_s}{t}), (1 - \epsilon_2)]$, we divide this interval into n equal subintervals and apply the Gaussian quadrature in each of these subintervals.

(vii) For the double integral in the form of

$$\int_0^{R^*} R^* \int_{1 - \frac{\tau_s}{t}}^1 f(\eta) d\eta,$$

we apply to the first integral

$$\int_{(1 - \frac{\tau_s}{t})}^1 f(\eta) d\eta$$

the same technique as the one above and to the other integral apply Gaussian quadrature in the interval $[0., R^*]$.

CHAPTER V

RESULTS

5.1. Pre-cutoff Stage.

In figures (3 and 4), the radial profiles of $\bar{\omega}$ and $\bar{u}_\theta$ are shown at the time when the feederline is still attached to the vortex ($t < \tau$). The abscissa is

$$R^* = \frac{r}{\alpha t^m}$$

and the ordinates are

$$\frac{\alpha^2 t}{\beta} \bar{\omega}(r, t) \text{ or } \frac{\alpha}{\beta} \frac{\bar{u}_\theta}{t^{m-1}}$$

respectively. The parameter ν^* is given by

$$\nu^* = \frac{\nu}{\alpha^2 t^{2m-1}} .$$

For fixed value of t , these representations serve to show the effect of viscosity ν on the radial profile. It is observed that at the origin, $R^* = 0$, the viscosity removes the inviscid singularity; also viscosity smoothes out the inviscid discontinuity near $R^* = 1$, which corresponds to the outer edge of the rotational core.

In figures (5 and 6), radial profiles of $\bar{\omega}$ and $\bar{u}_\theta$ are shown in a different representation. The abscissa is

$$\tilde{R} = \frac{r \alpha^{\frac{1}{2m-1}}}{\nu^{\frac{m}{2m-1}}}$$

and the ordinates are

$$\frac{\alpha^{\frac{4m-4}{2m-1}} \nu^{\frac{1}{2m-1}}}{\beta} \bar{\omega}(r, t) \text{ and } \frac{\alpha^{\frac{4m-3}{2m-1}}}{\beta \nu^{\frac{m-1}{2m-1}}} \bar{u}_\theta$$

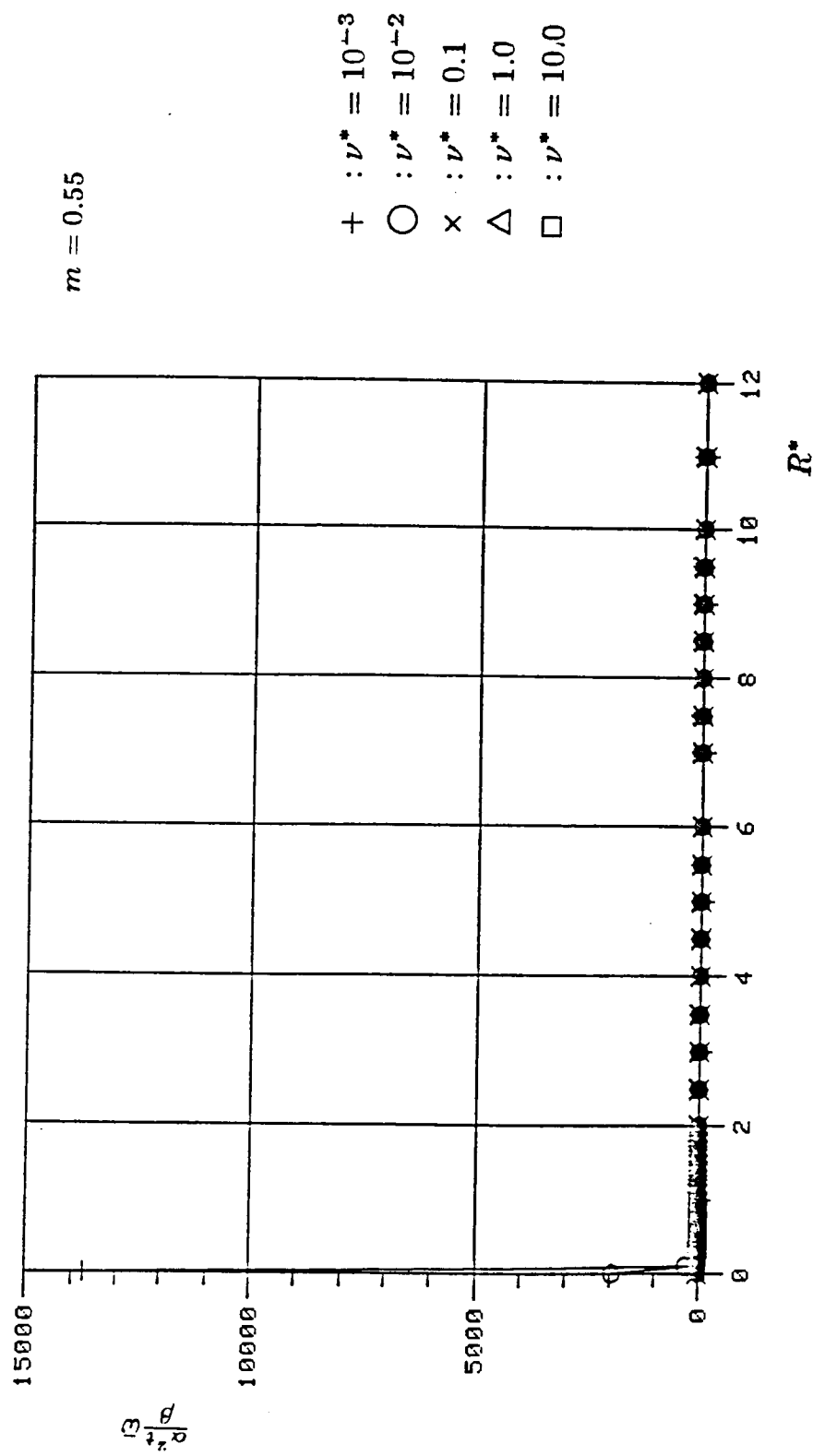


Figure 3. The effect of viscosity on the radial profile of vorticity of a vortex in pre-cut off stage.

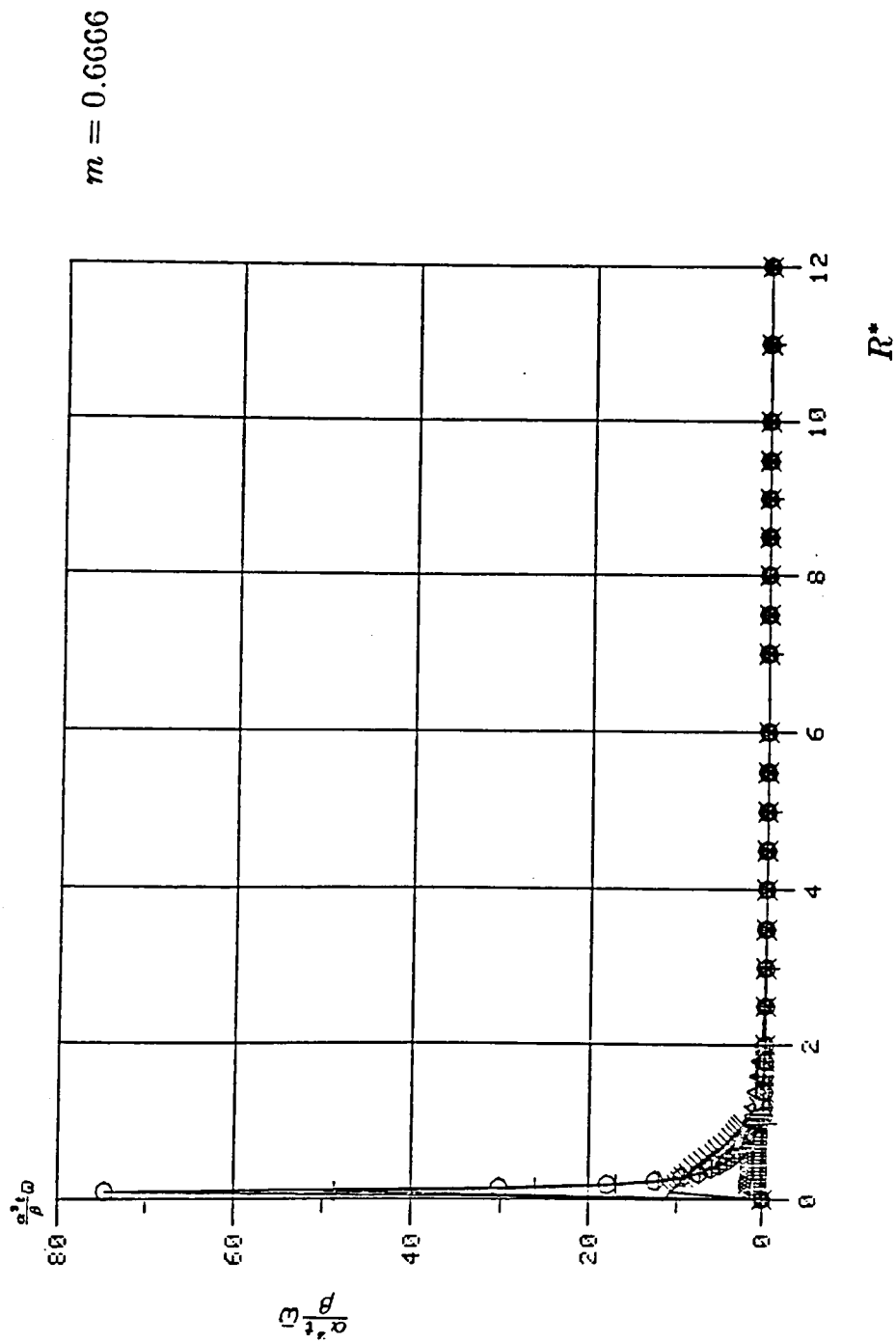


Figure 3. (continued)

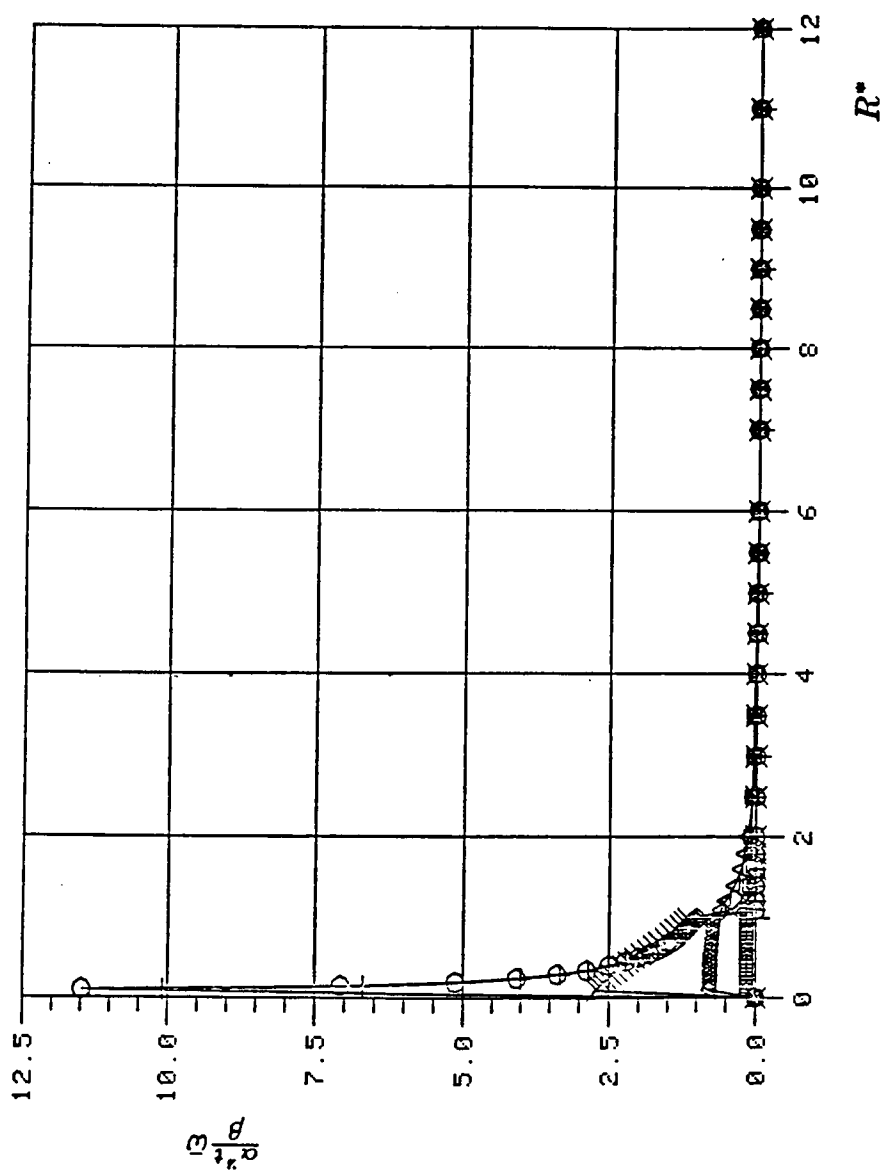


Figure 3. (continued)

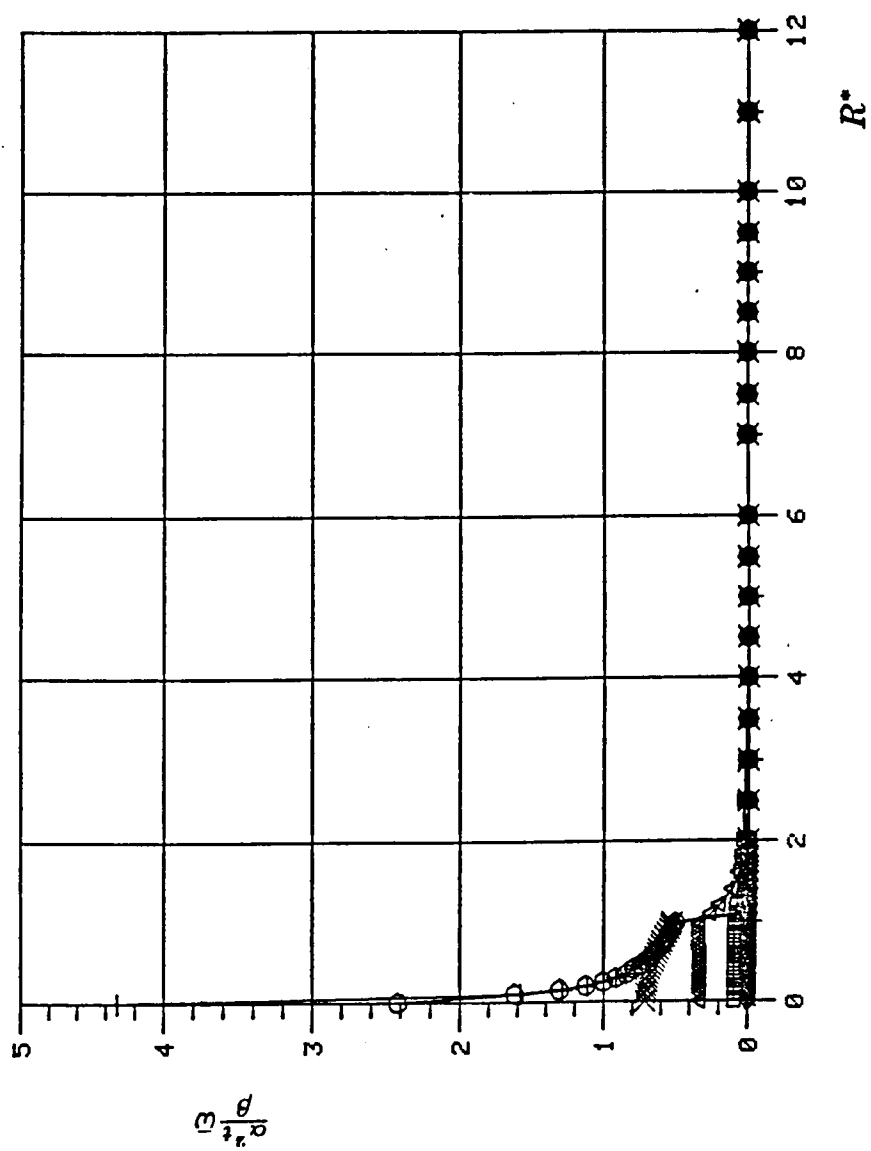


Figure 3. (continued)

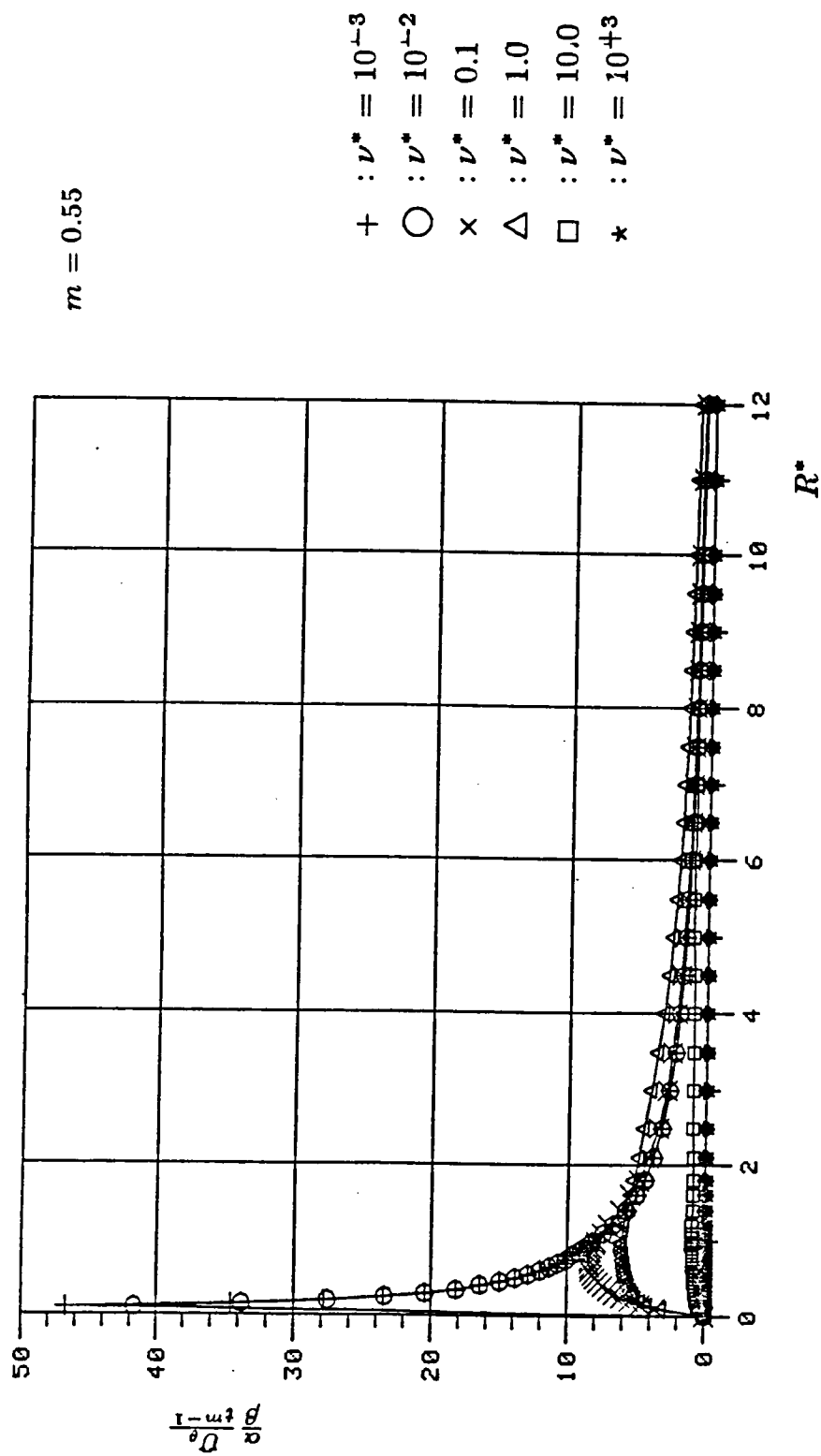


Figure 4. The effect of viscosity on the radial profile of tangential velocity of a vortex in pre-cut off stage.

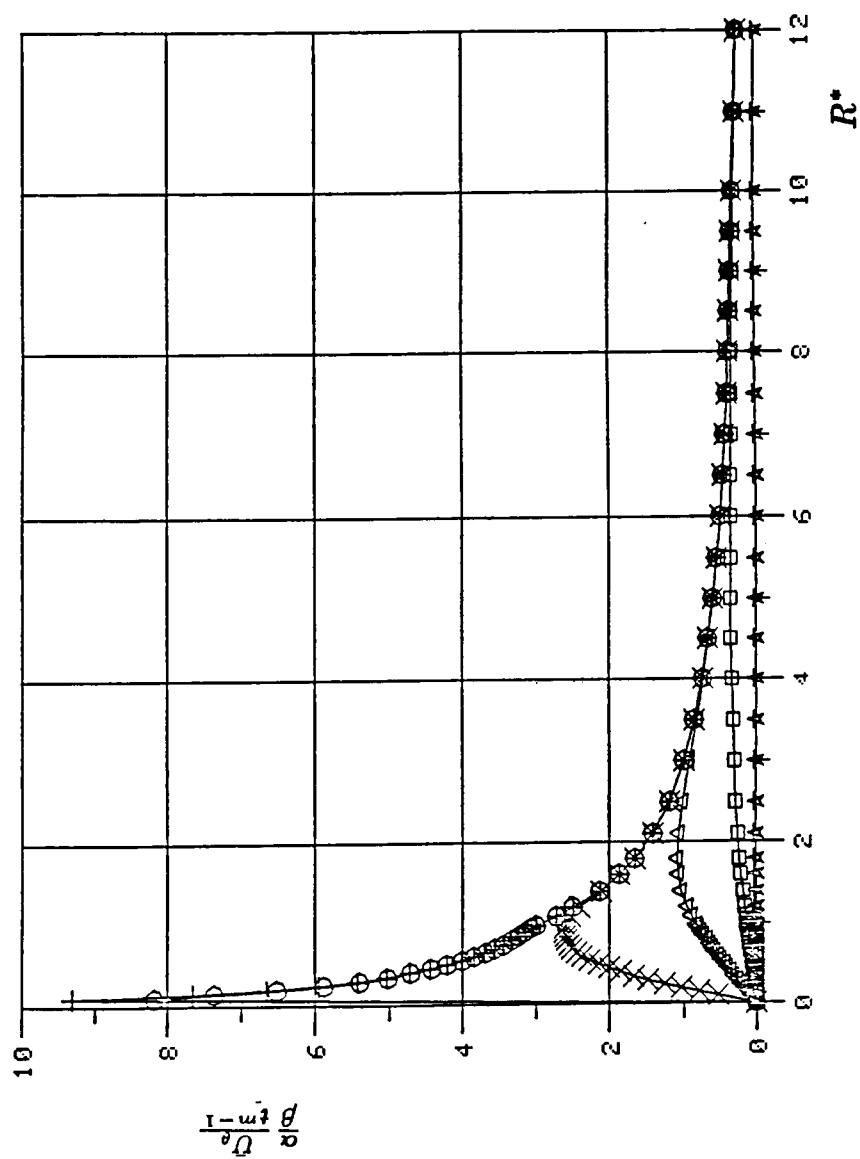


Figure 4. (continued)

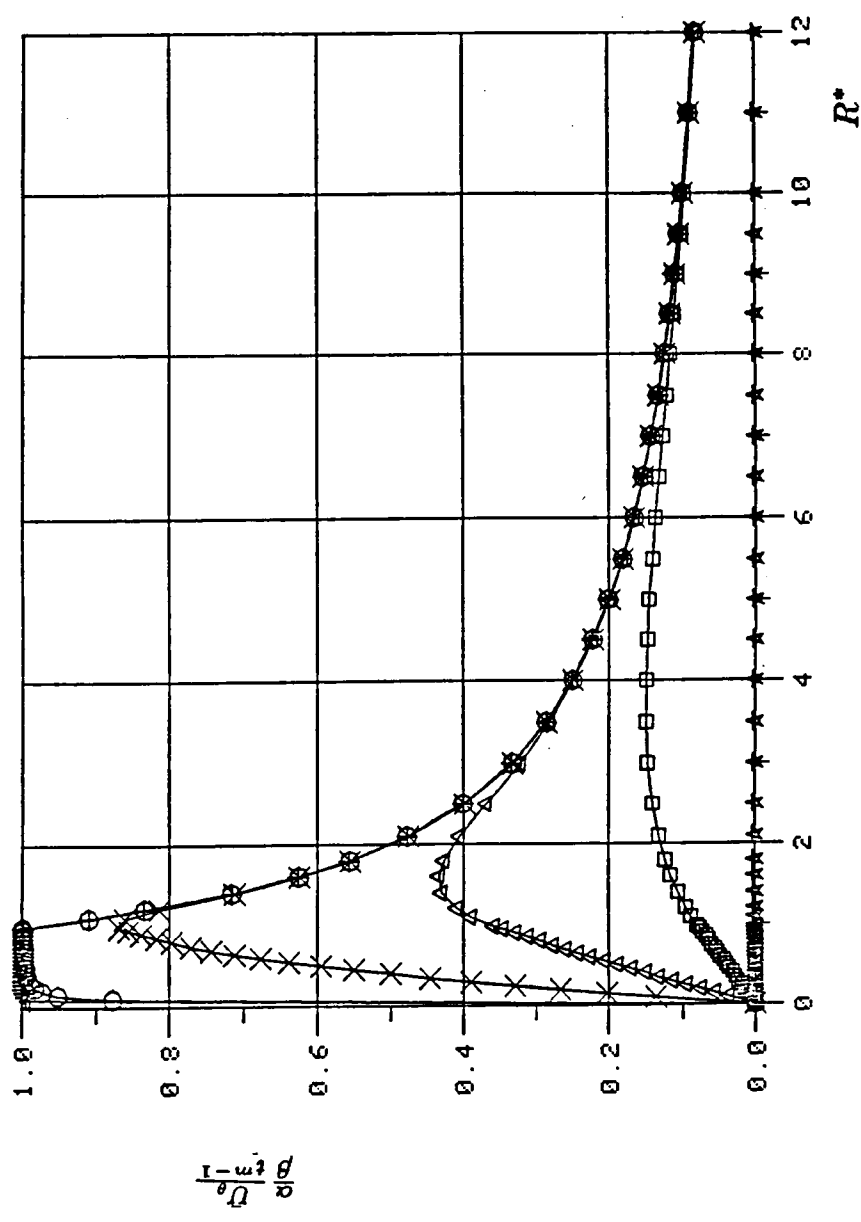


Figure 4. (continued)

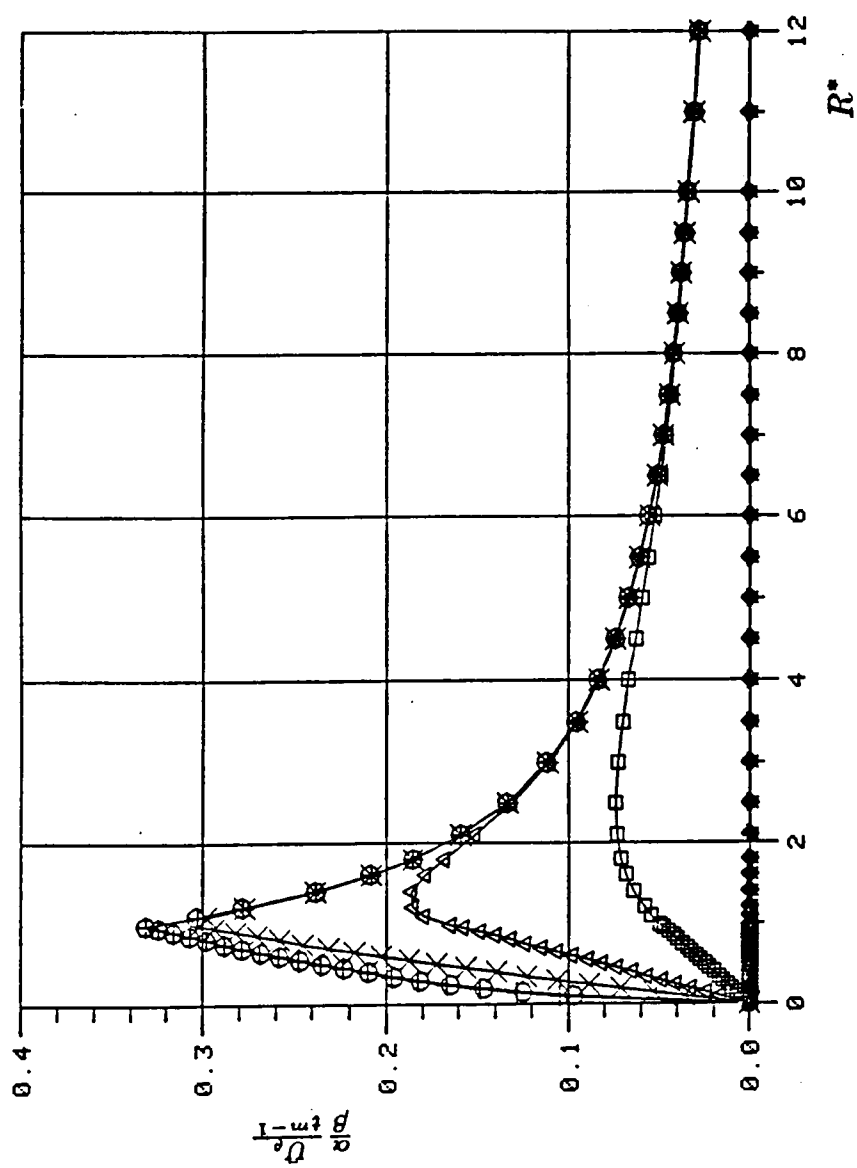


Figure 4. (continued)

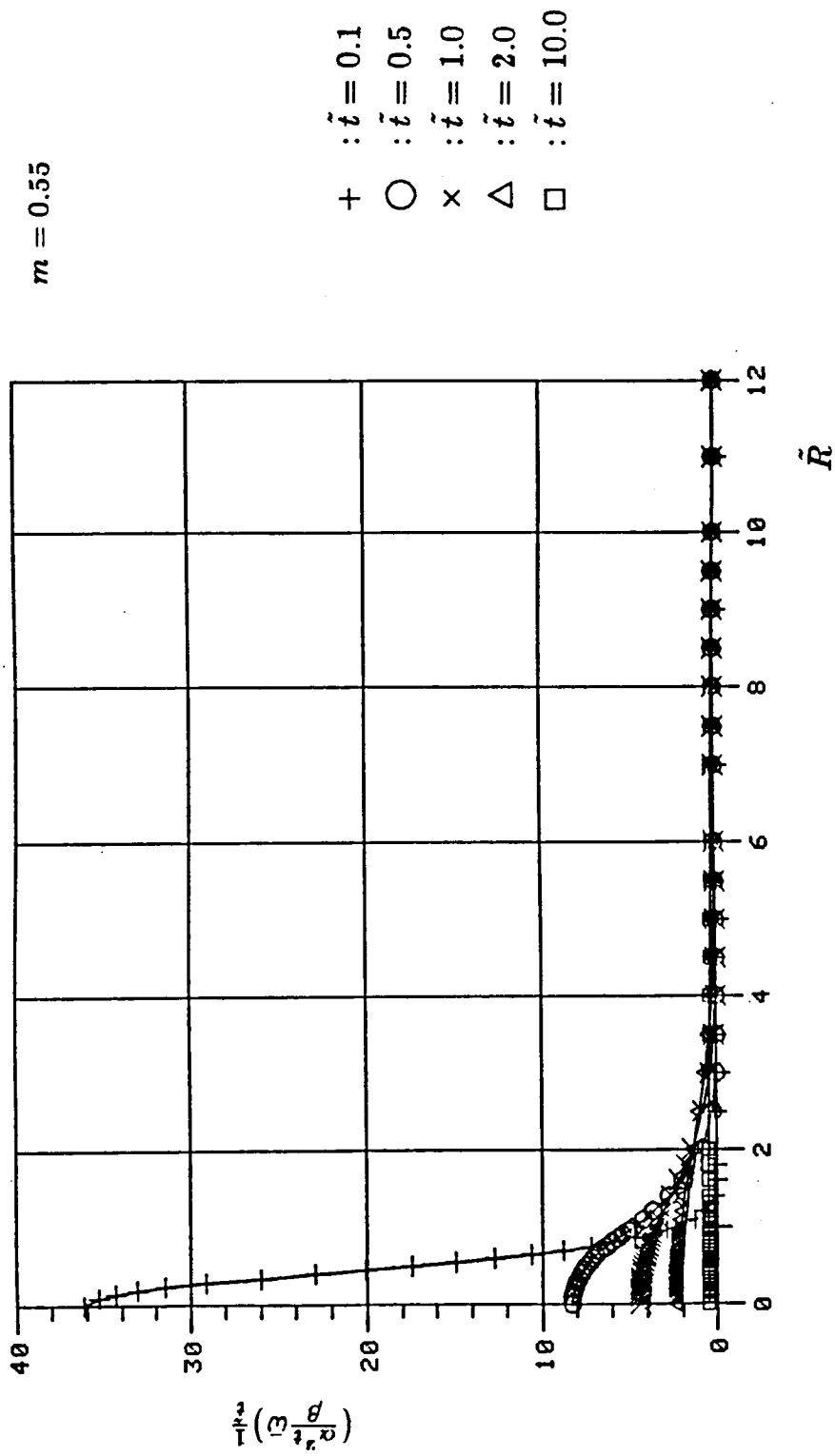


Figure 5. The change of the radial profile of vorticity of a vortex with time in pre-cut off stage.

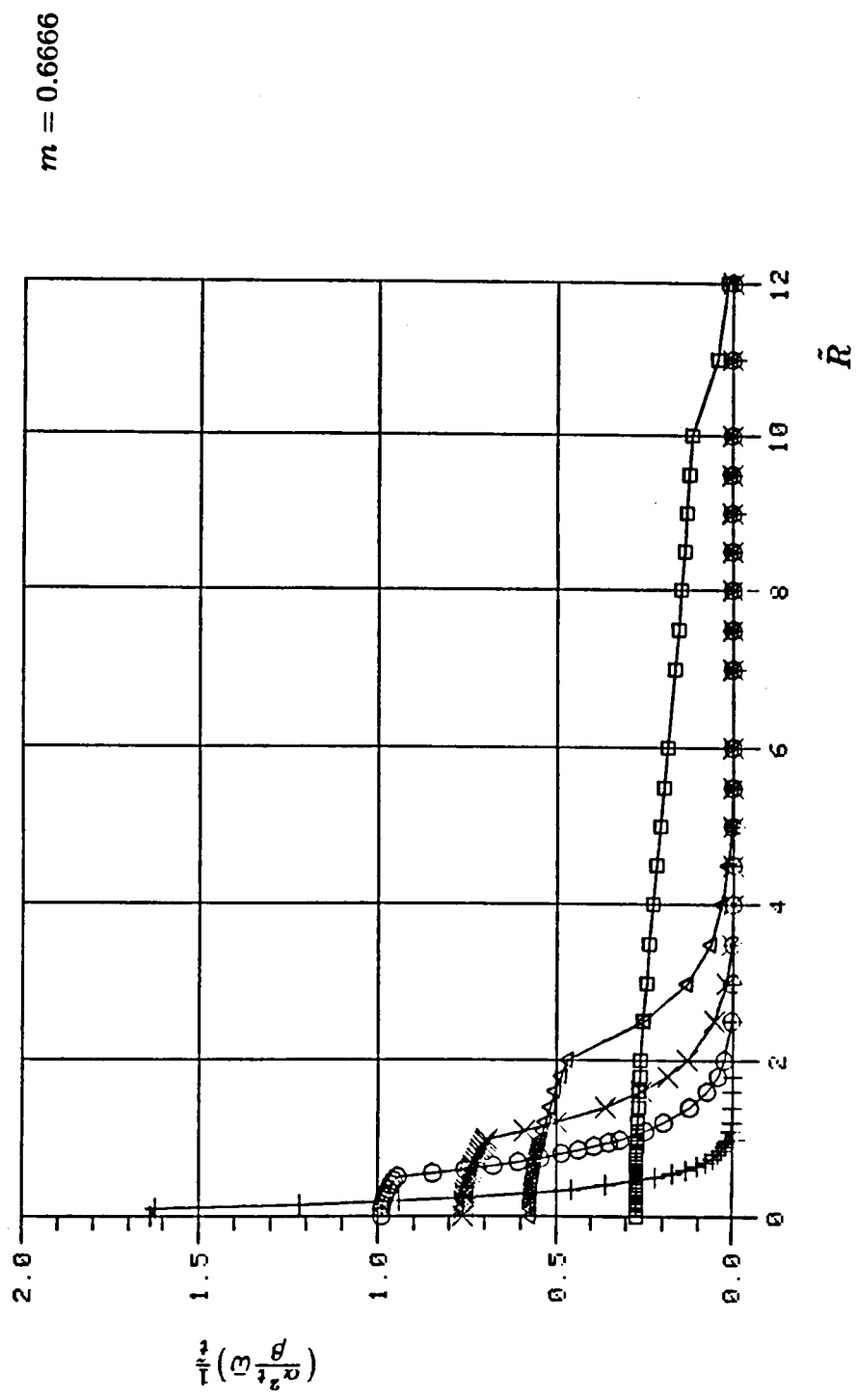


Figure 5. (continued)

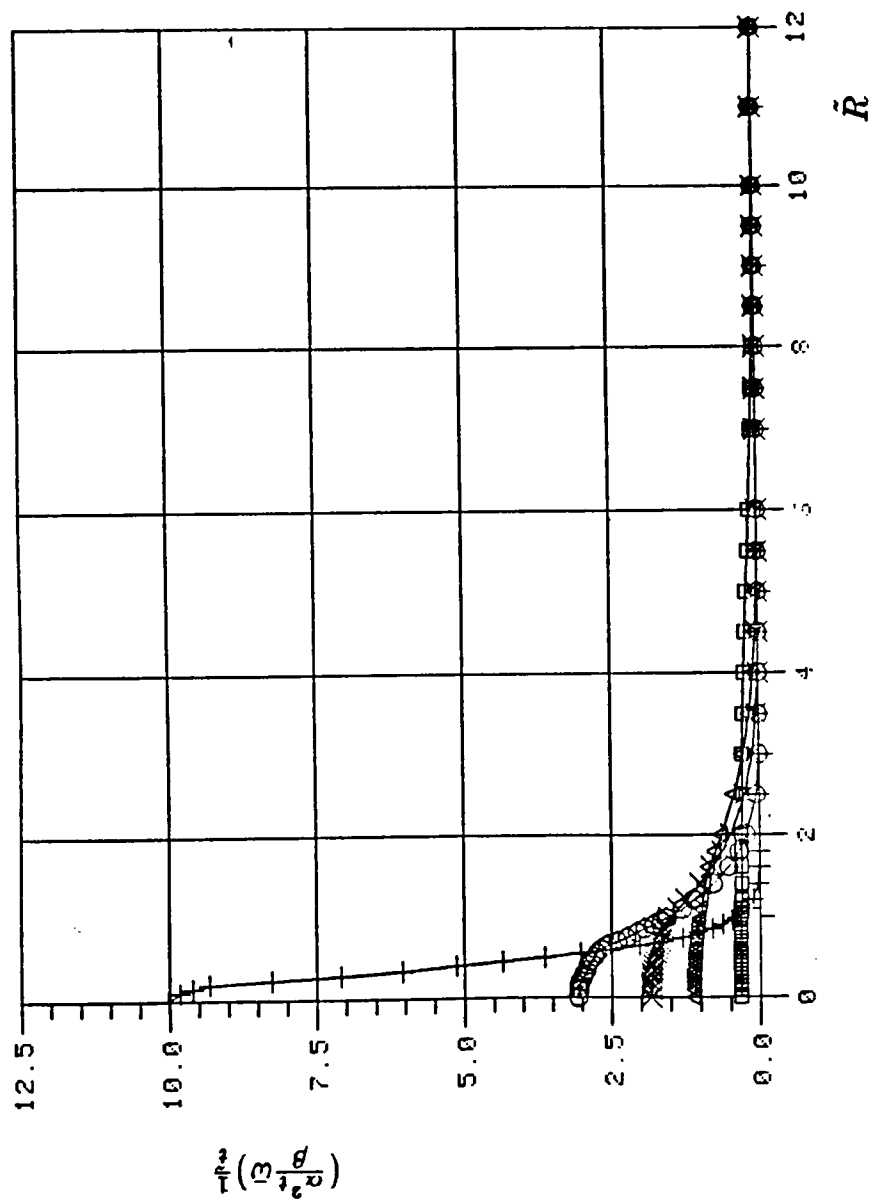


Figure 5. (continued)

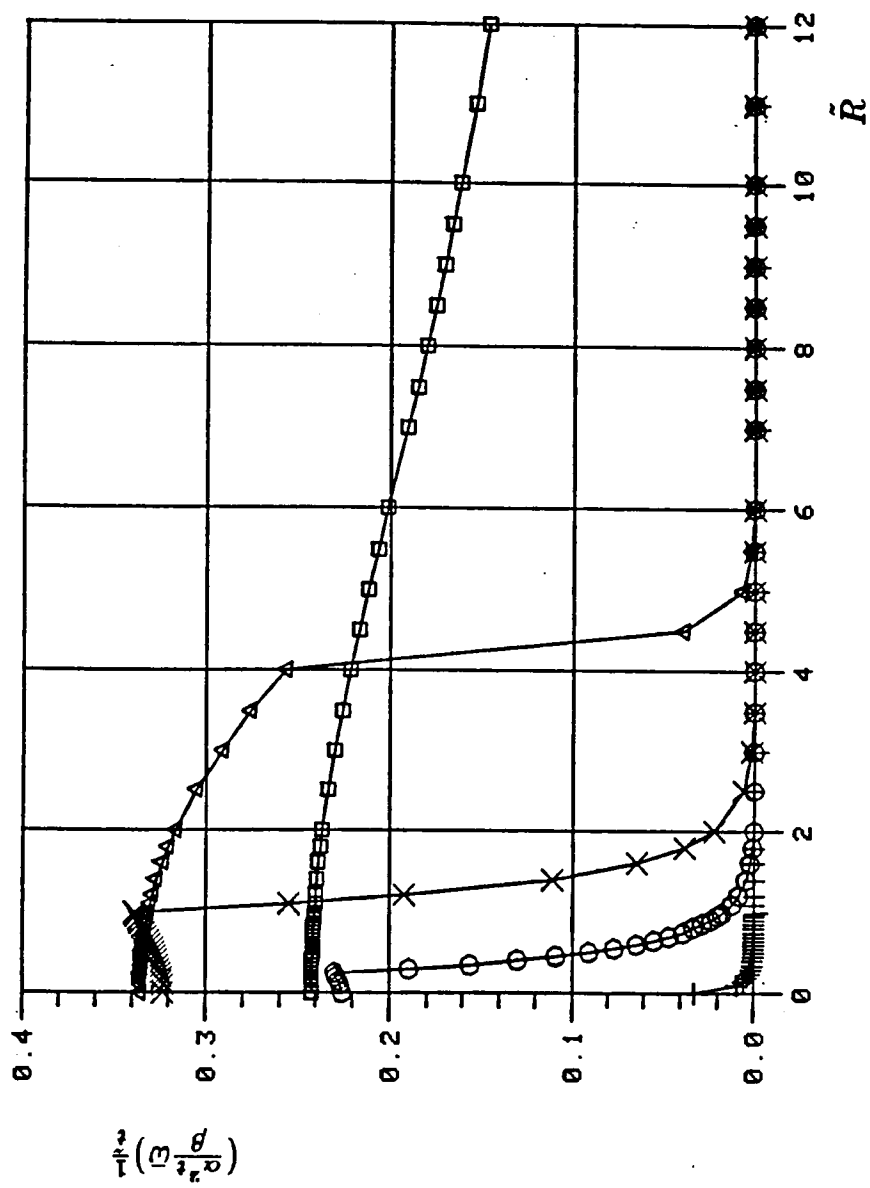


Figure 5. (continued)

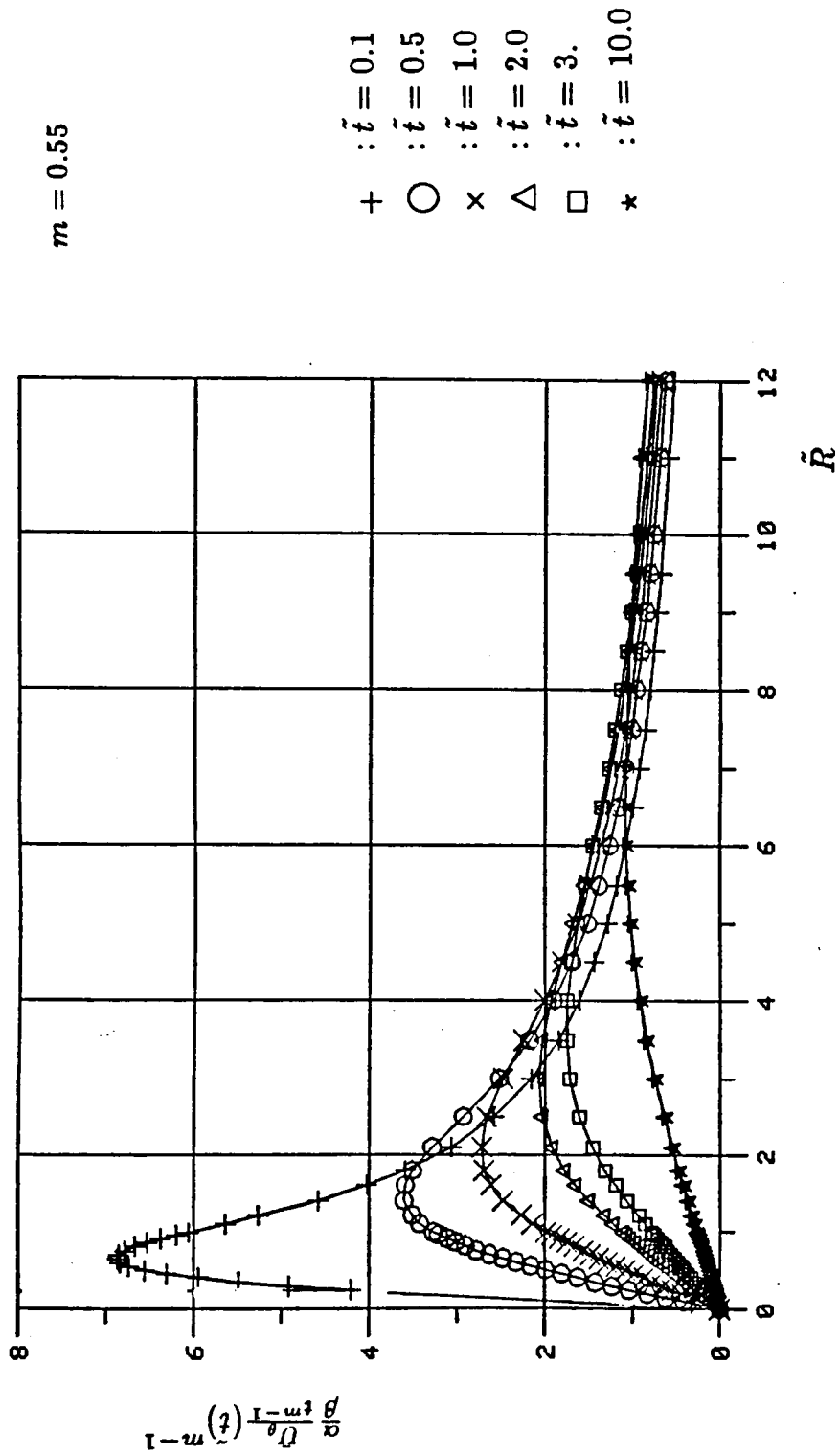


Figure 6. The change of the radial profile of tangential velocity of a vortex with time in pre-cut off stage.

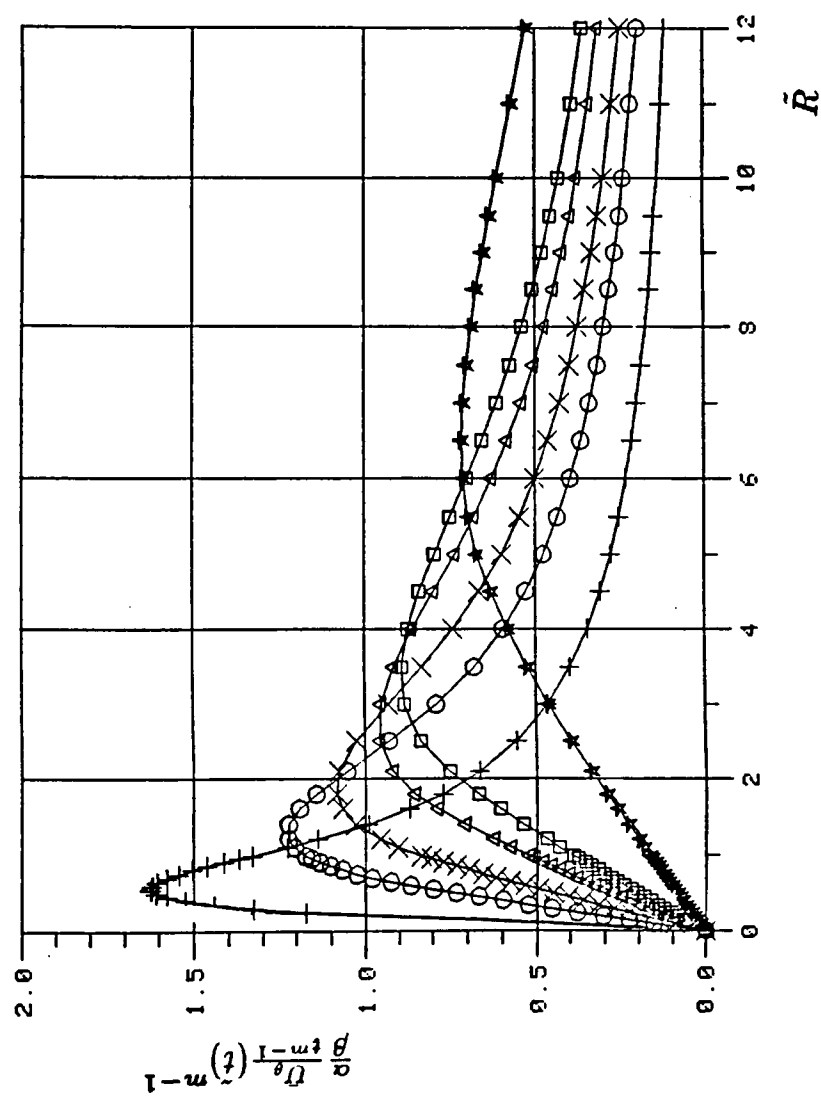


Figure 6. (continued)

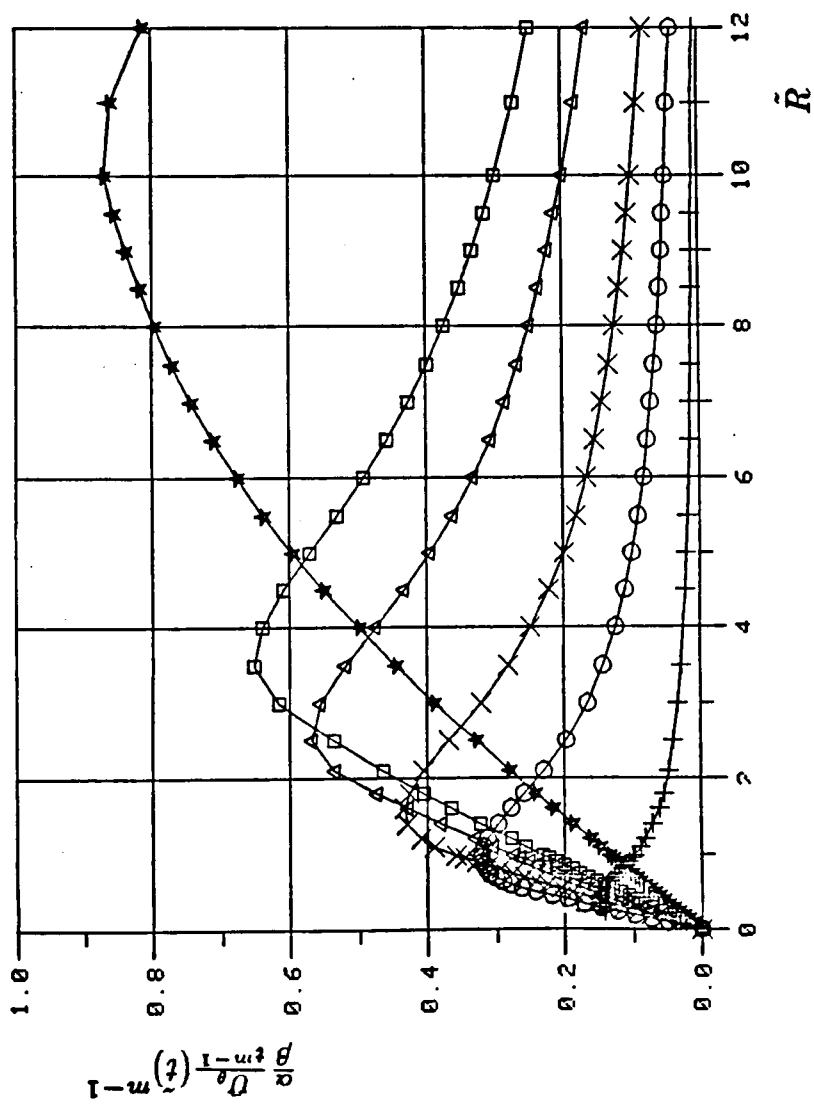


Figure 6. (continued)

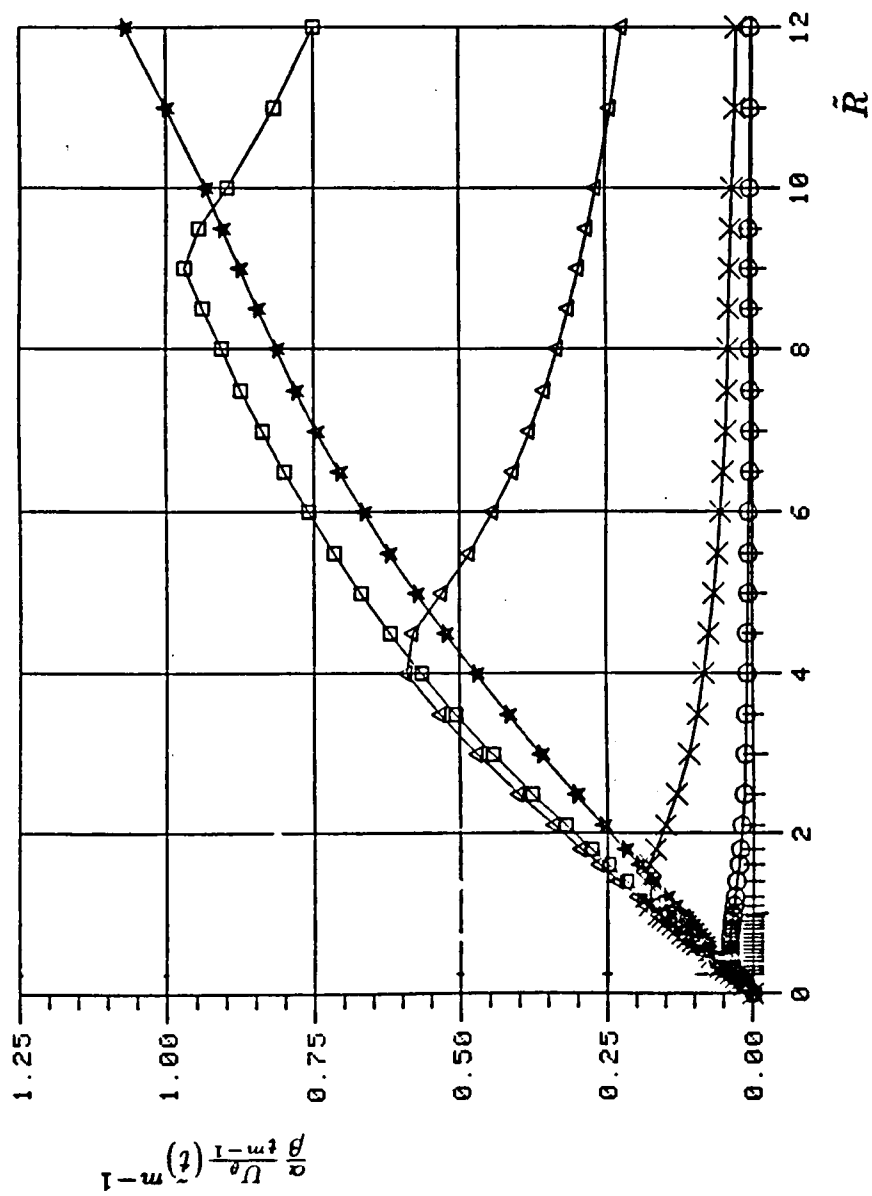


Figure 6. (continued)

respectively. The parameter $\bar{t}$ is given by

$$\bar{t} = \frac{t \alpha^{\frac{2}{2m-1}}}{\nu^{\frac{1}{2m-1}}}.$$

For a given value of viscosity, ν , these show the temporal change of the radial profile. As time progresses, the vorticity initially concentrated at the vortex center is observed to spread out radially while its value at the center drops. The corresponding change of tangential profile is also evident.

These numerical results have been checked by making comparison with (a) the integrated value given by equation (7), (b) the inviscid limit given by equations (16 (a),(b)) , (c) the far-field asymptotic representation and (d) near-field asymptotic solution obtainable for the case of $m = 1$.

5.2 Post-cutoff Stage

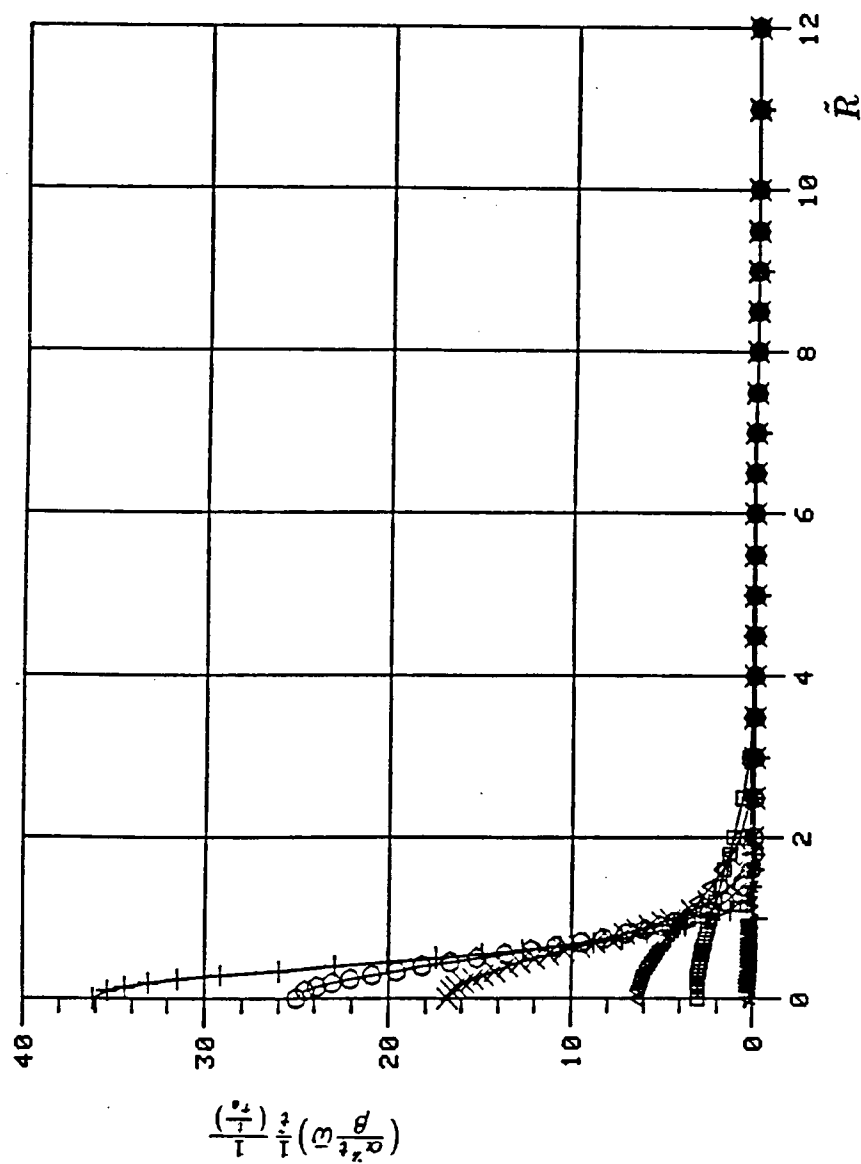
After the supply line becomes separated from the vortex, the decay of radial profile is shown in figures (7 and 8). The abscissa and ordinates are same as those of figures (5 and 6). The parameter $\bar{t}_s$

$$\bar{t}_s = \frac{\tau \alpha^{\frac{2}{2m-1}}}{\nu^{\frac{1}{2m-1}}}$$

represents non-dimensionally the cut-off time τ and $\frac{t}{\tau}$, the time thereafter. Then these show how the radial profiles developed at the time of cut-off decays by the effect of viscosity. It is confirmed that at a time sufficiently after the cut-off, the radial profiles become transformed into the Lamb-Oseen vortex.

$$\bar{\omega}(r, t) \sim \frac{\Gamma_\infty}{4\pi\nu t} \exp\left(-\frac{r^2}{4\nu t}\right),$$

$$\bar{u}_\theta(r, t) \sim \frac{\Gamma_\infty}{2\pi r} \left[1 - \exp\left(-\frac{r^2}{4\nu t}\right)\right],$$



$m = 0.55$ and $\tilde{t}_0 = 0.1$

Figure 7. The decay of the radial profile of vorticity of a vortex in post-cut off stage.

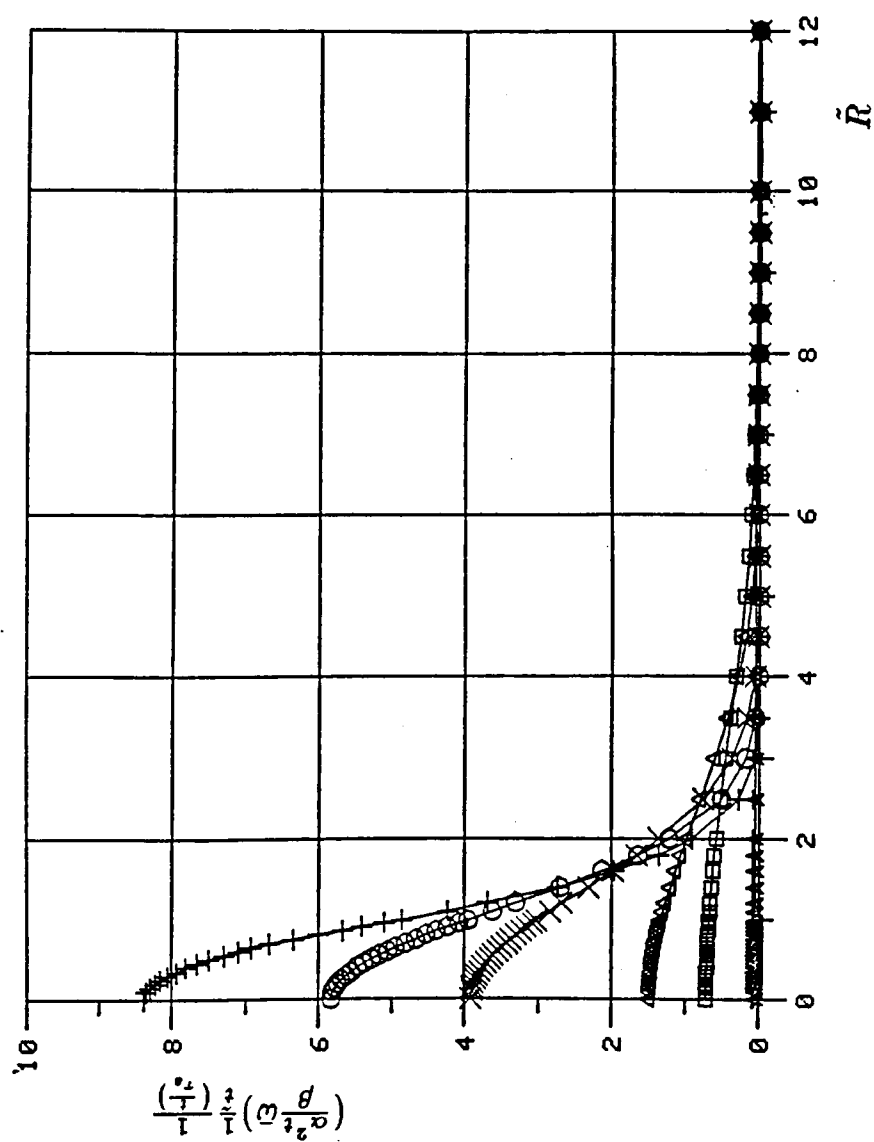


Figure 7. (continued)

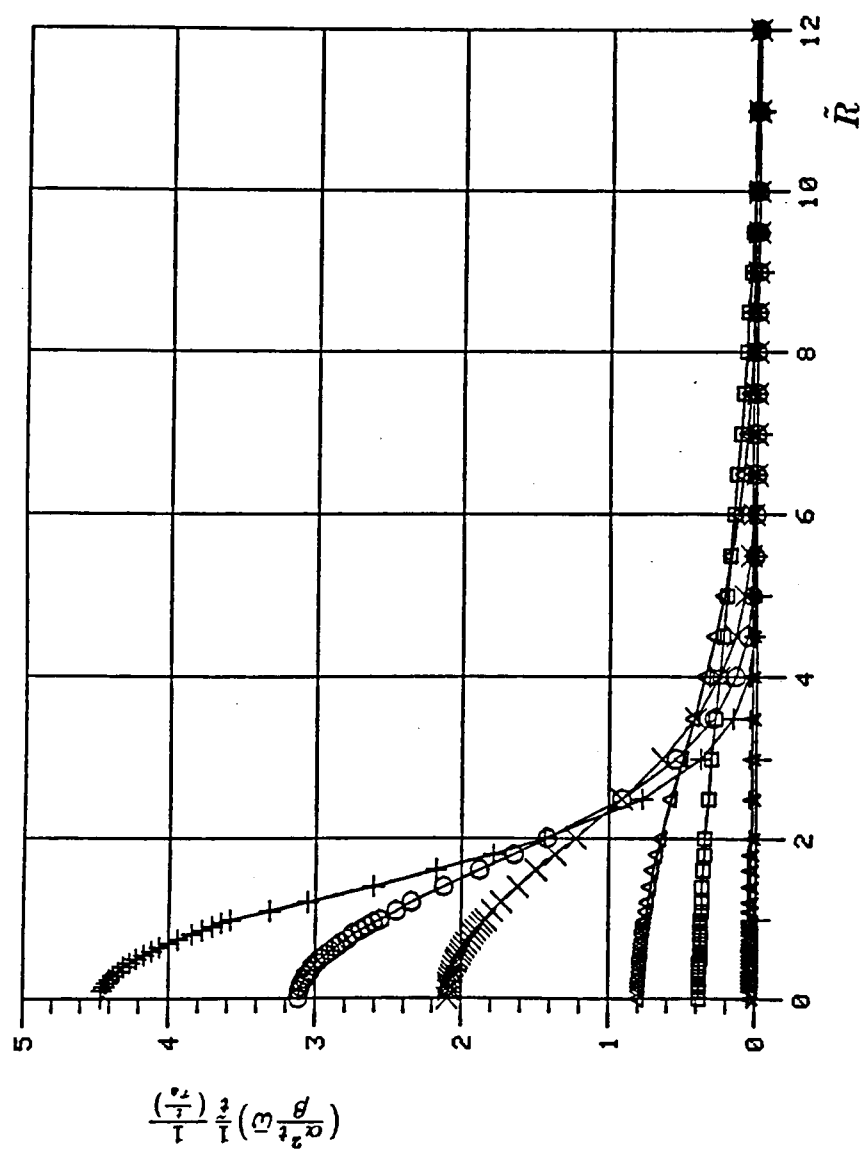


Figure 7. (continued)

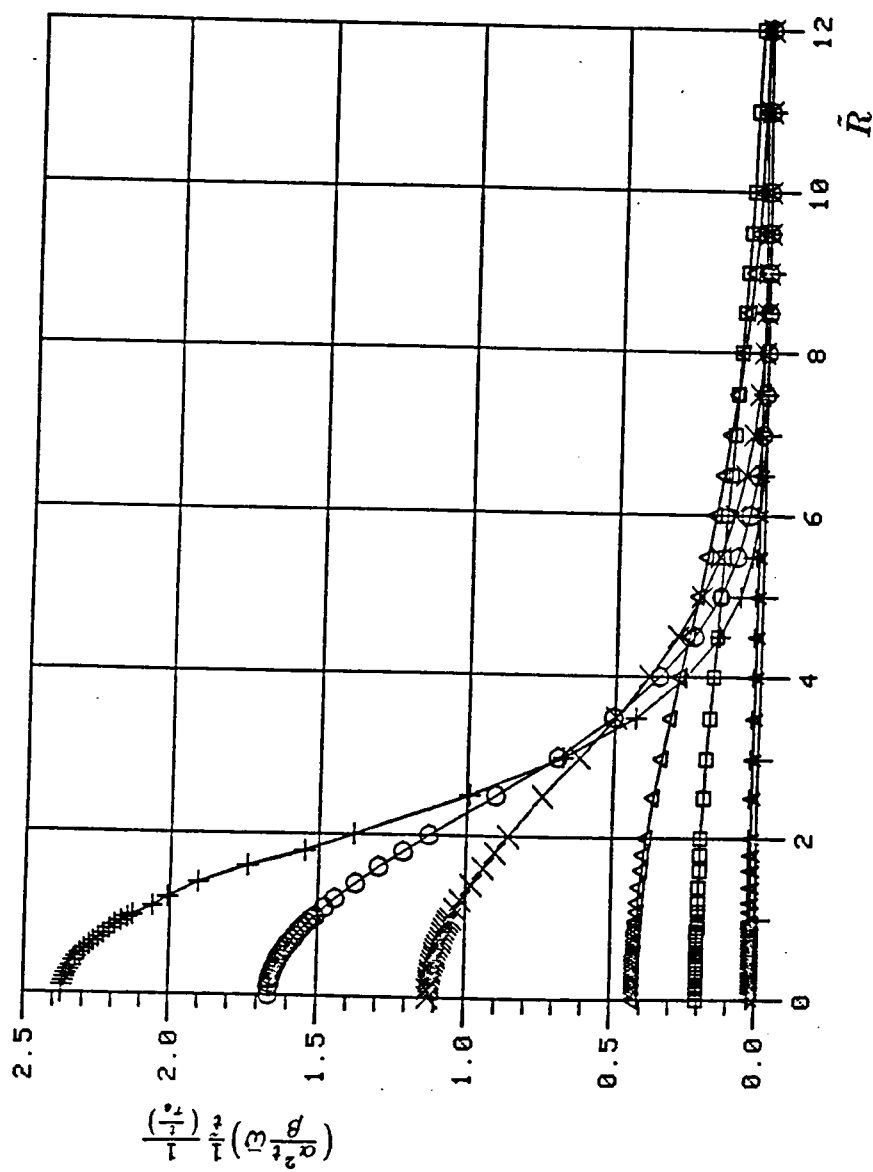


Figure 7. (continued)

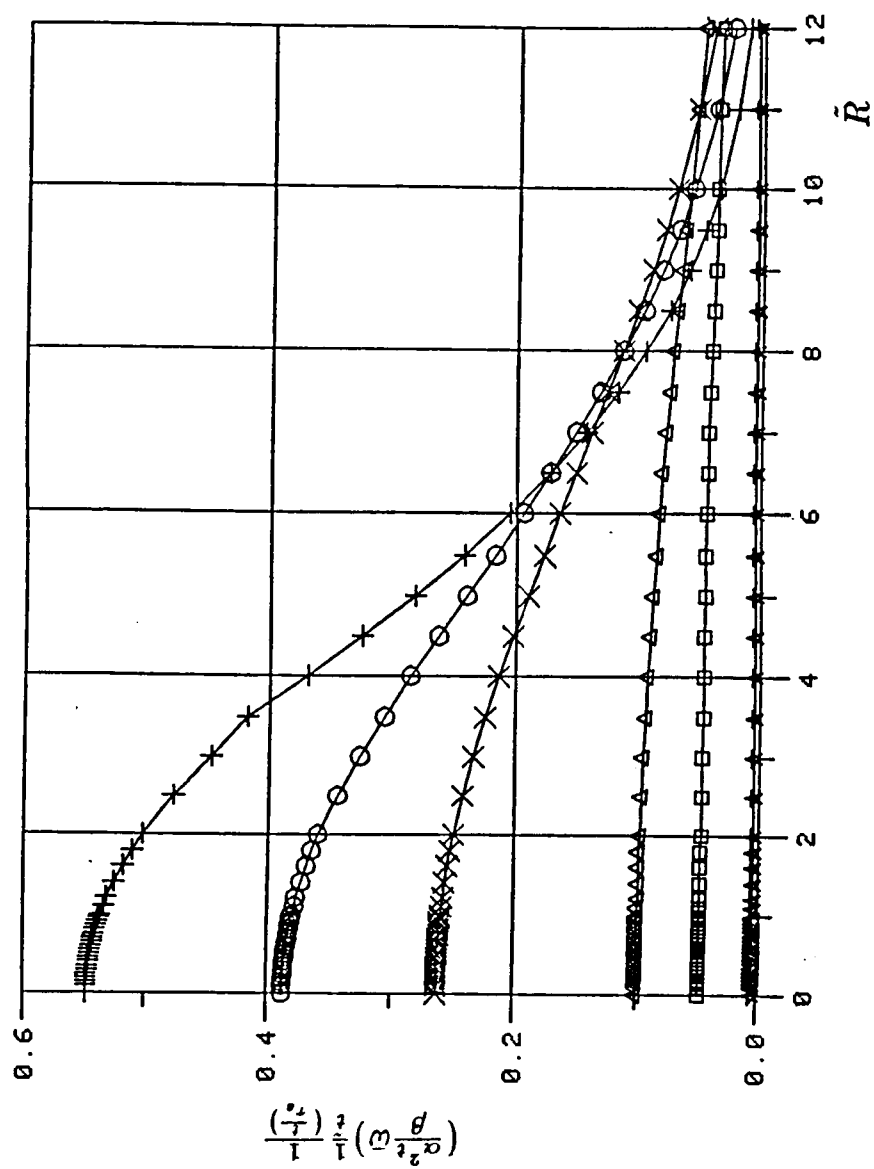


Figure 7. (continued)

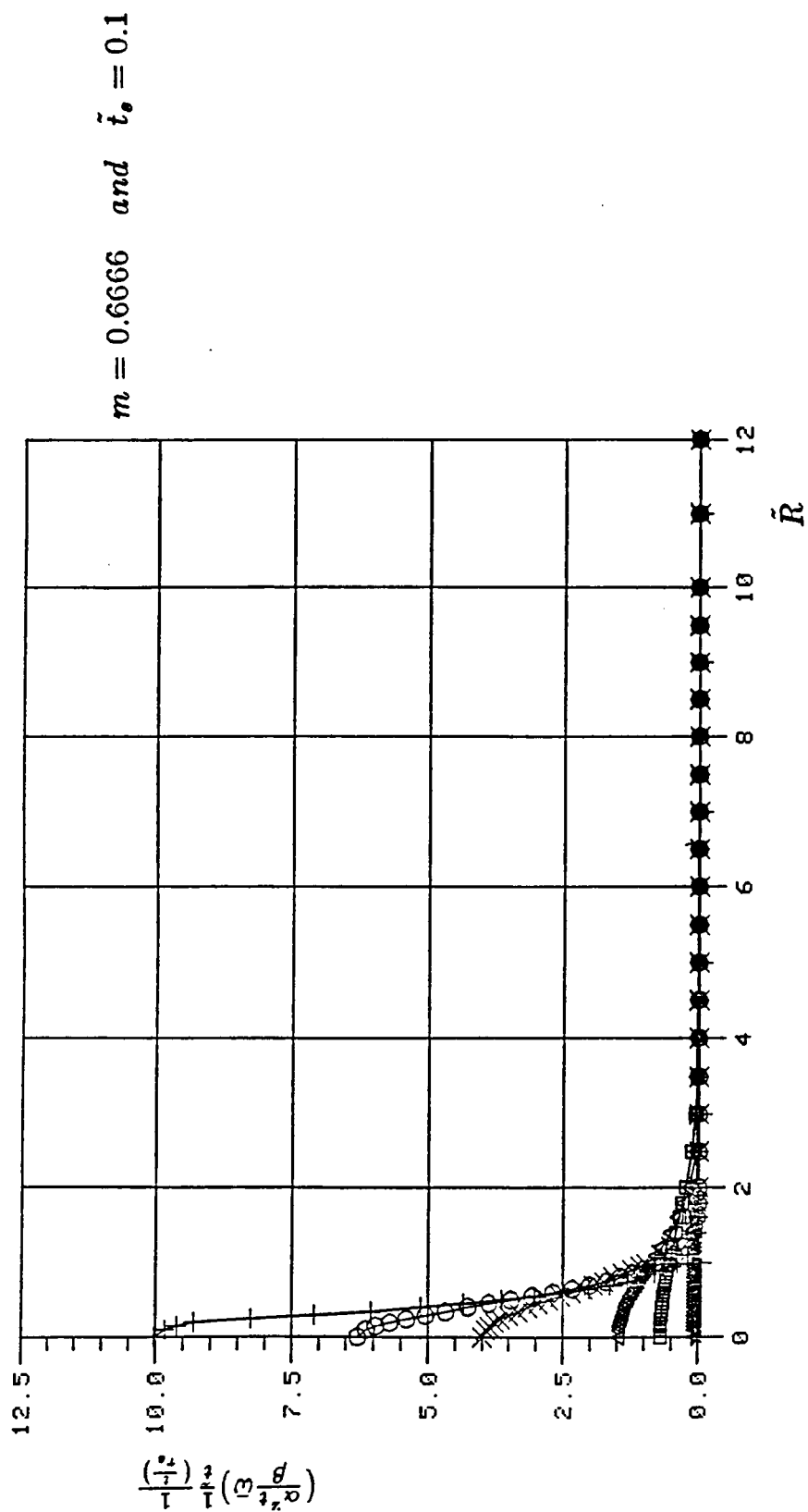


Figure 7. (continued)

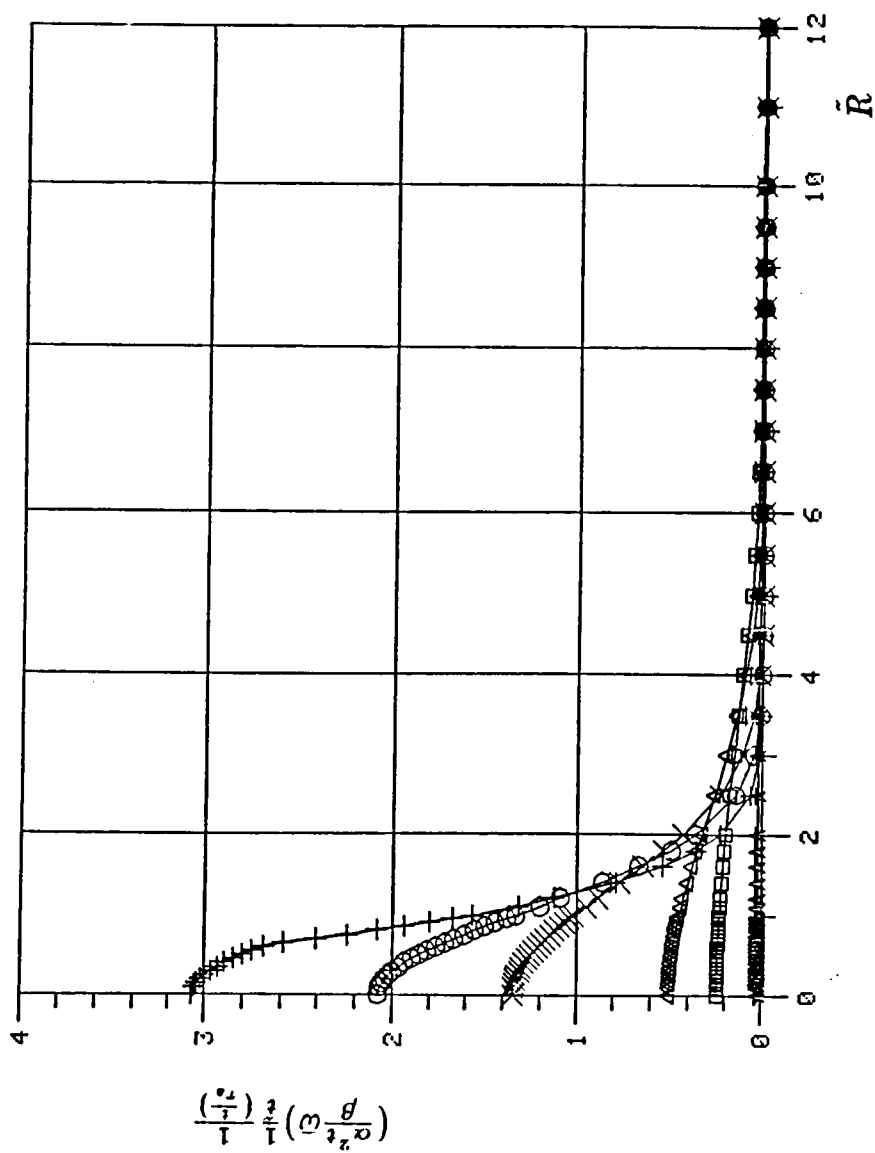


Figure 7. (continued)

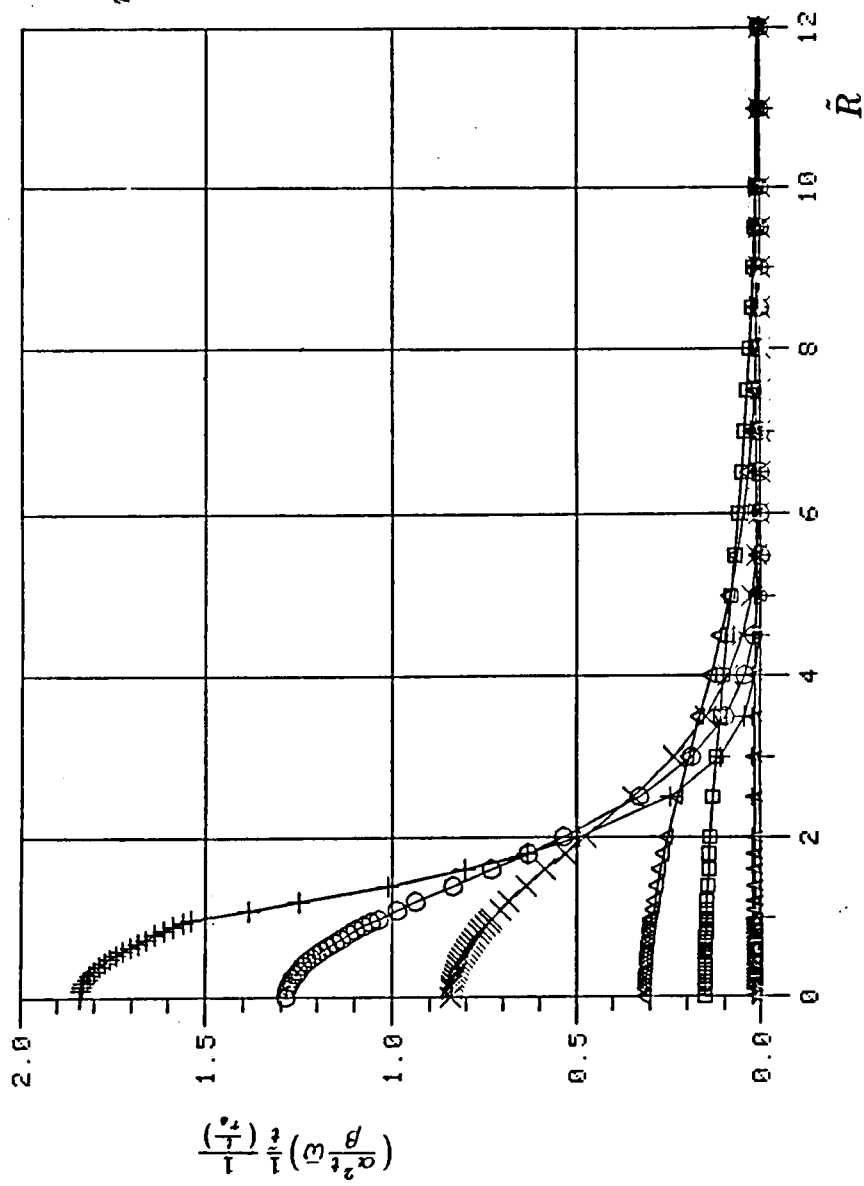


Figure 7. (continued)

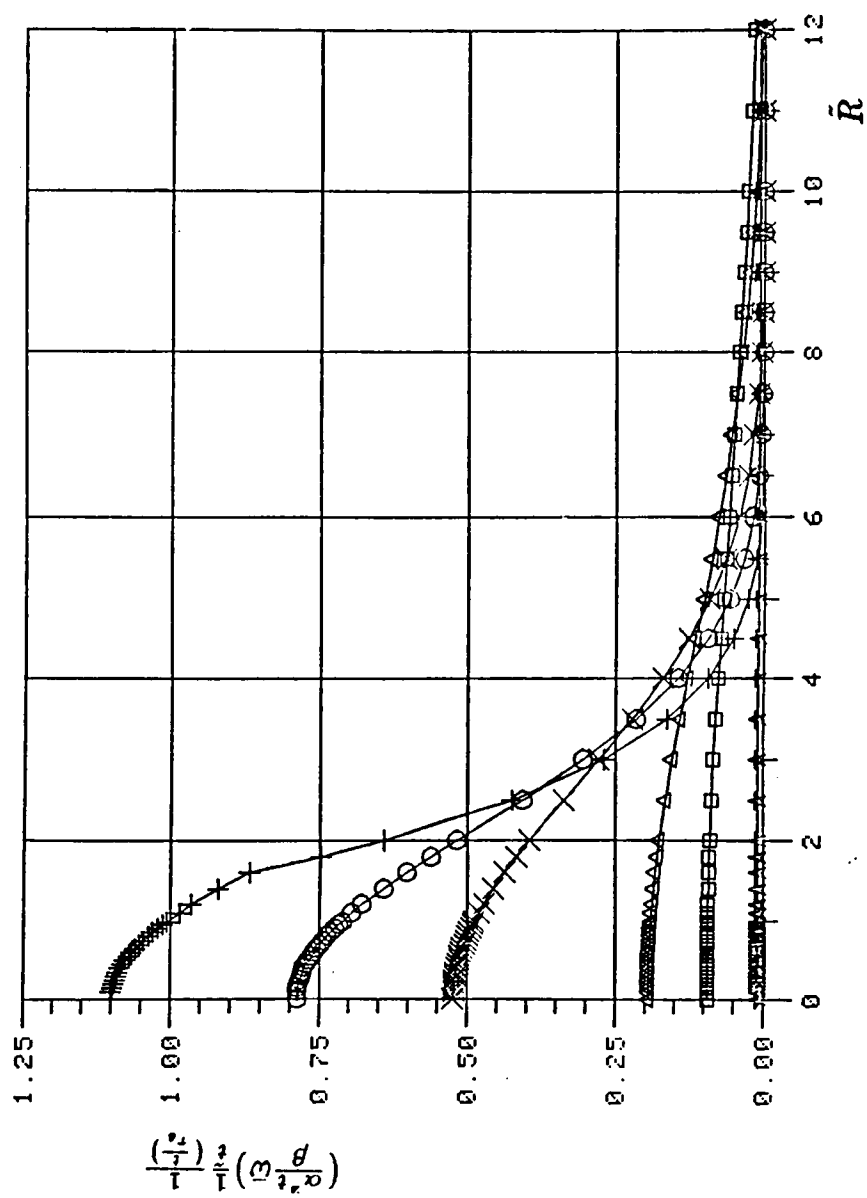
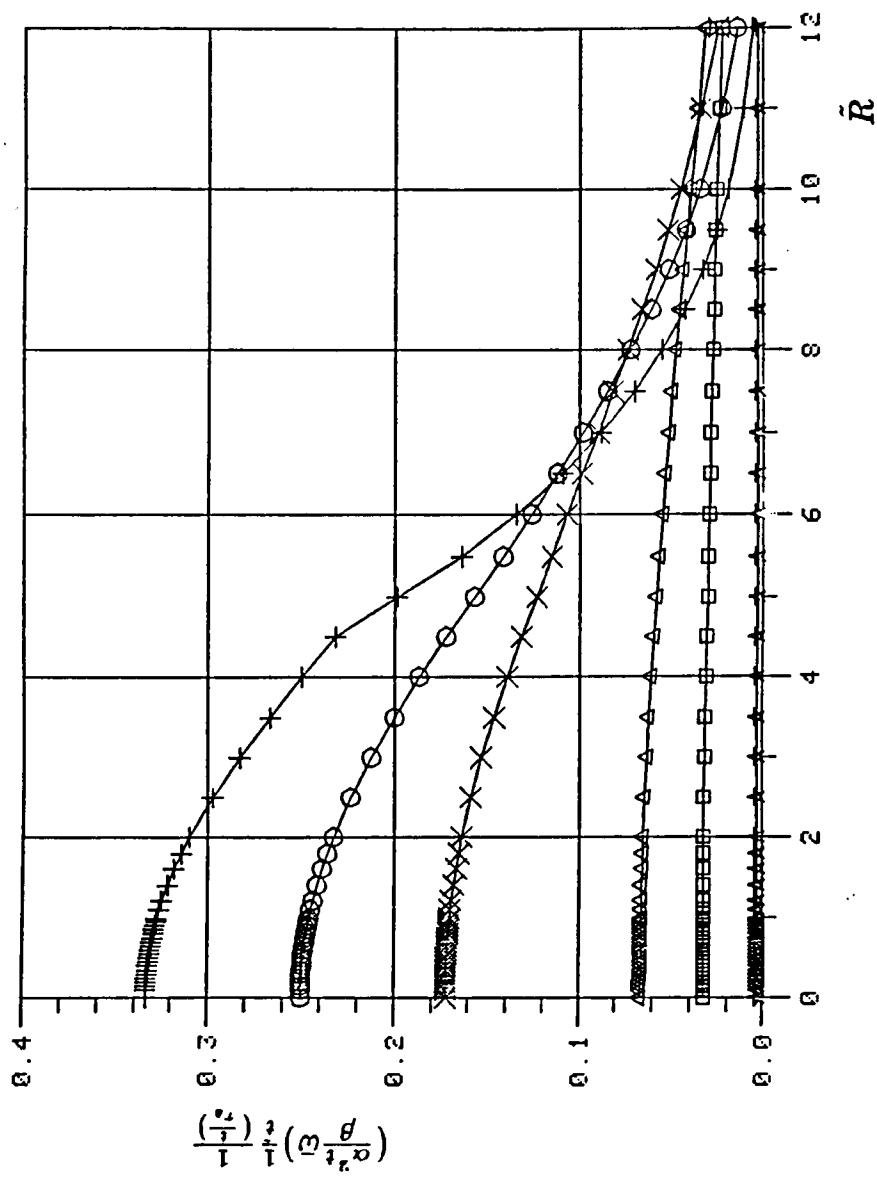


Figure 7. (continued)



$m = 0.6666$ and $\tilde{t}_e = 10$.

Figure 7. (continued)

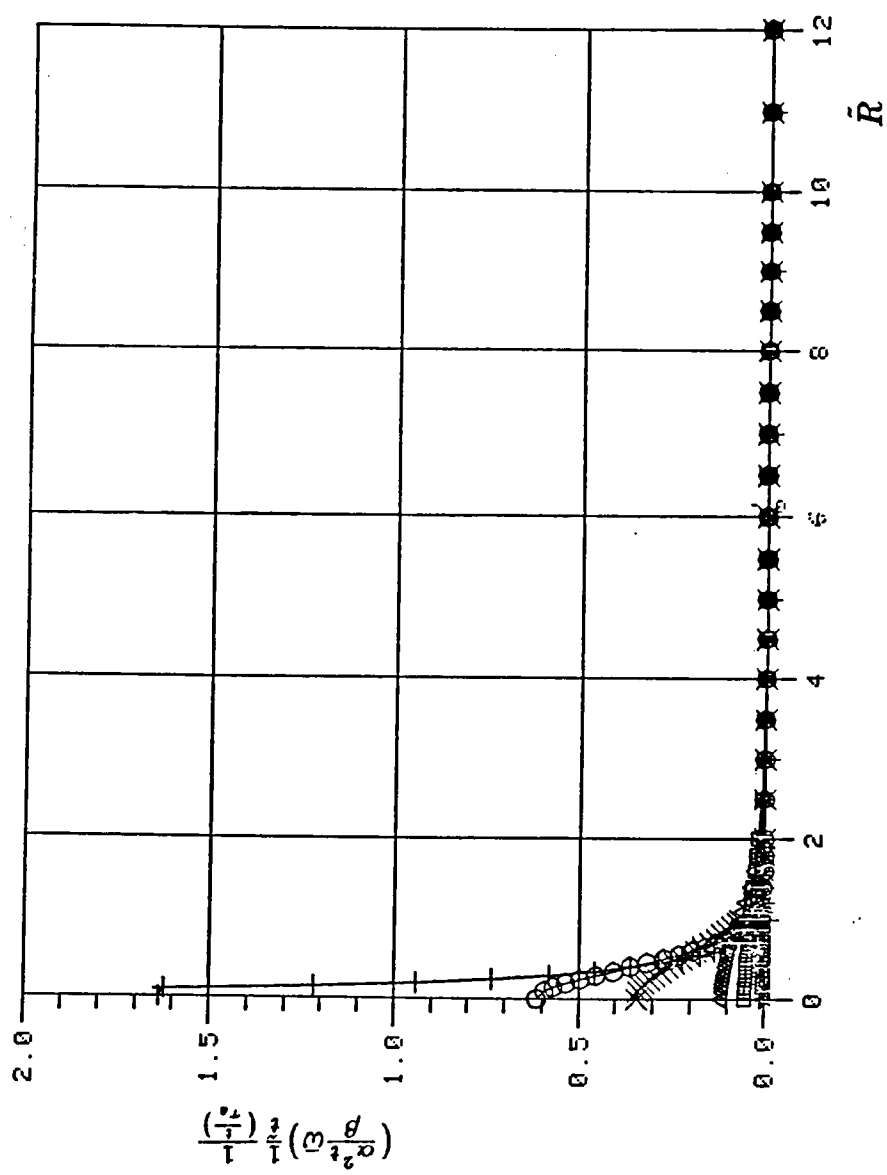


Figure 7. (continued)

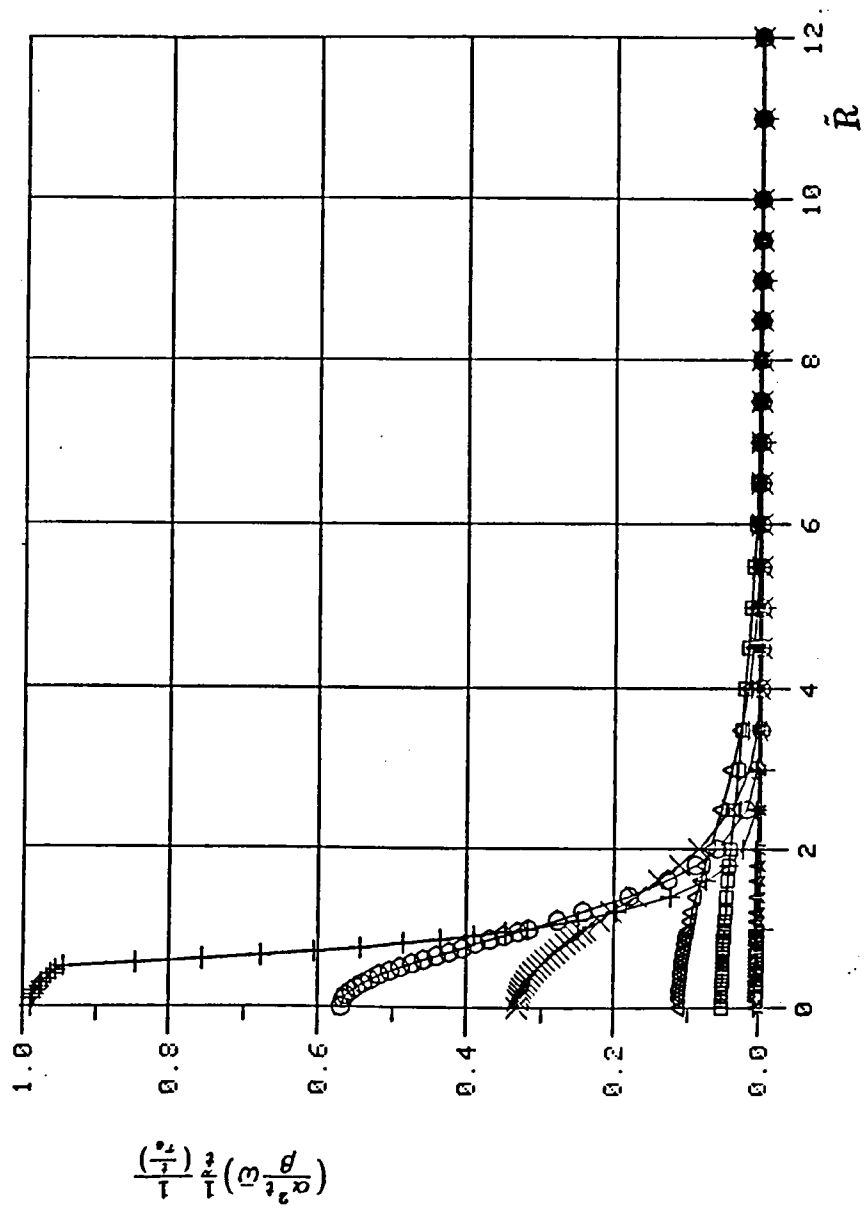


Figure 7. (continued)

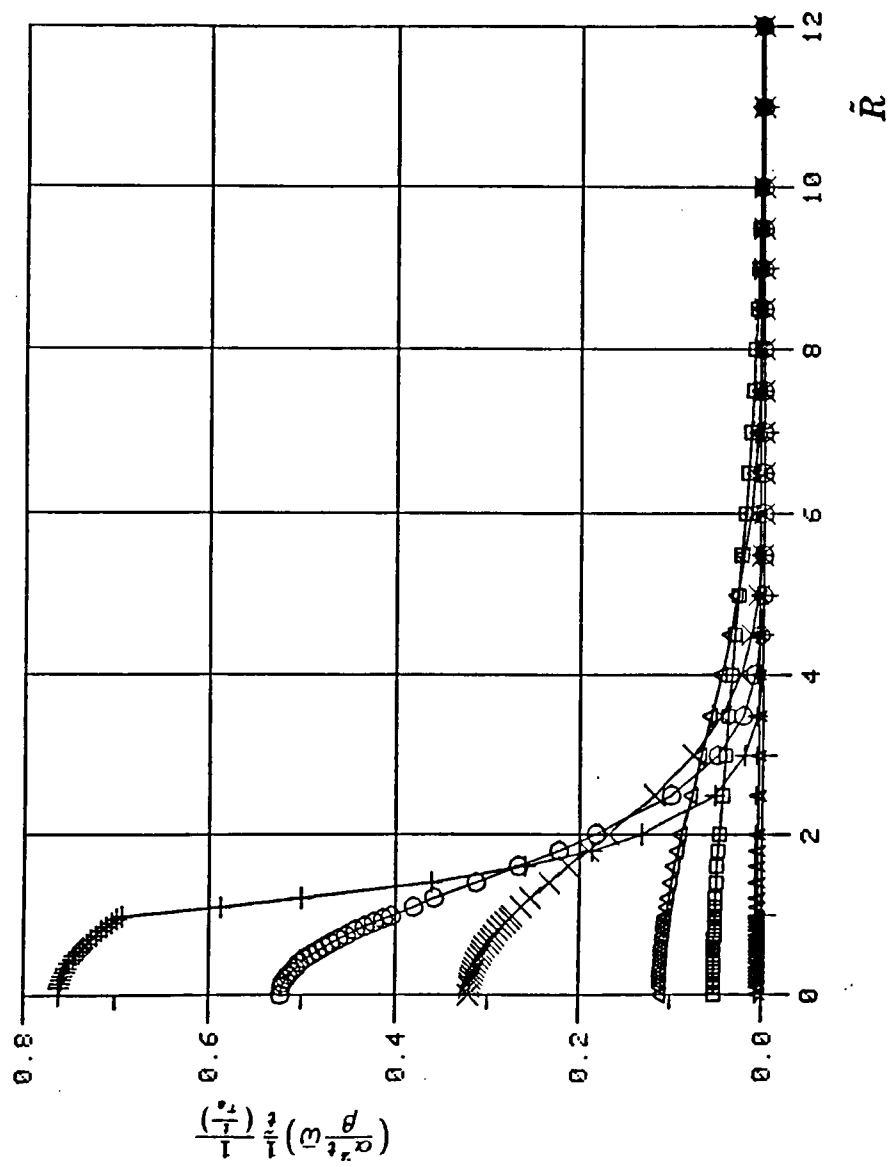


Figure 7. (continued)

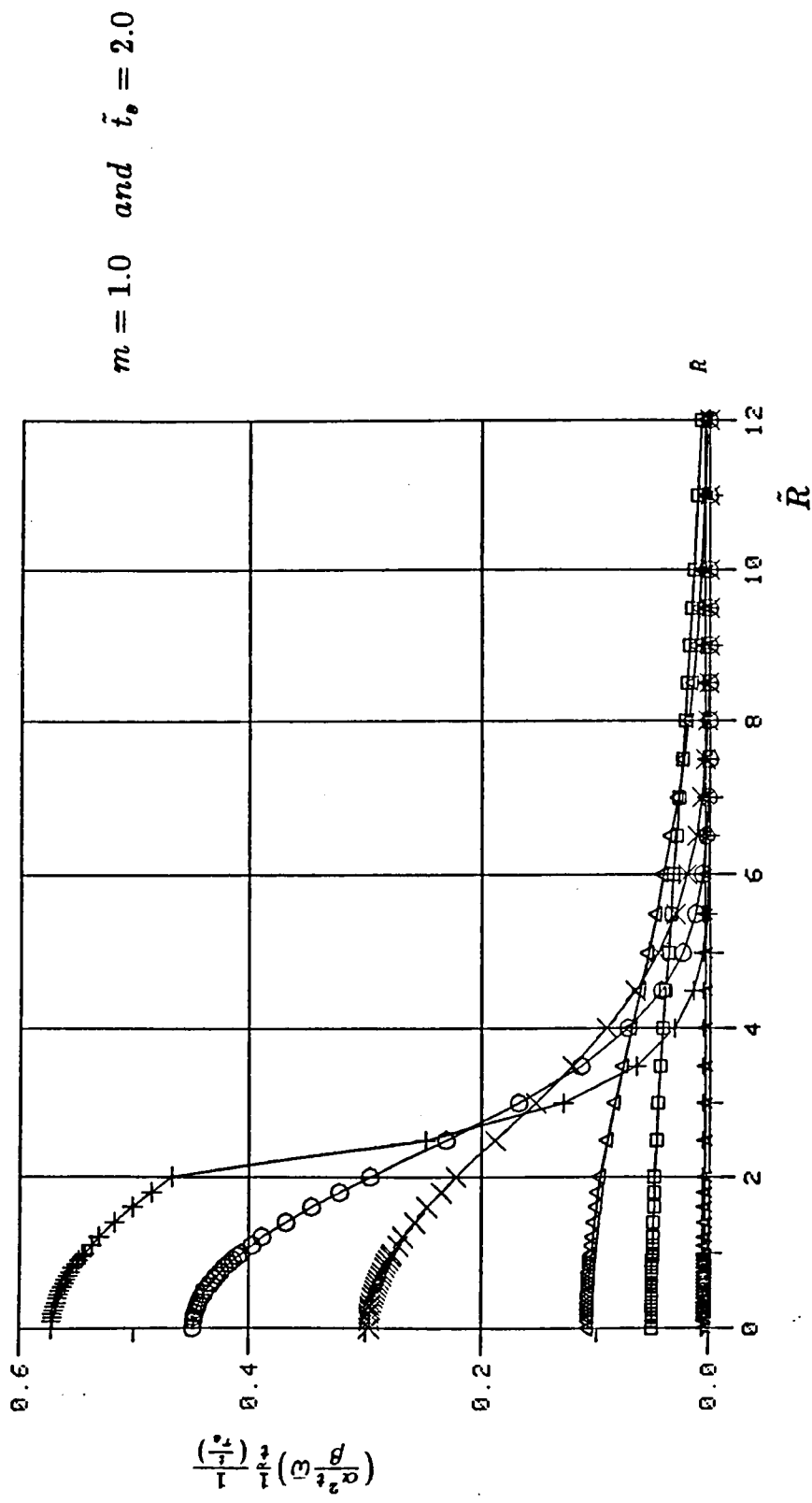


Figure 7. (continued)

$m = 1.0$ and $\tilde{t}_g = 10.0$

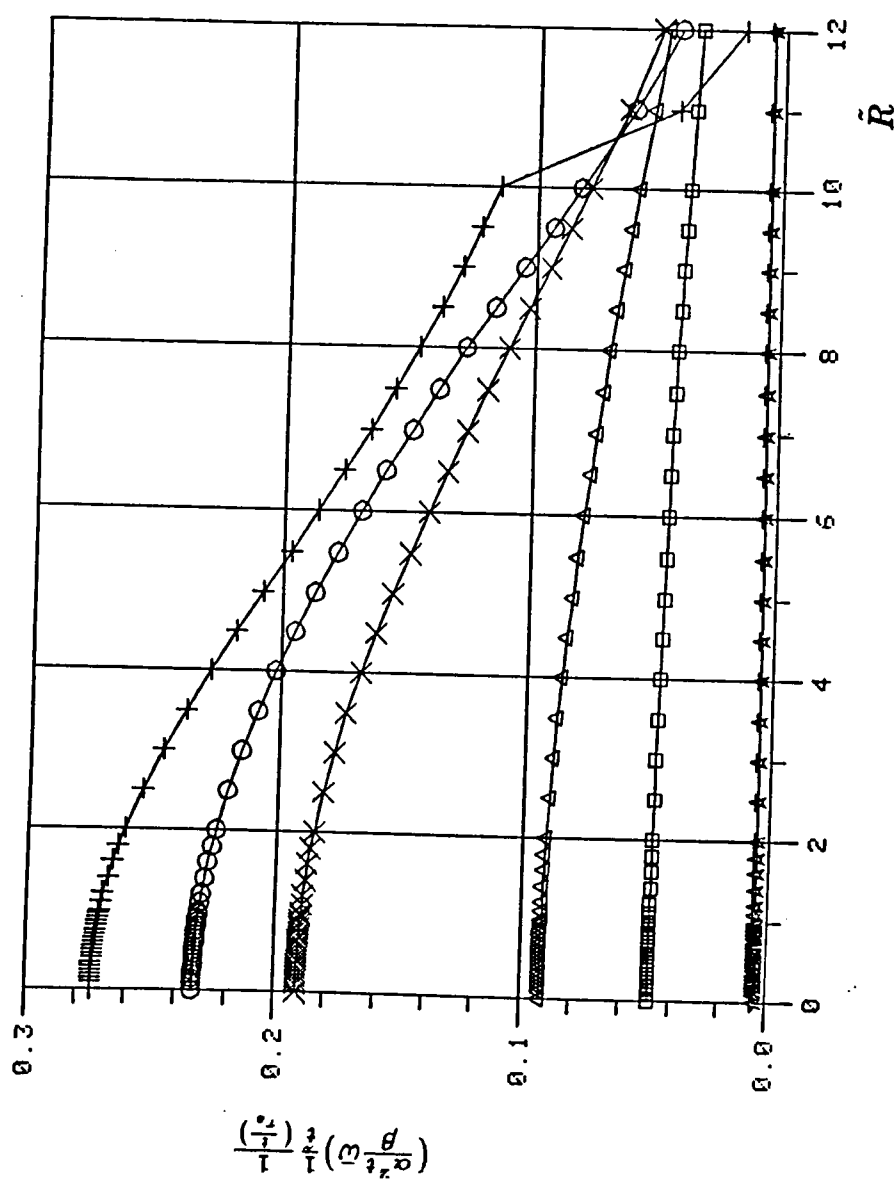


Figure 7. (continued)

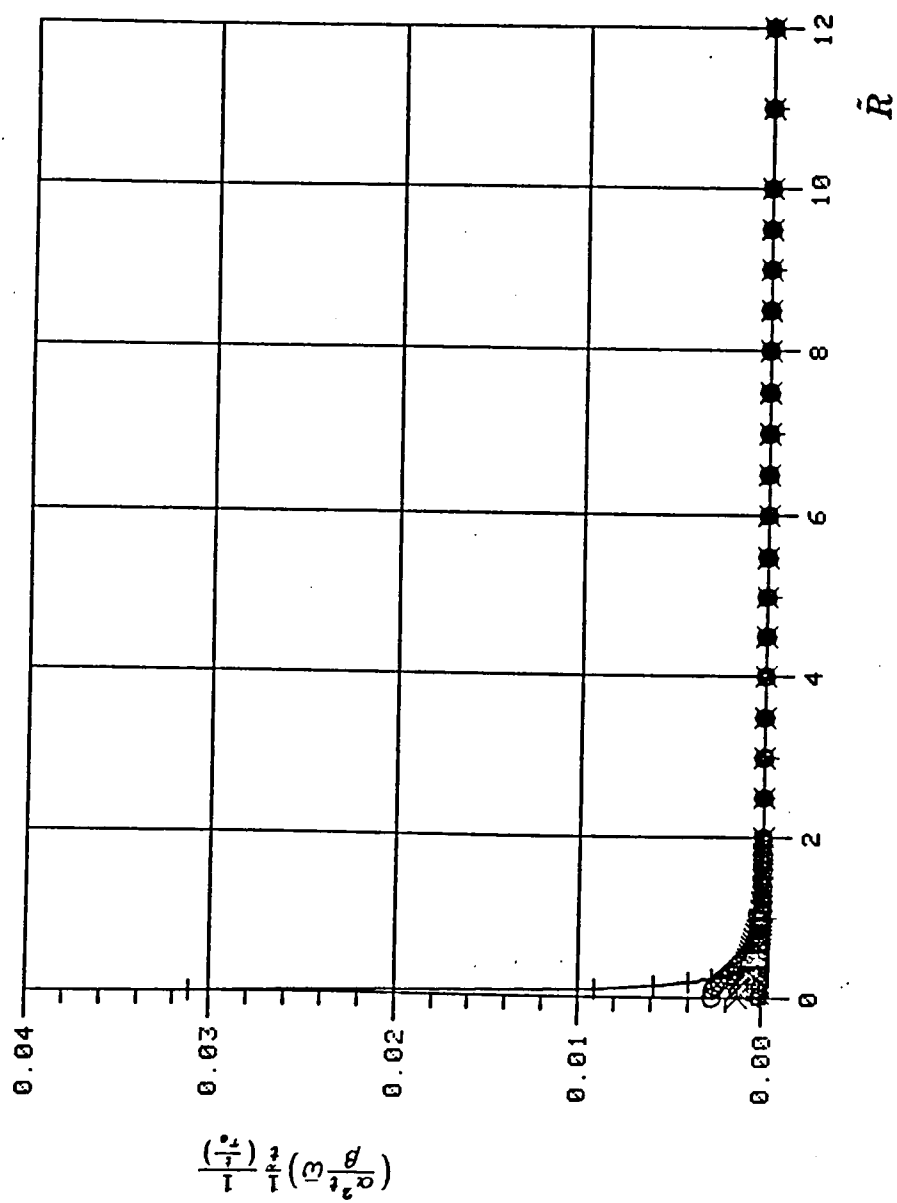


Figure 7. (continued)

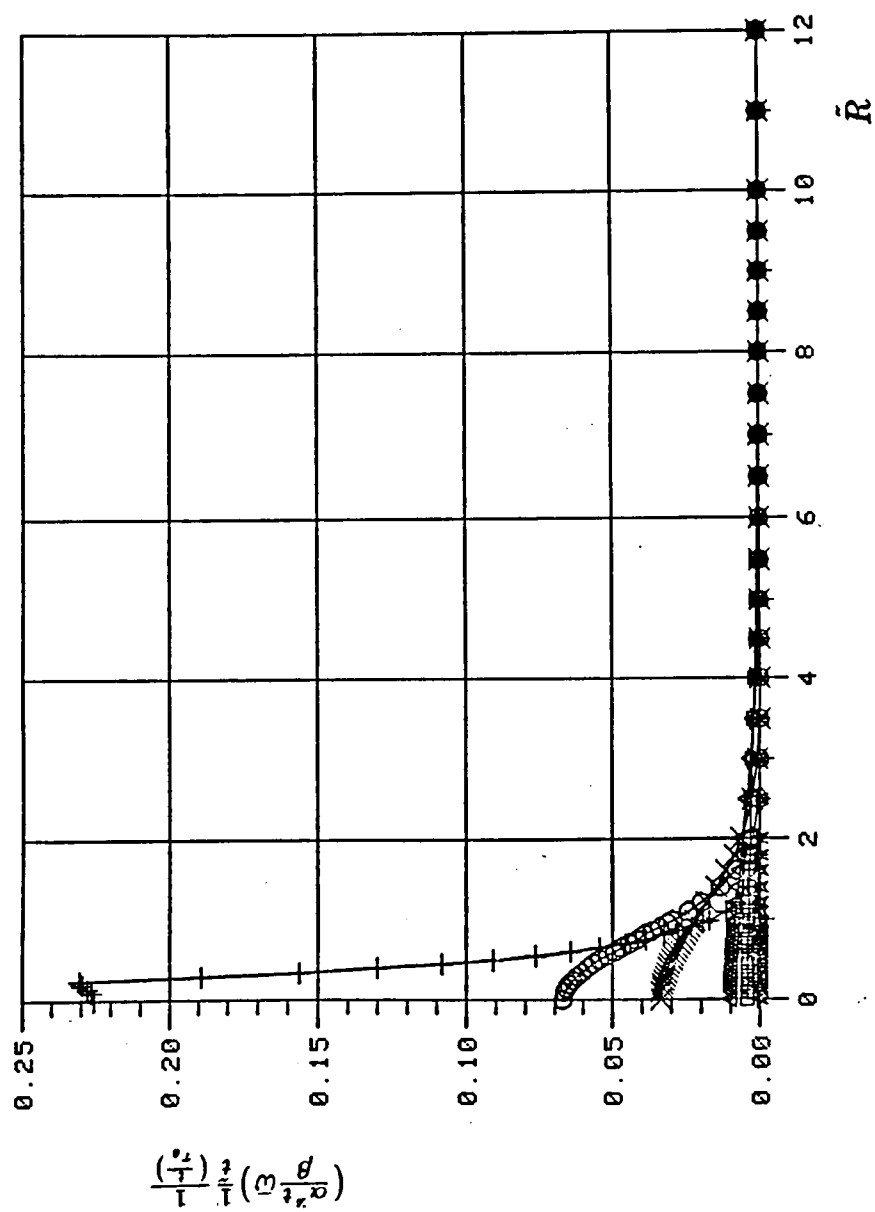


Figure 7. (continued)

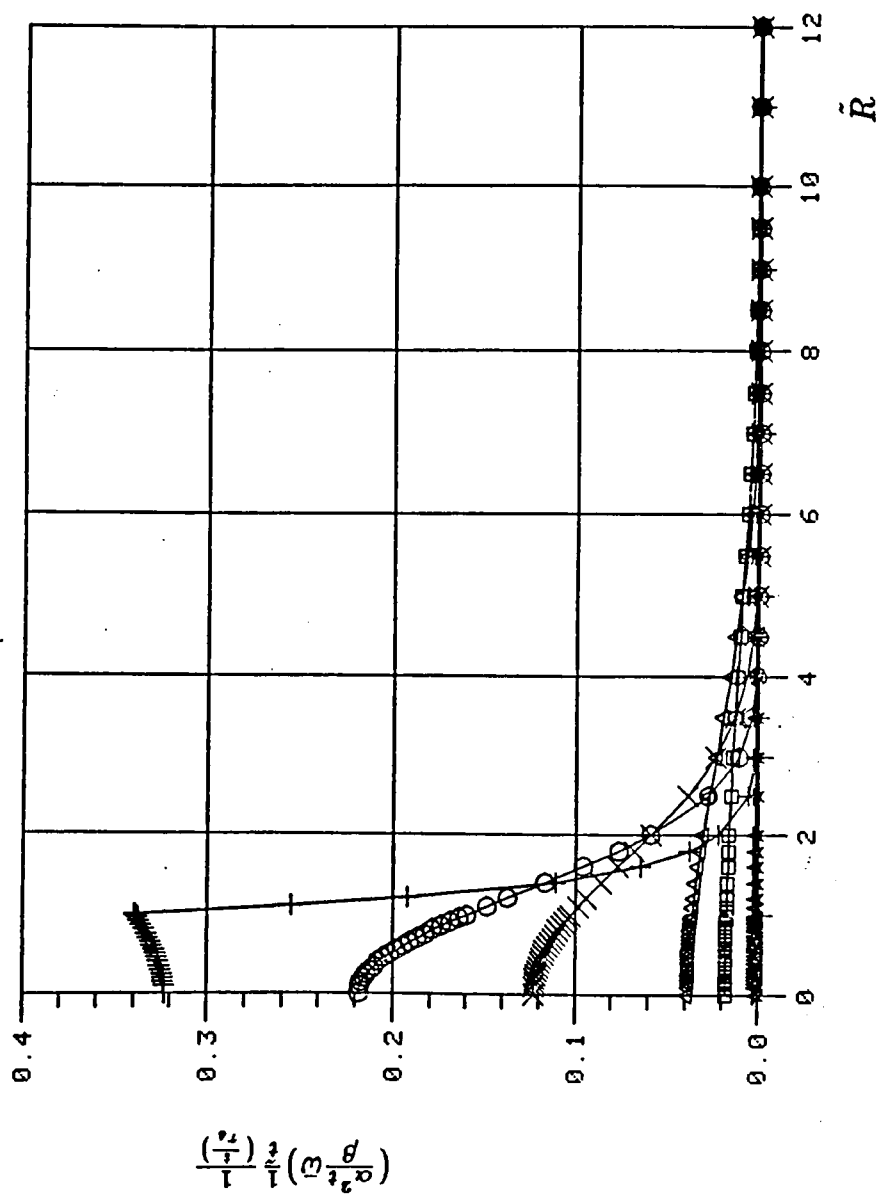


Figure 7. (continued)

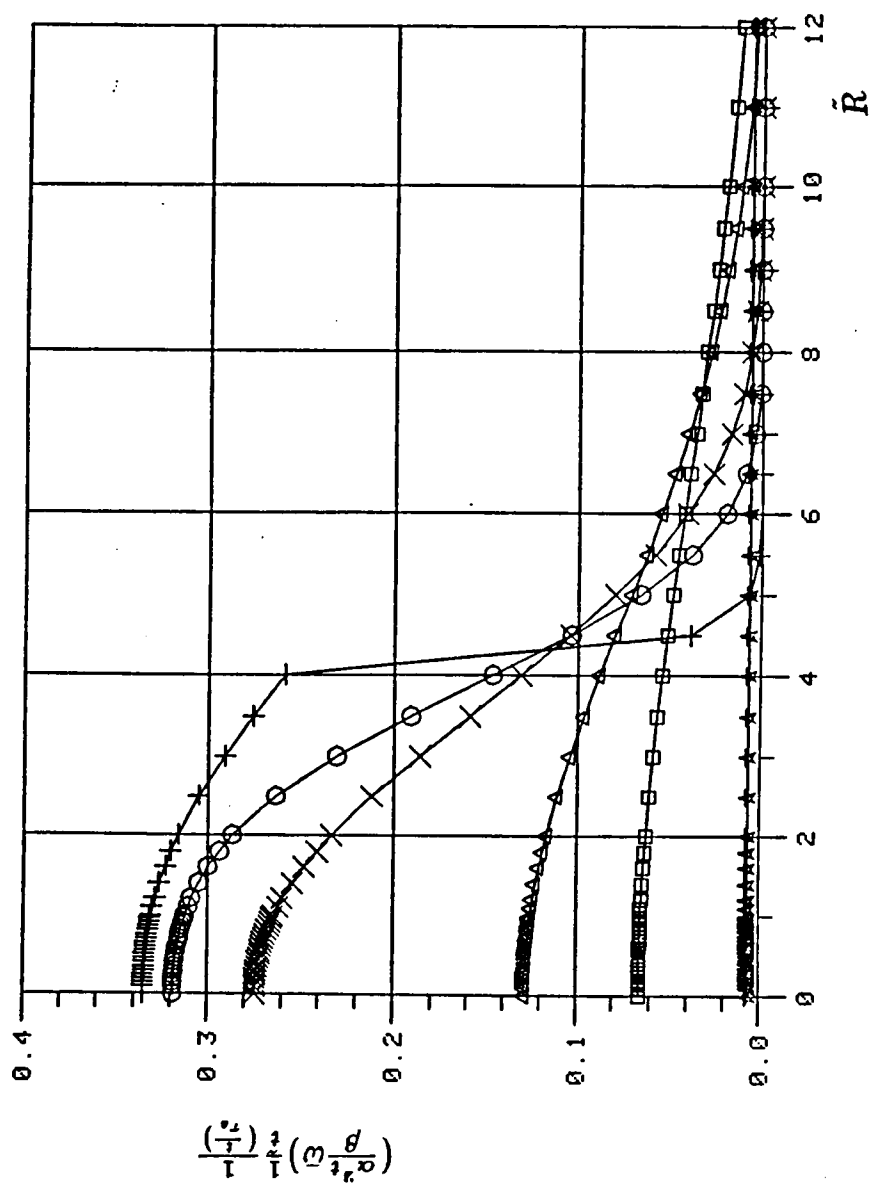


Figure 7. (continued)

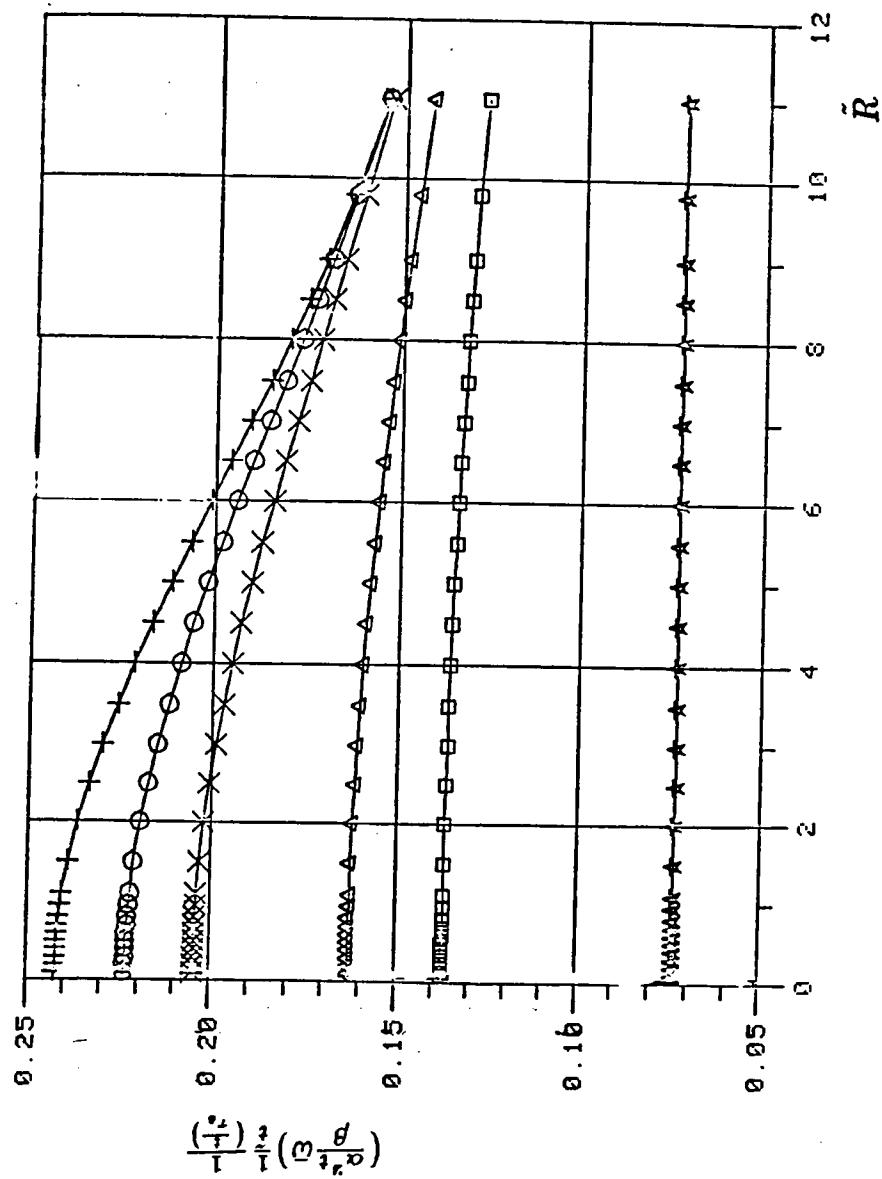


Figure 7. (continued)

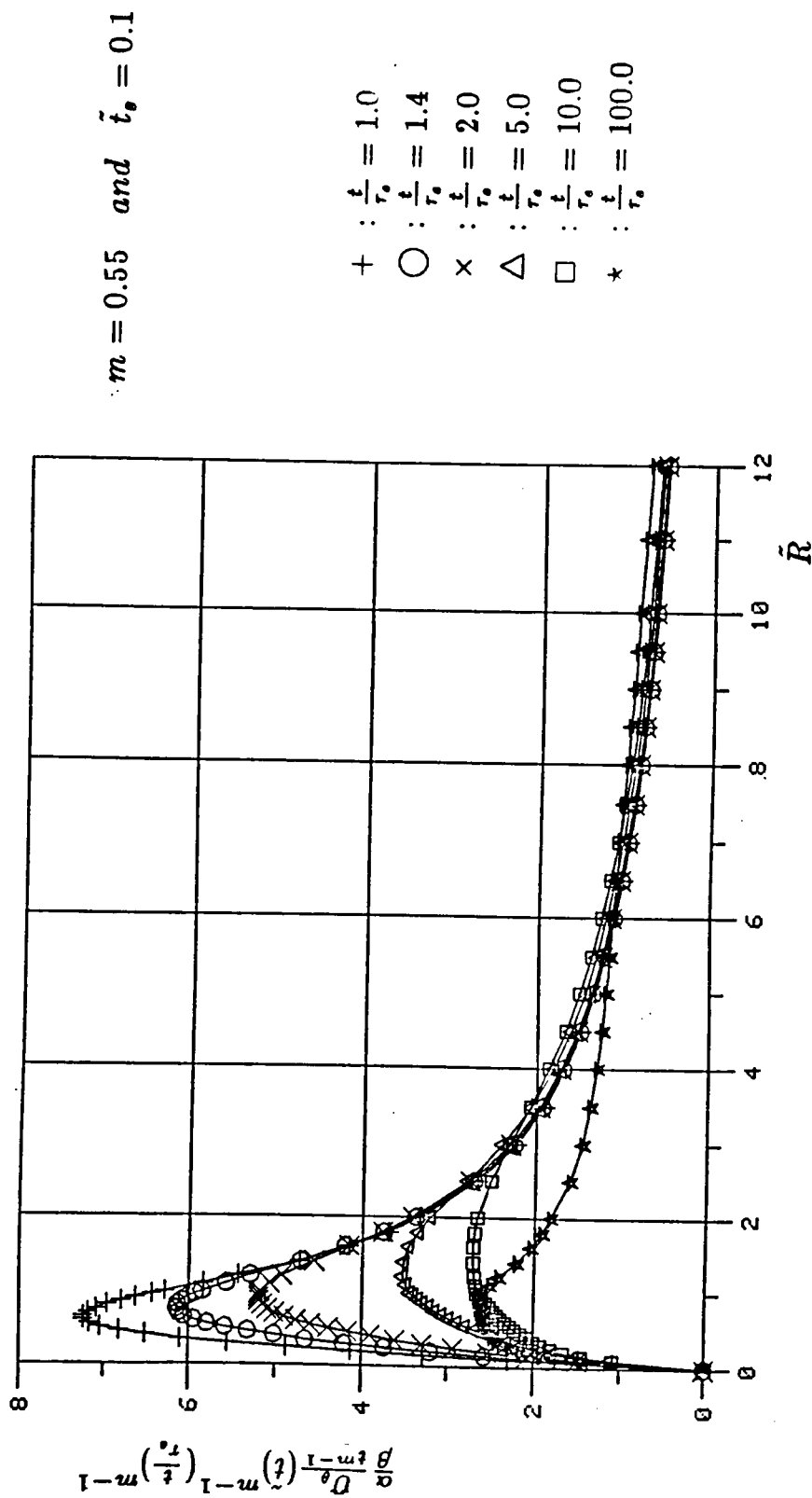
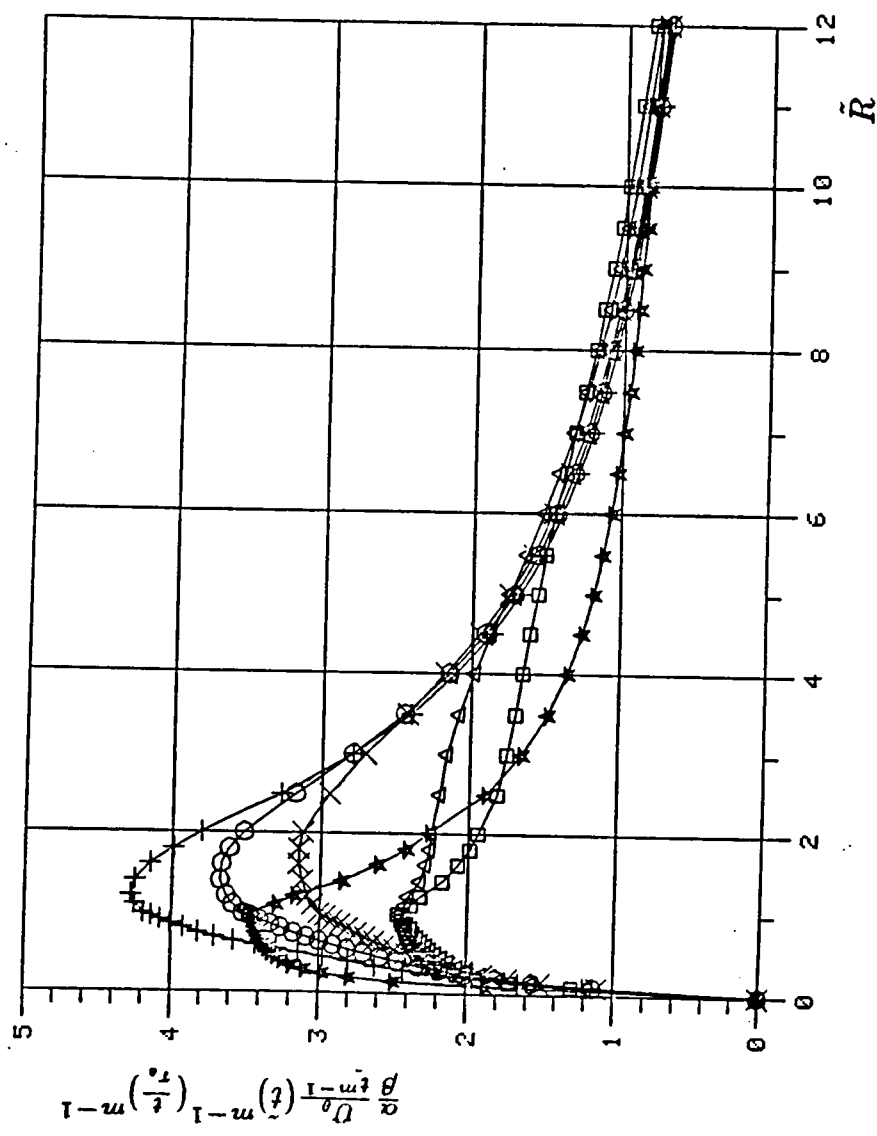


Figure 8. The decay of the radial profile of tangential velocity of a vortex in post-cut off stage.



$m = 0.55$ and $\tilde{t}_0 = 0.5$

Figure 8. (continued)

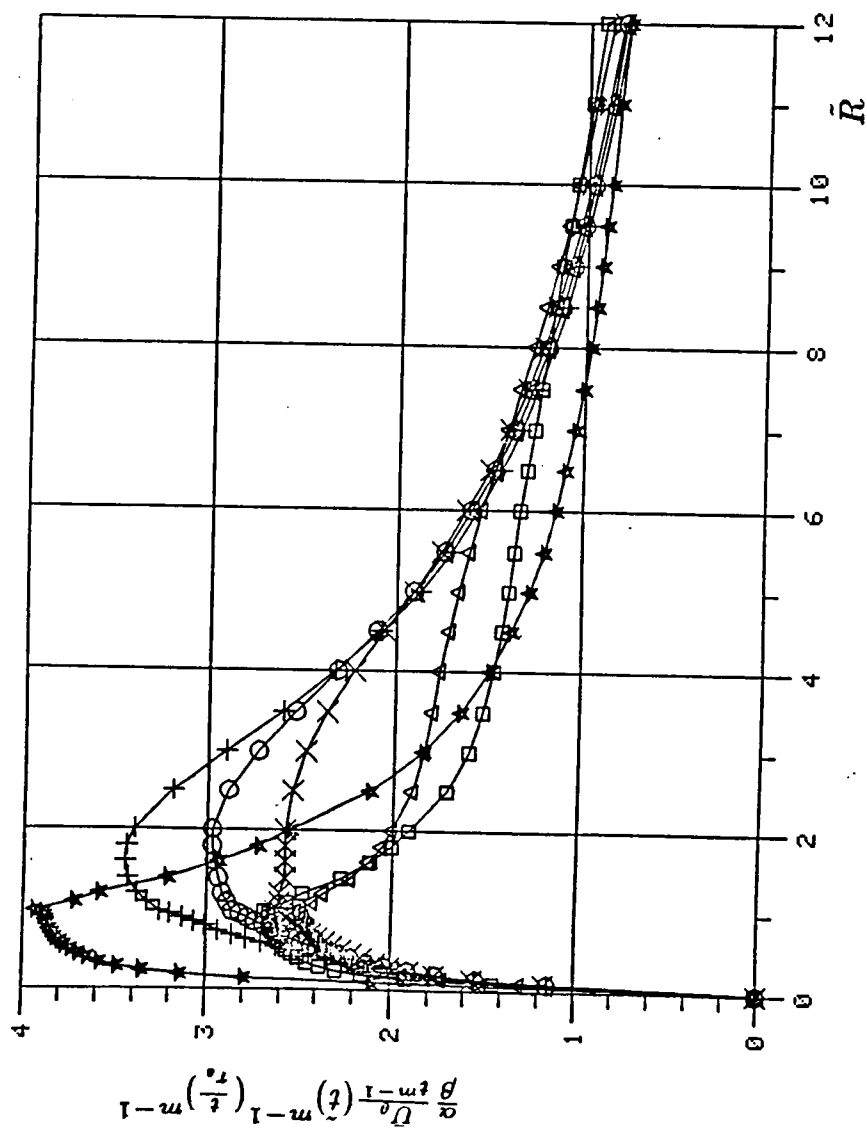
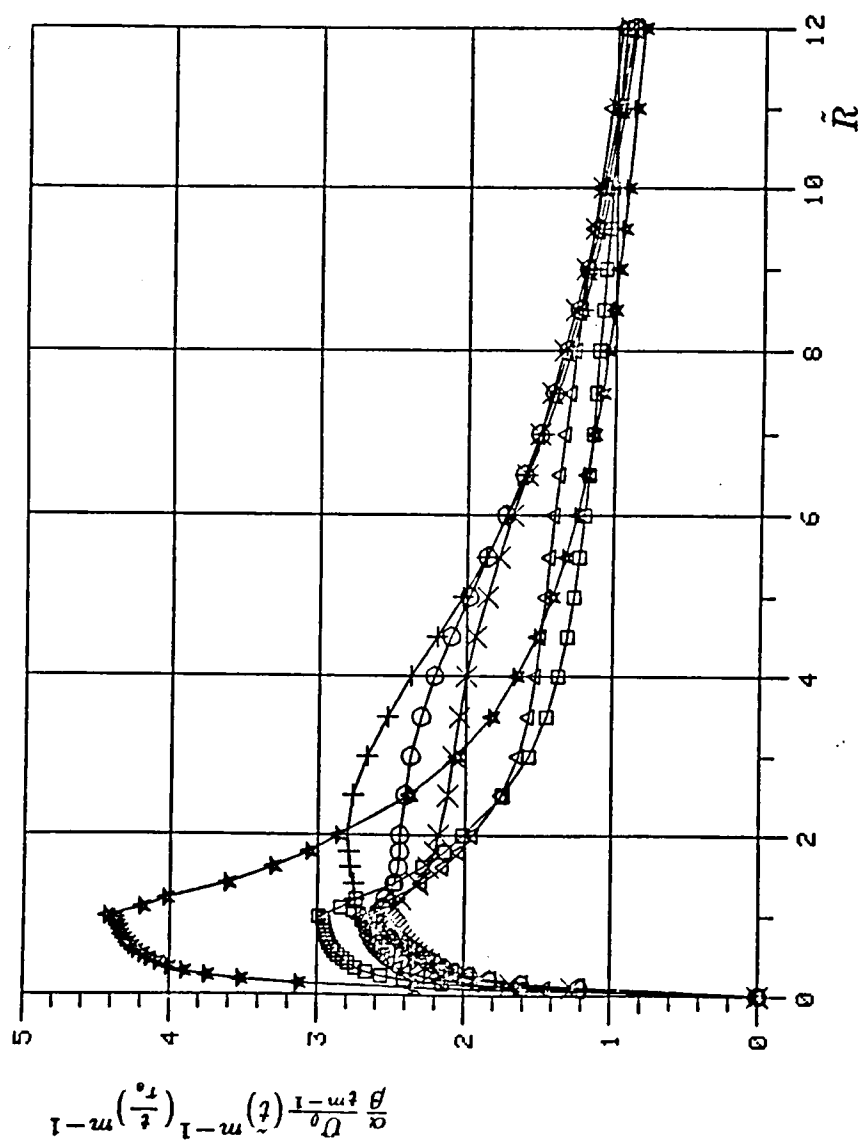
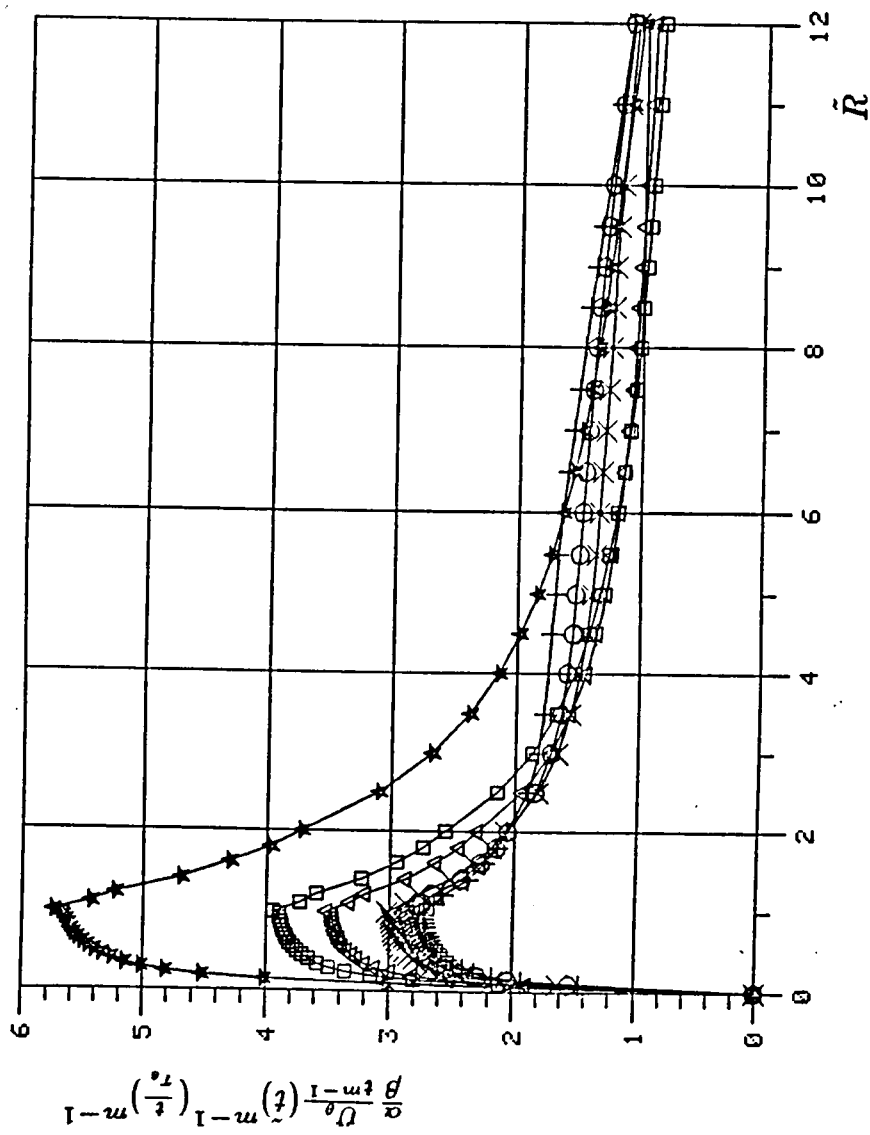


Figure 8. (continued)



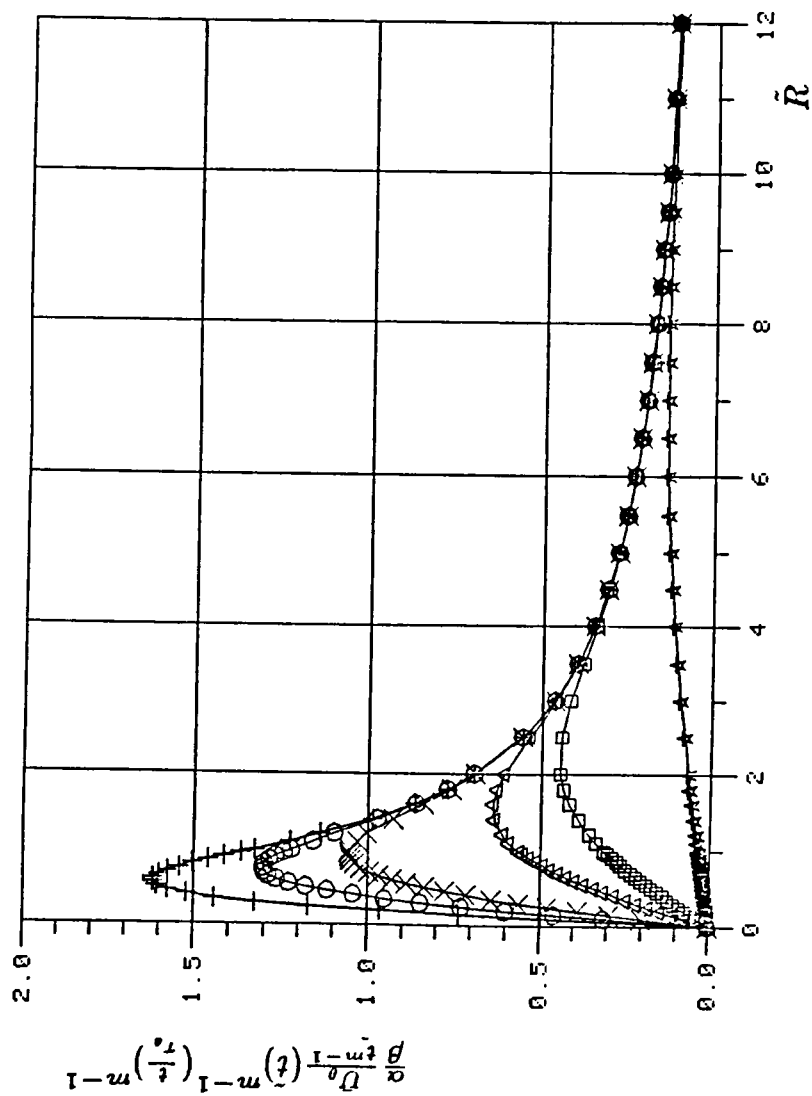
$m = 0.55$ and $\tilde{t}_g = 2.0$

Figure 8. (continued)



$m = 0.55$ and $\tilde{t}_s = 10.0$

Figure 8. (continued)



$m = 0.6666$ and $\tilde{t}_s = 0.1$

Figure 8. (continued)

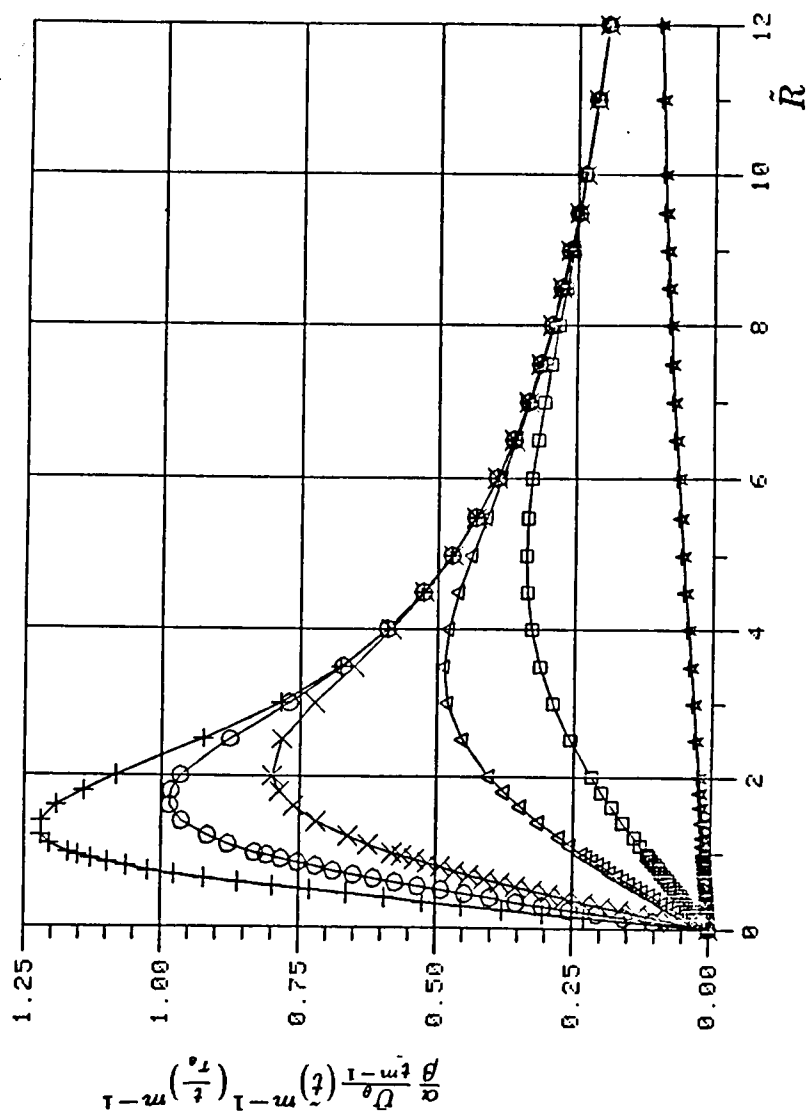
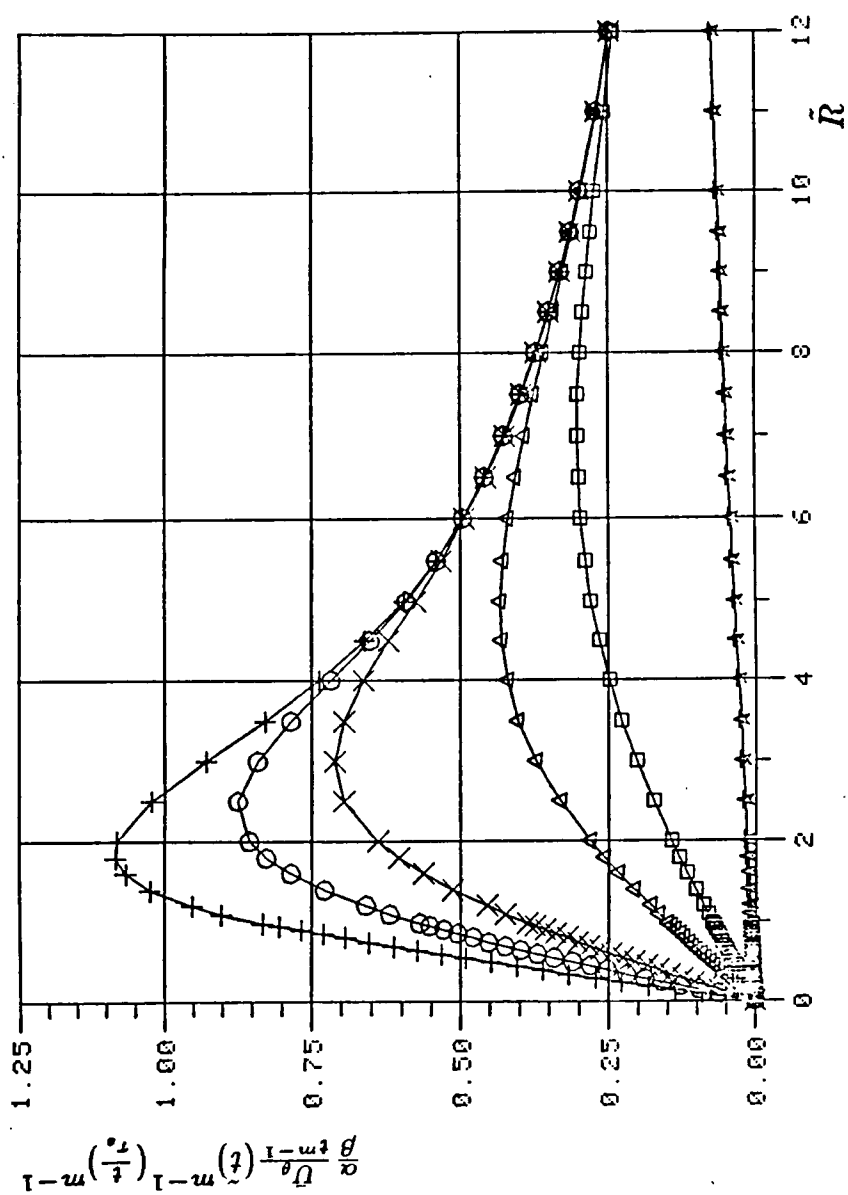


Figure 8. (continued)



$m = 0.6666$ and $\tilde{t}_e = 1.0$

Figure 8. (continued)

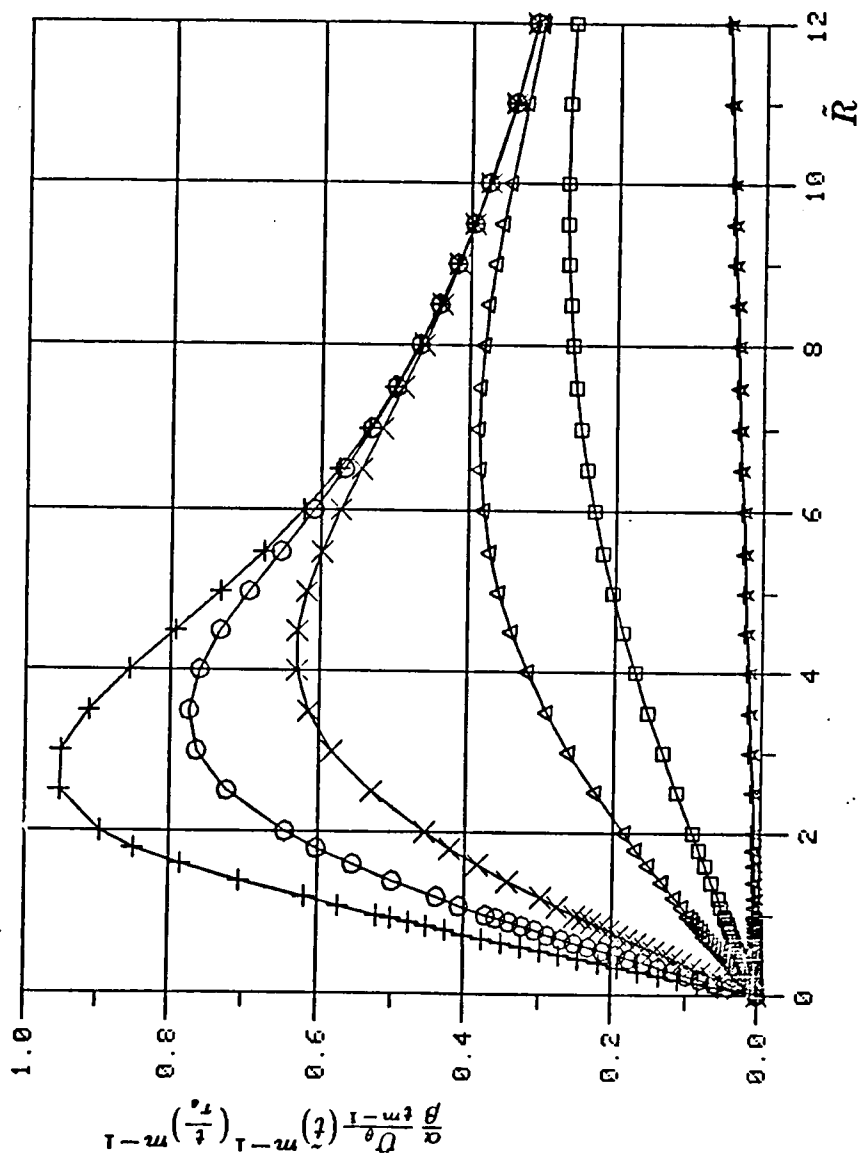
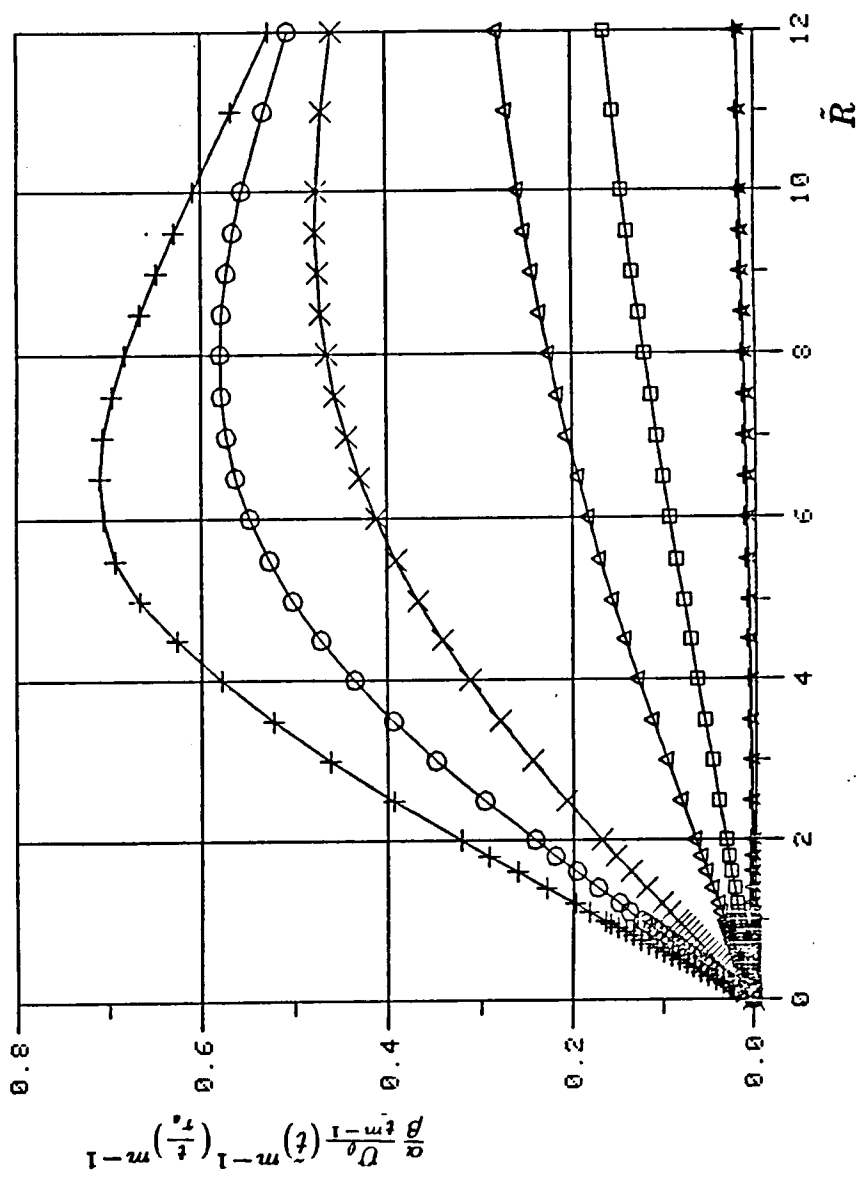


Figure 8. (continued)



$m = 0.6666$ and $\tilde{t}_0 = 10$.

Figure 8. (continued)

64

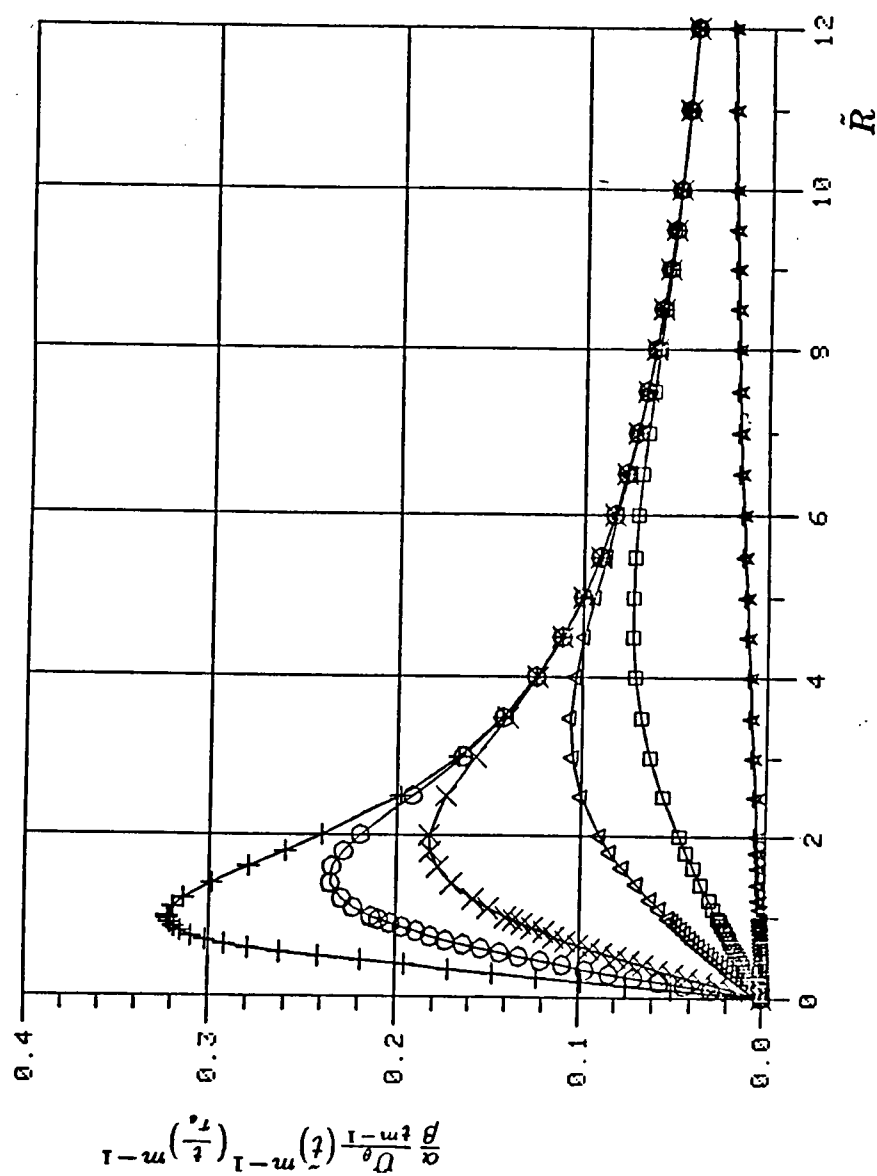


Figure 8. (continued)

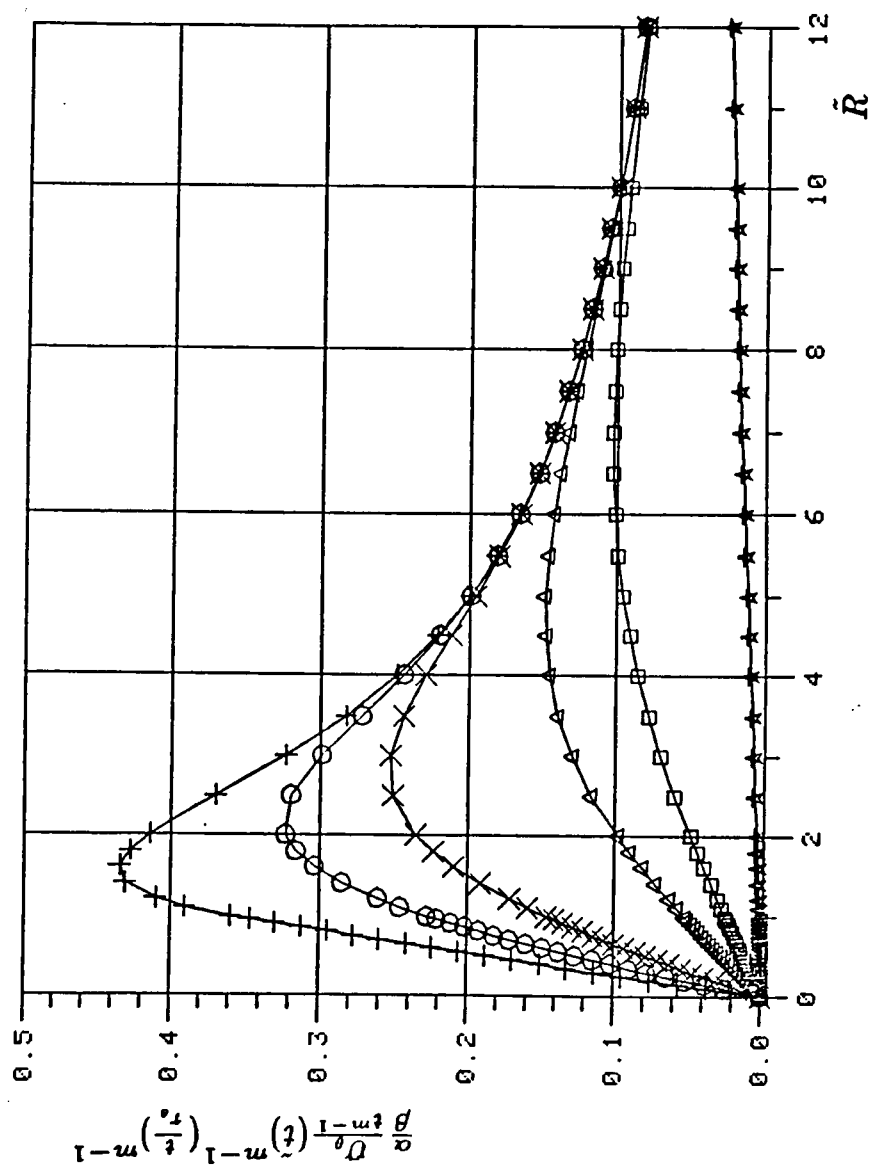


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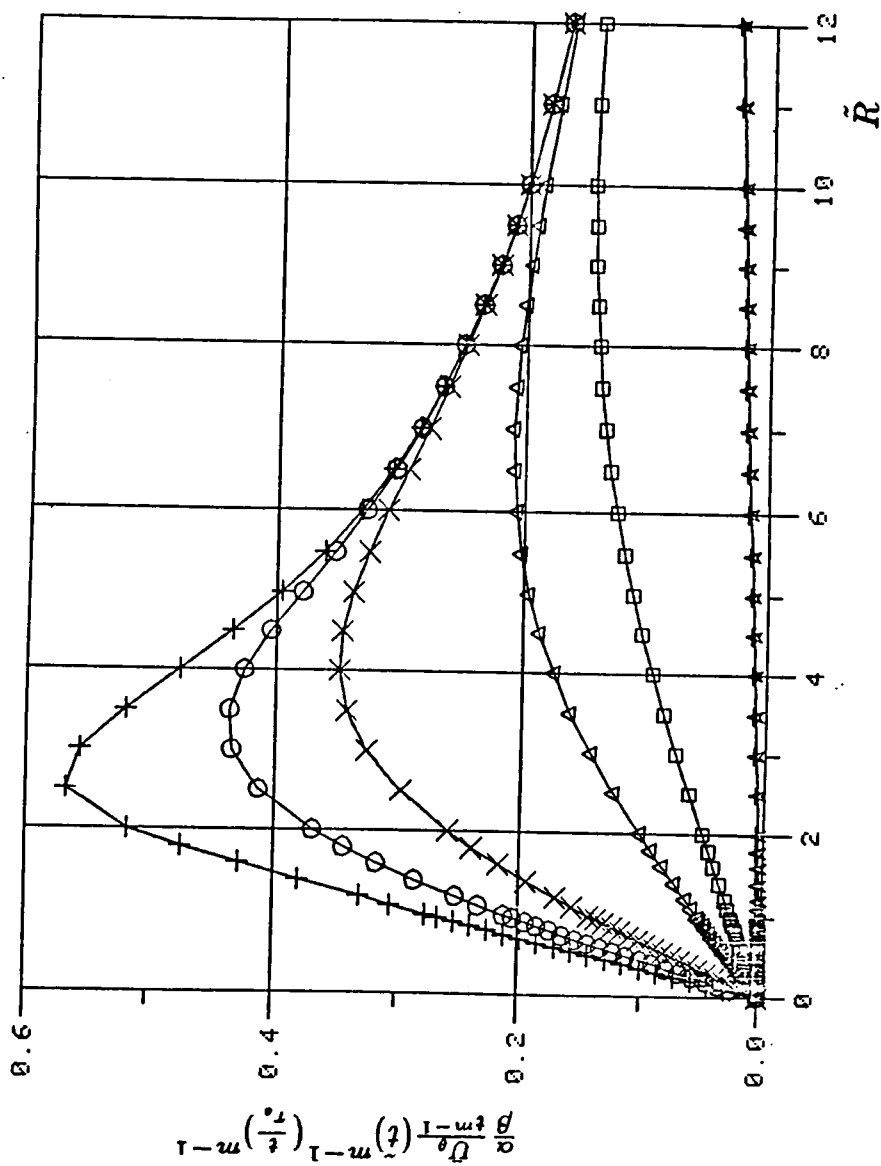


Figure 8. (continued)

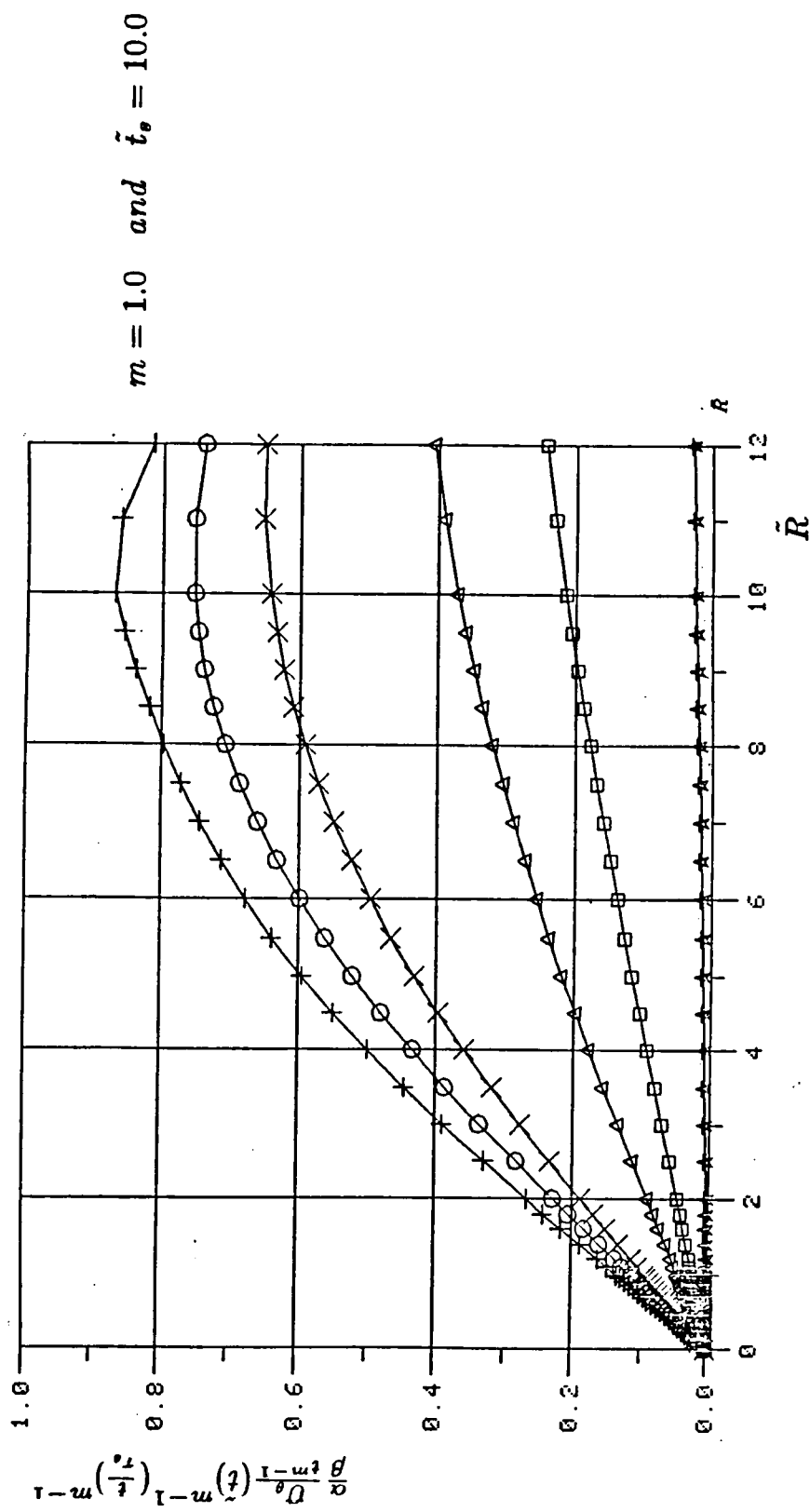


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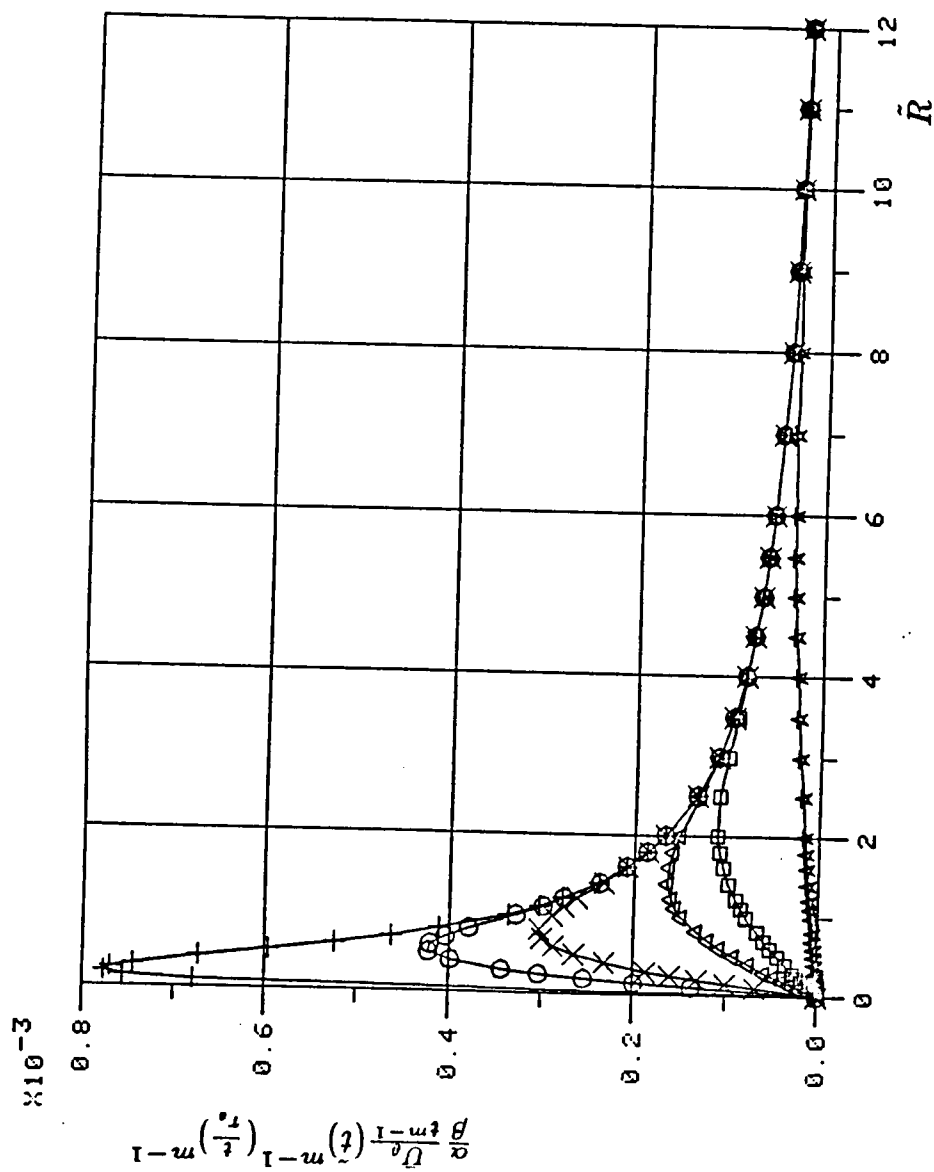


Figure 8. (continued)

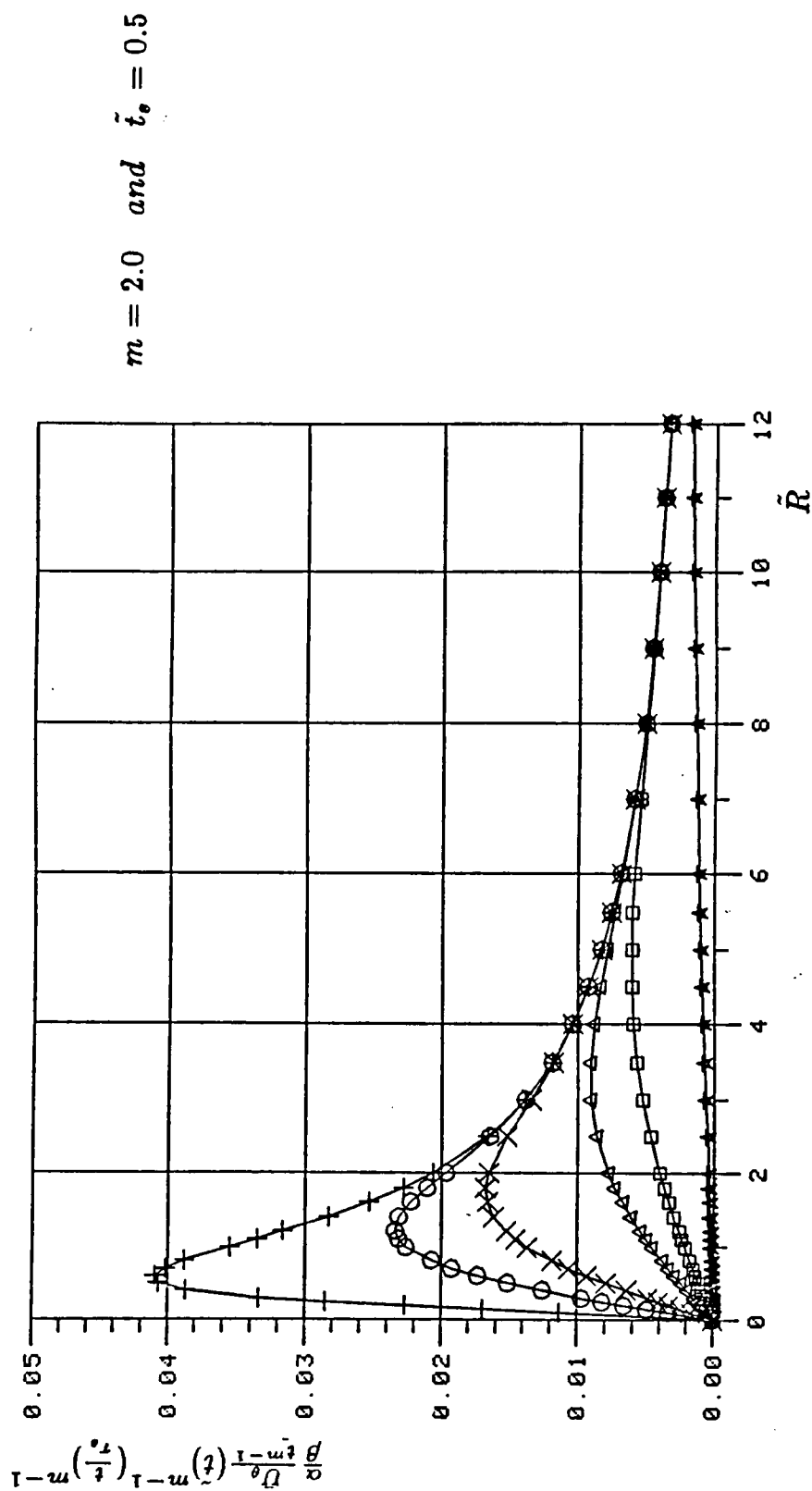


Figure 8. (continued)

$m = 2.0$ and $\tilde{t}_e = 1.0$

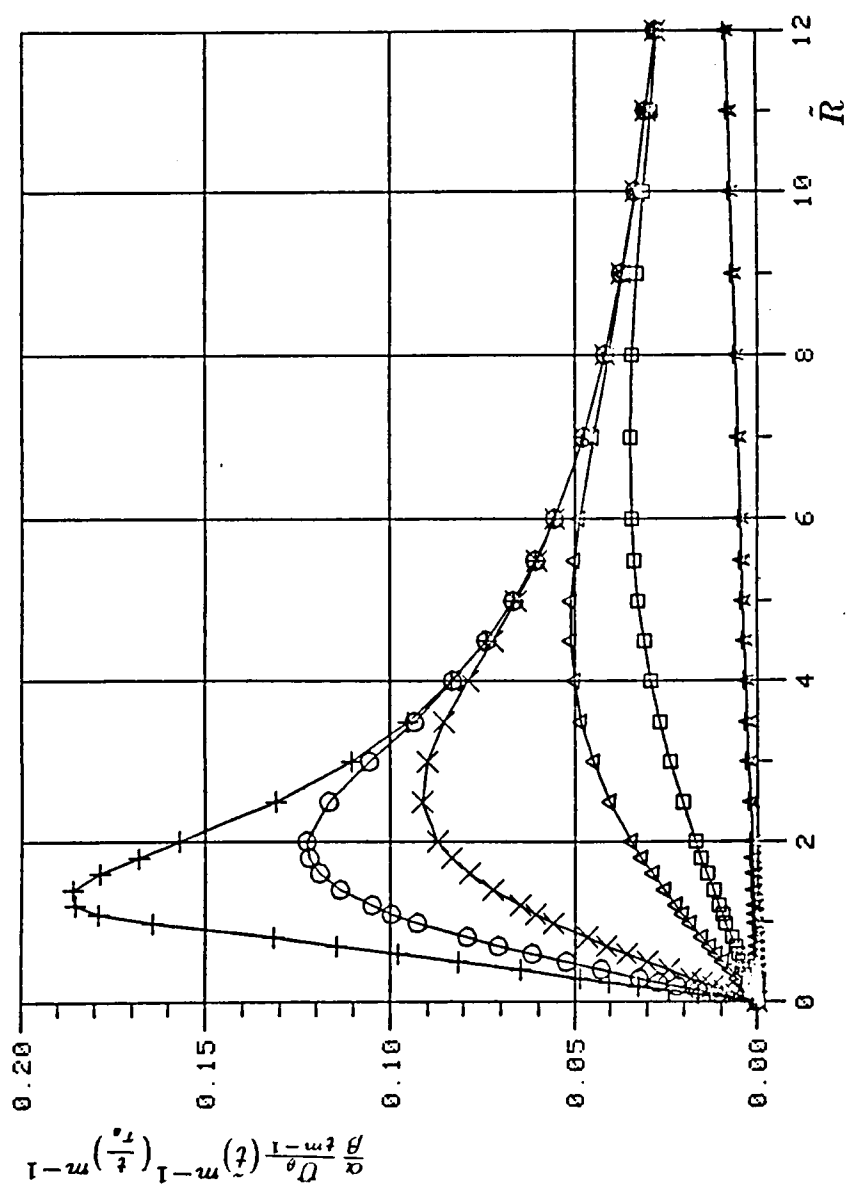
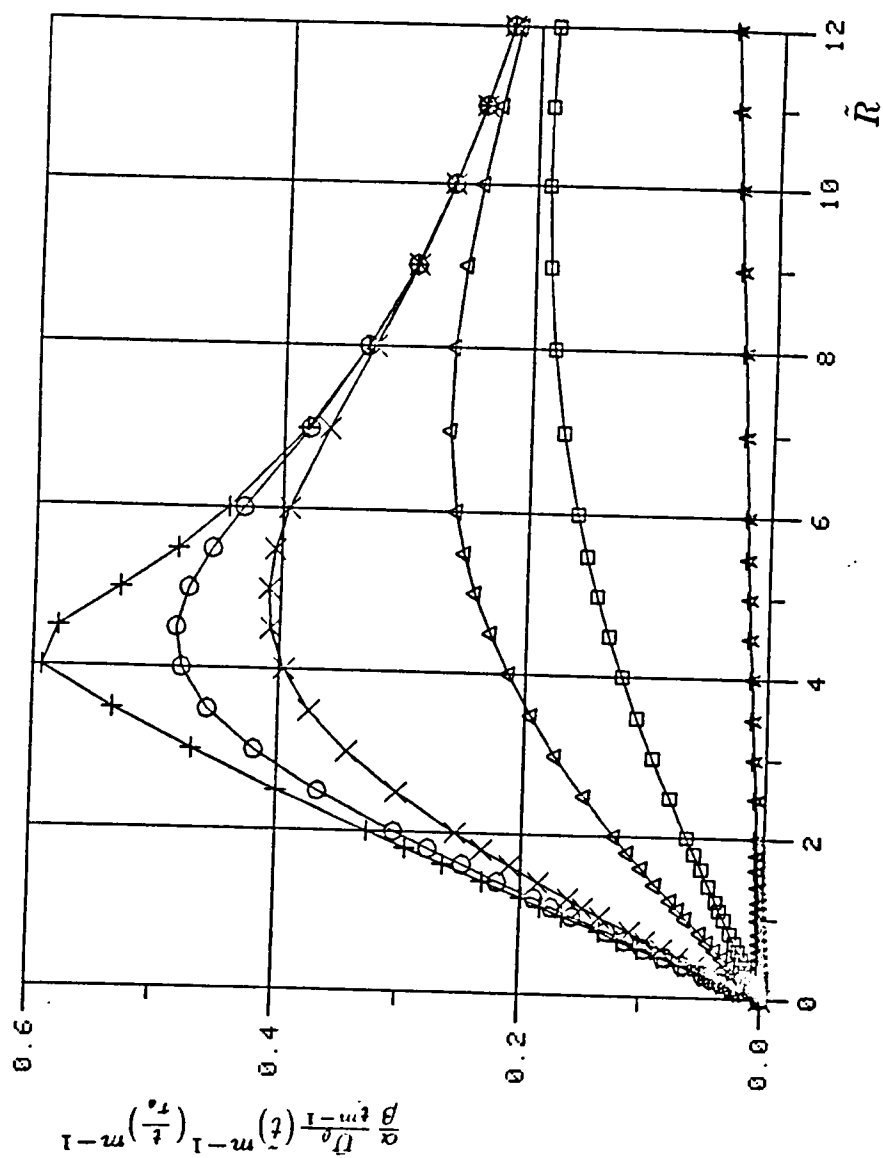


Figure 8. (continued)



$m = 2.0$ and $\tilde{t}_0 = 2.0$

Figure 8. (continued)

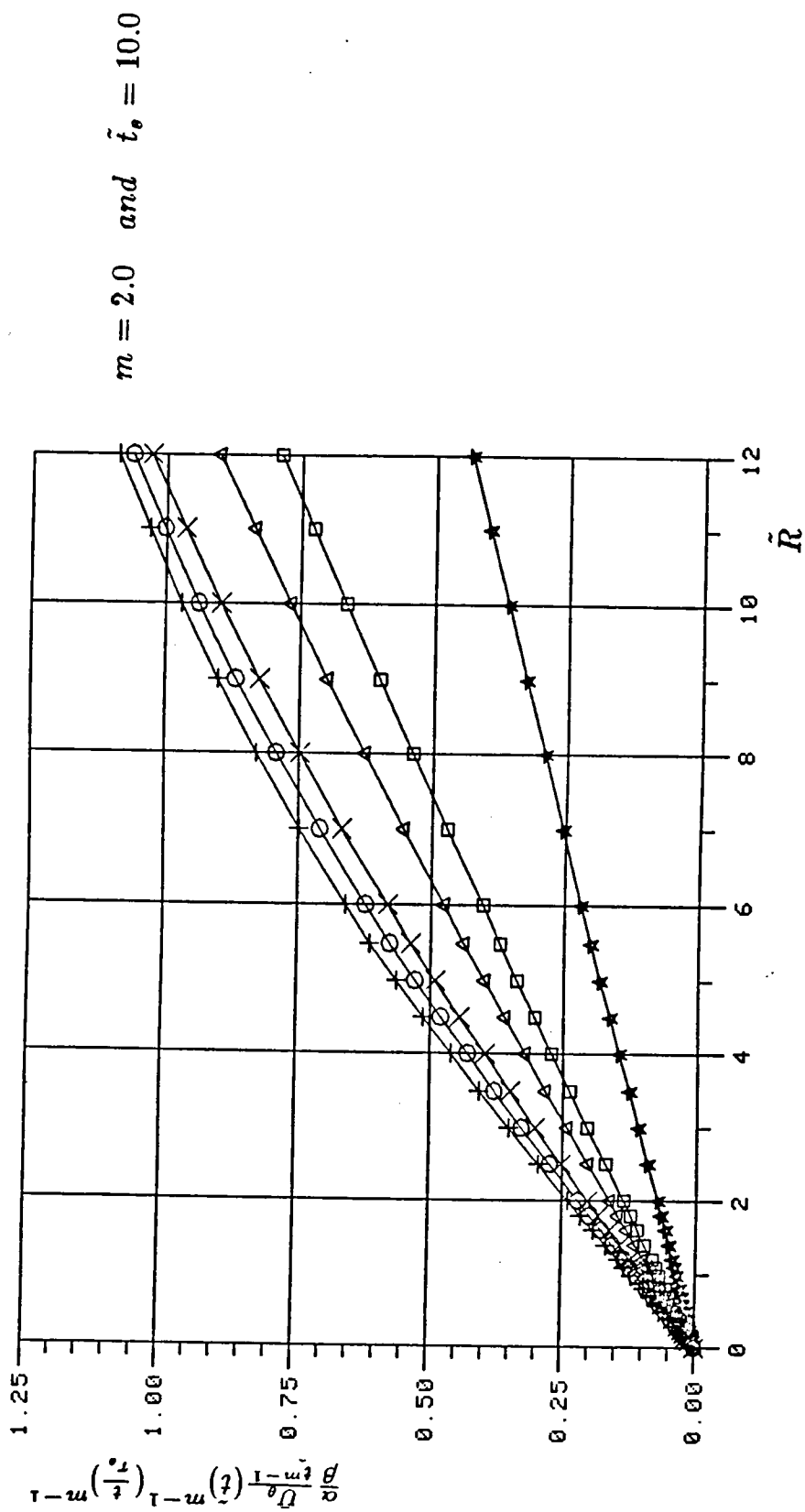


Figure 8. (continued)

where the circulation Γ_∞ is equal to the total sum of the vorticity fed to the vortex before the cutoff, given by

$$\Gamma_\infty = \int_0^\tau Q(\eta)\eta$$

(Figure 9)

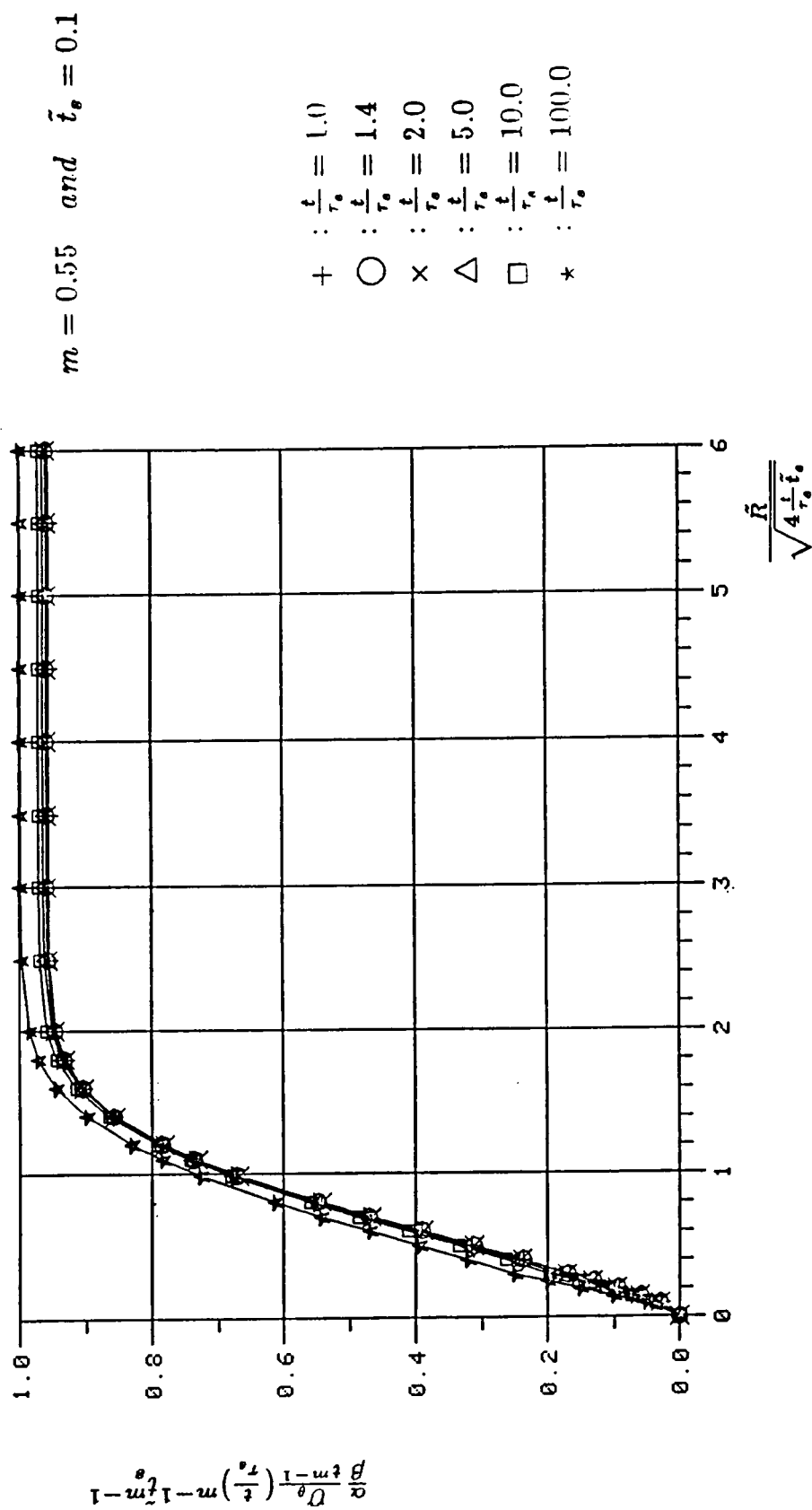


Figure 9. The transformation of the radial profile into the Lamb-Oseen vortex one.

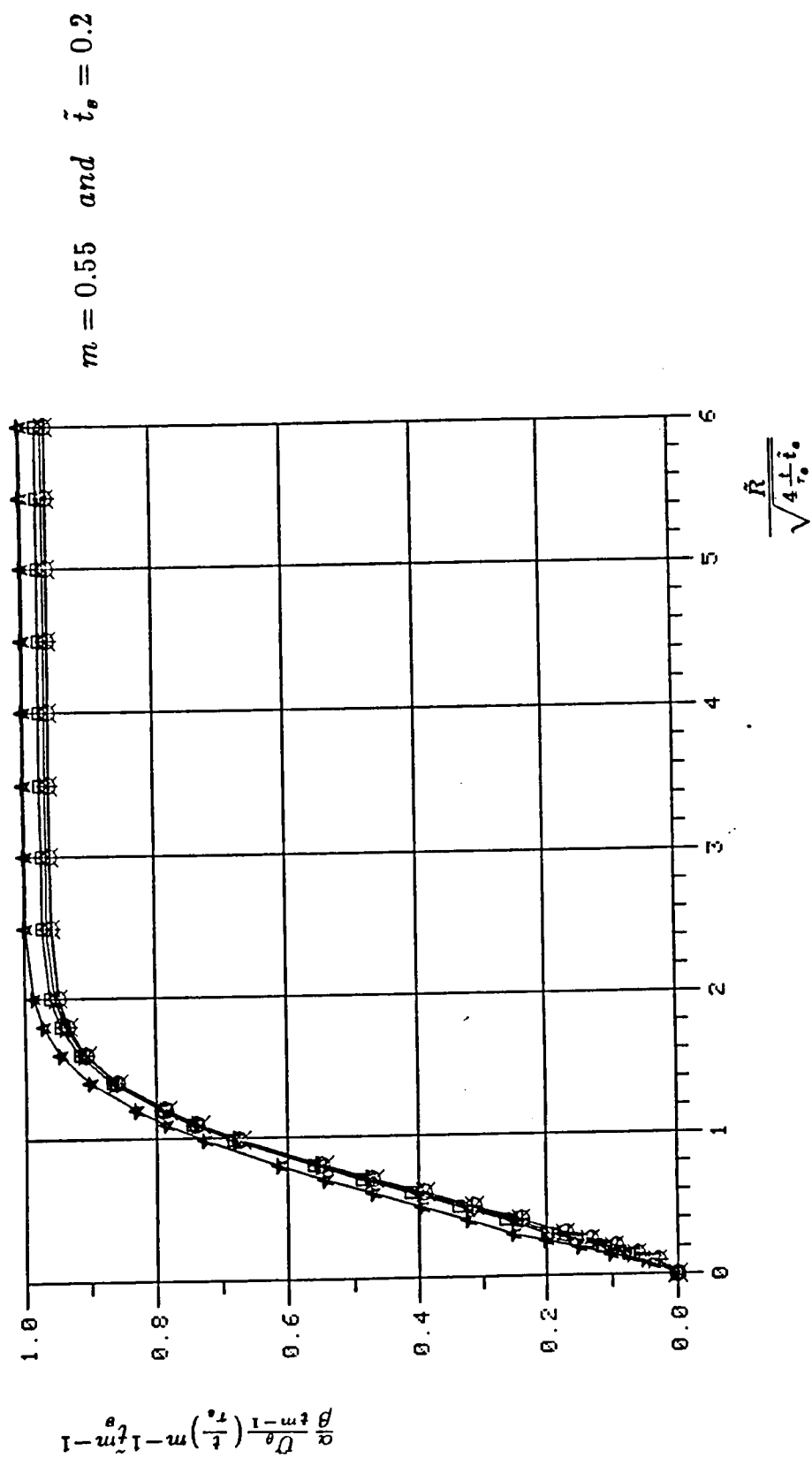


Figure 9. (continued)

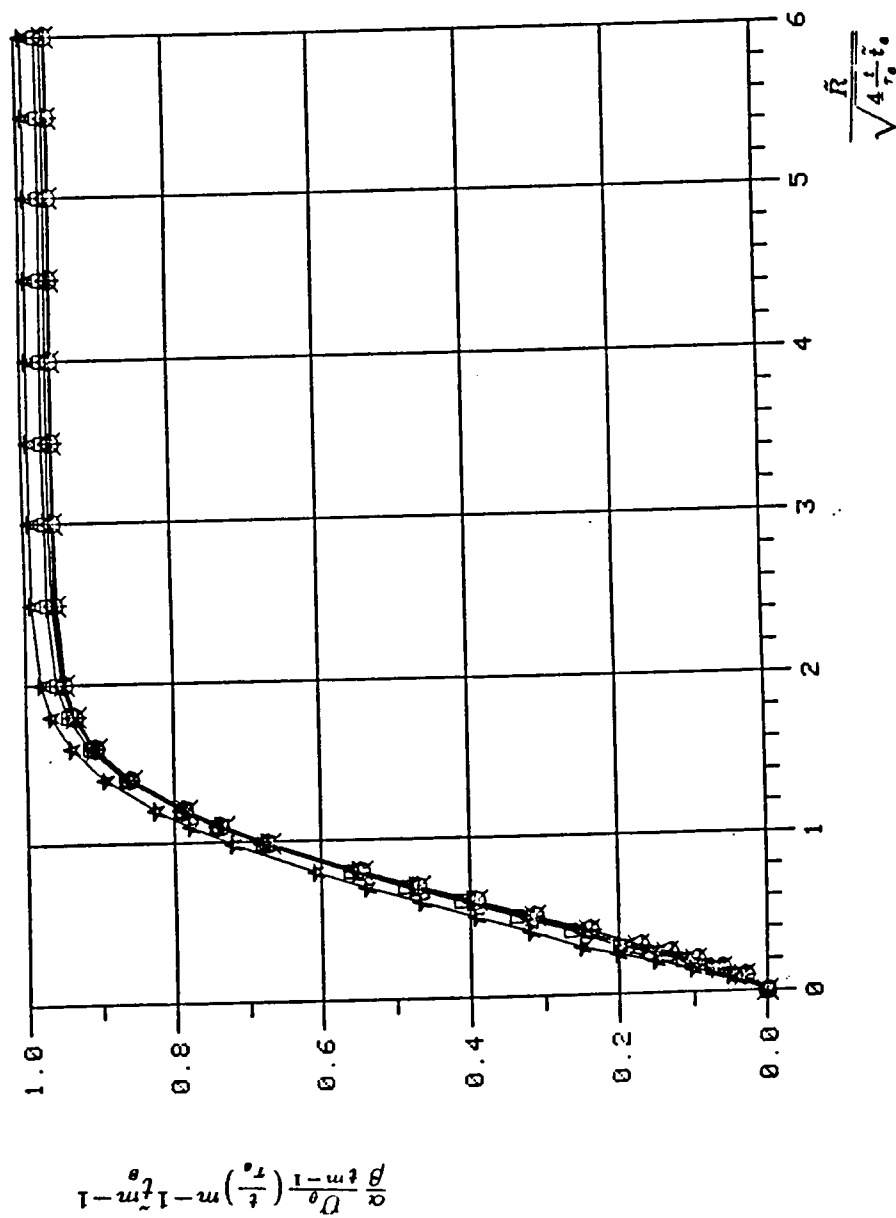


Figure 9. (continued)

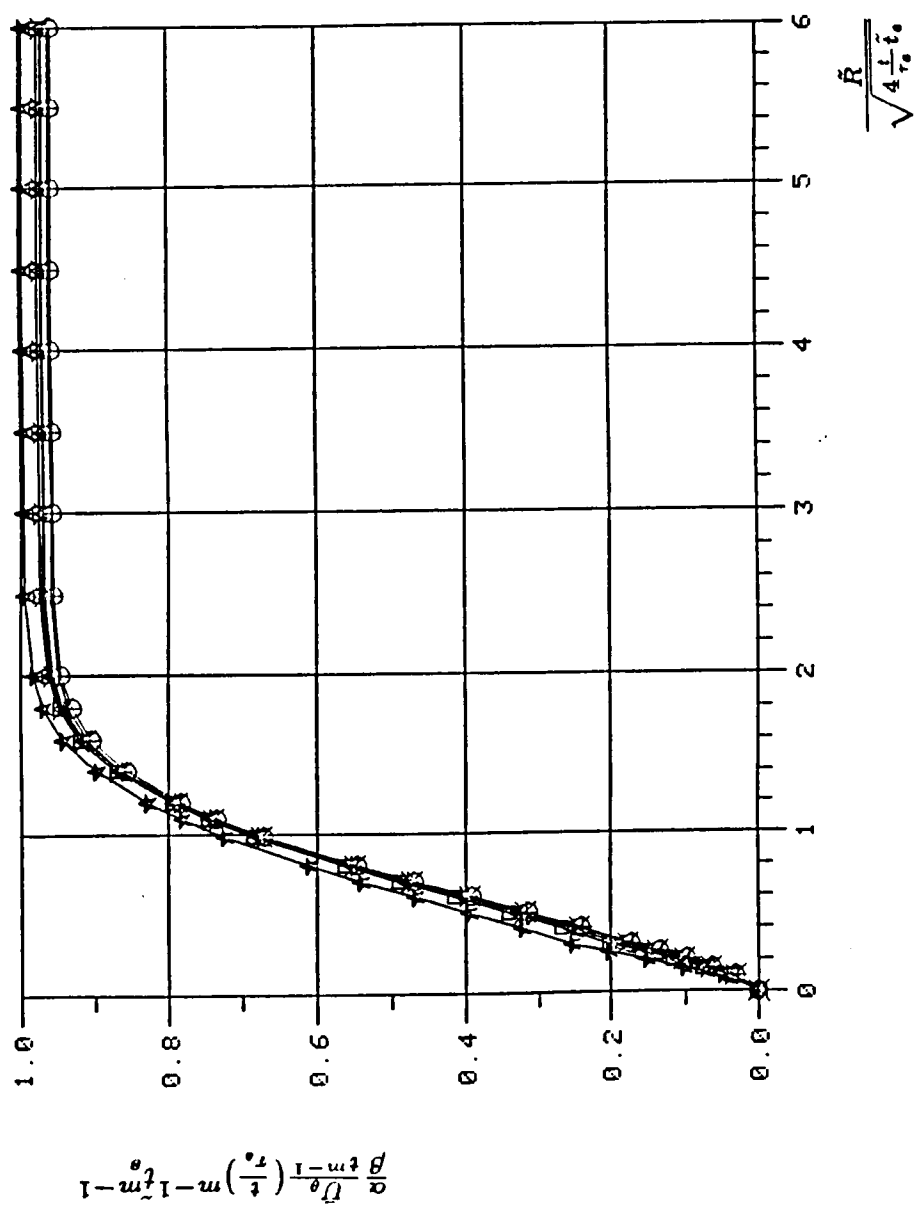


Figure 9. (continued)

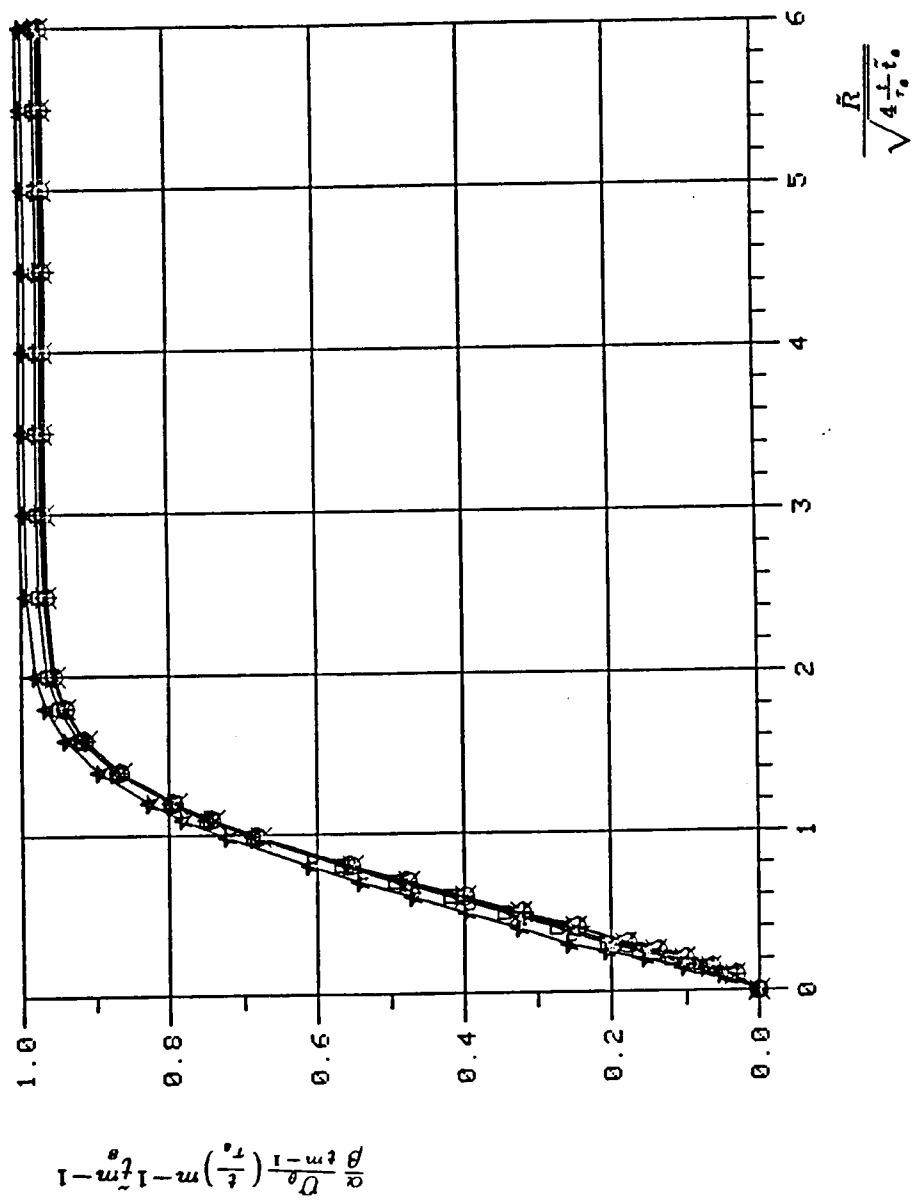


Figure 9. (continued)

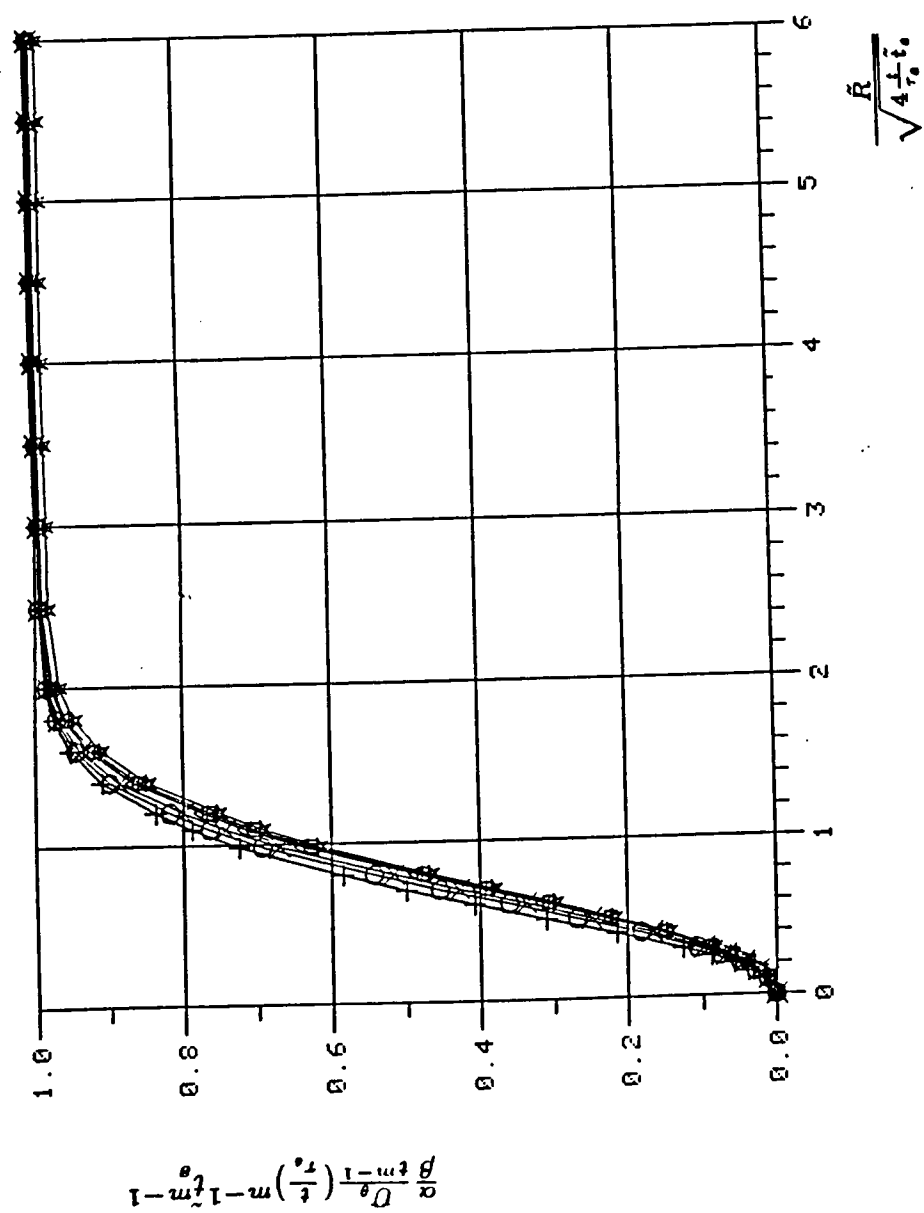


Figure 9. (continued)

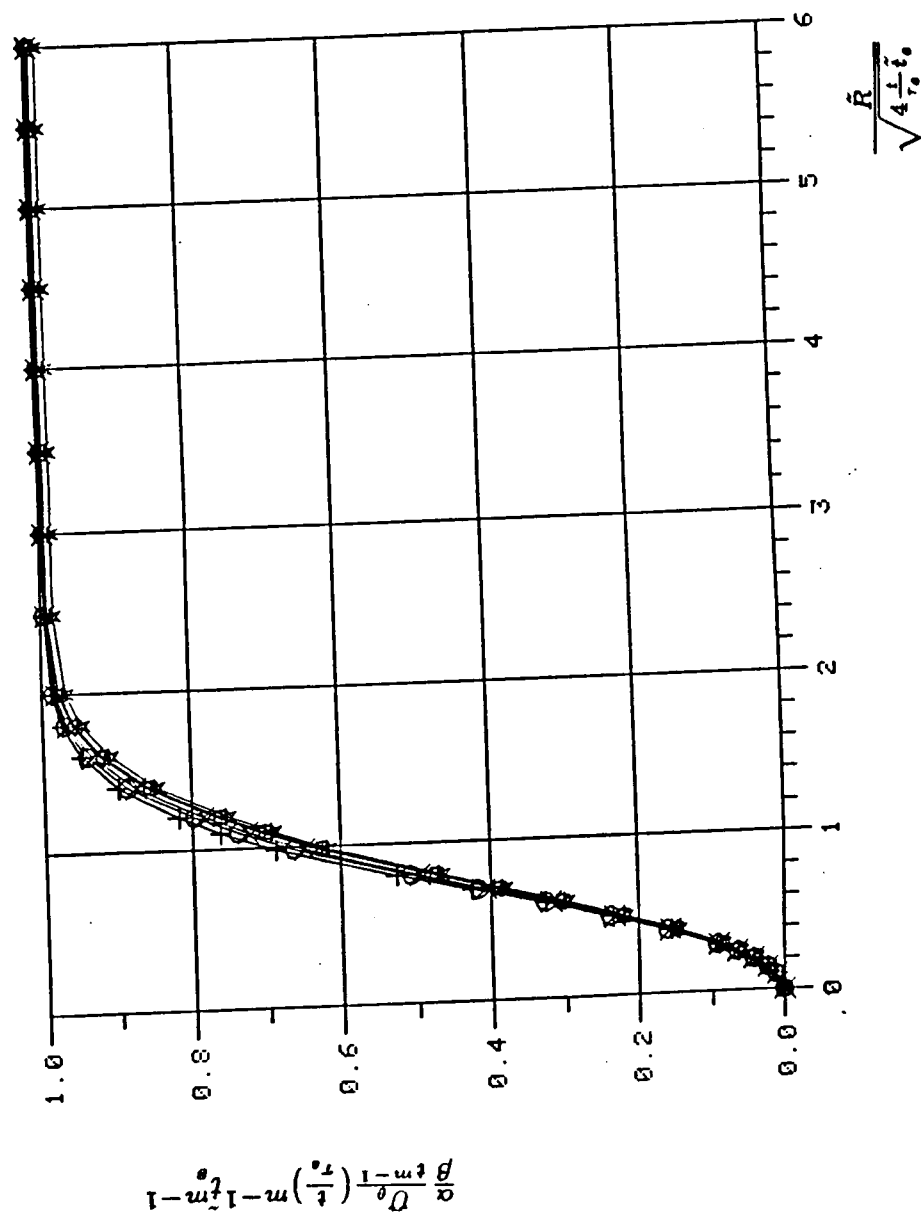


Figure 9. (continued)

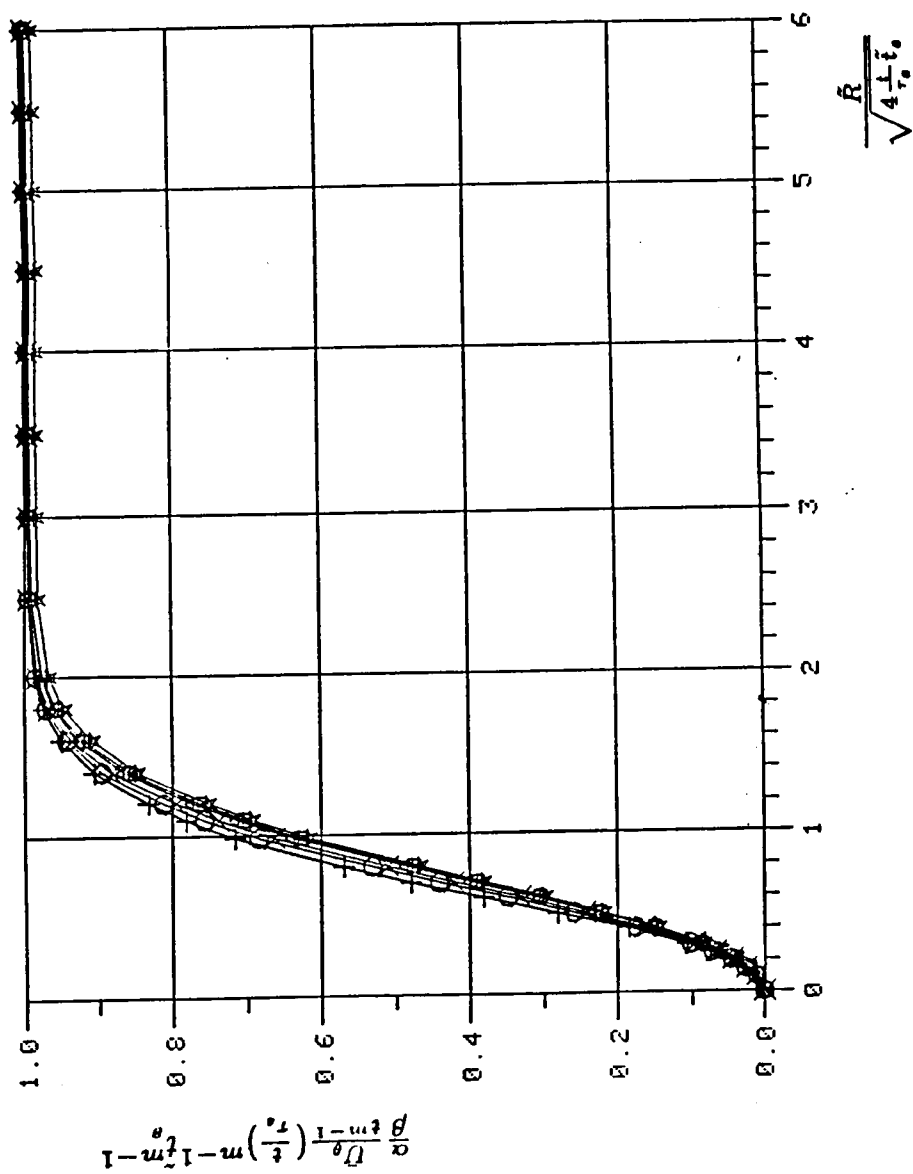


Figure 9. (continued)

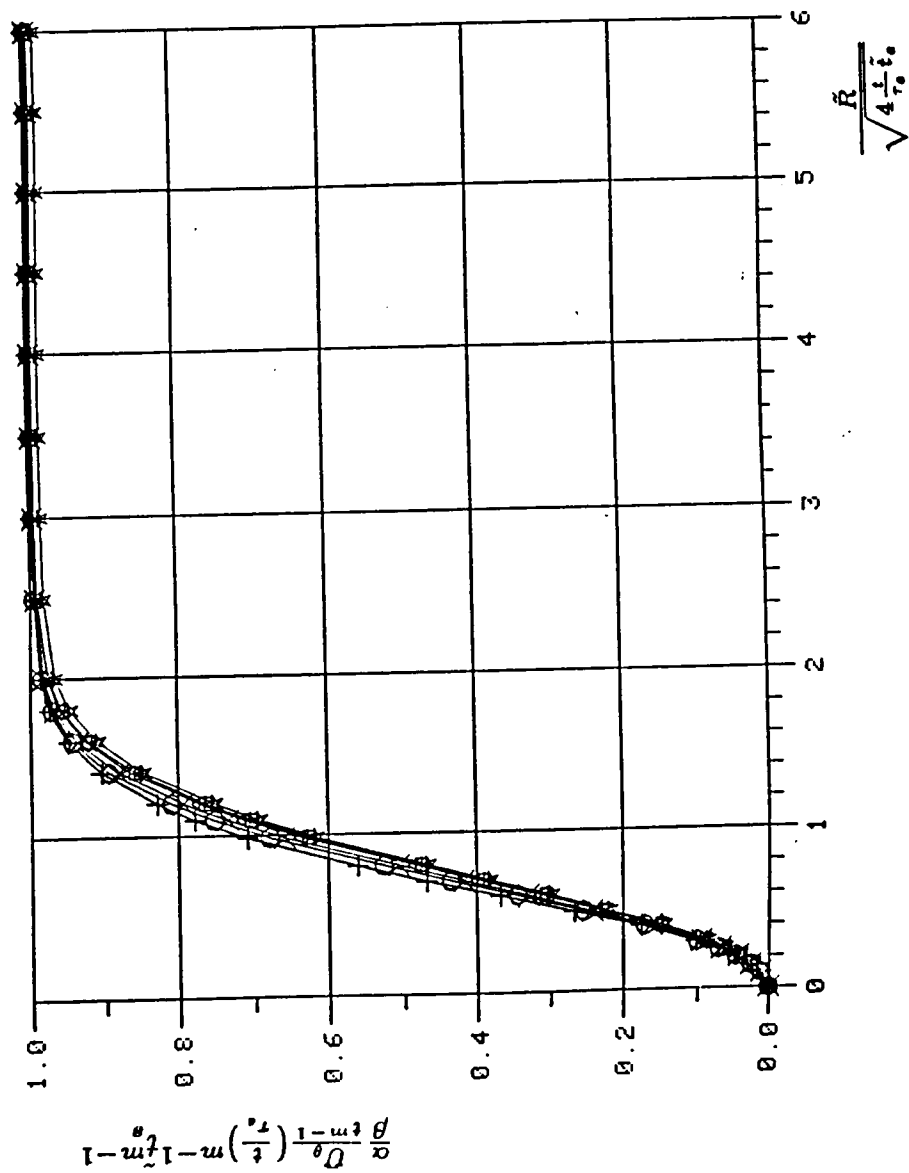


Figure 9. (continued)

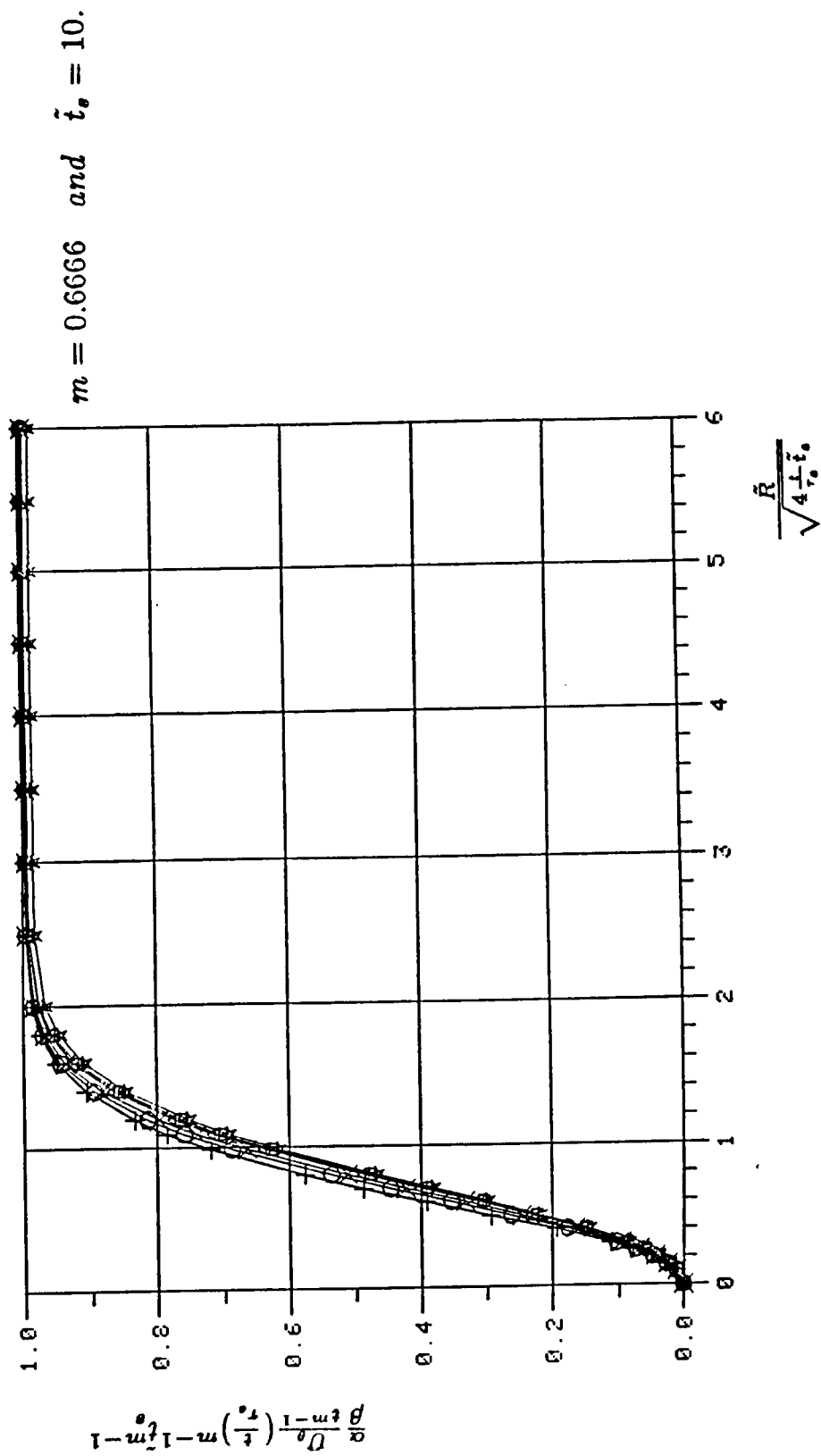


Figure 9. (continued)

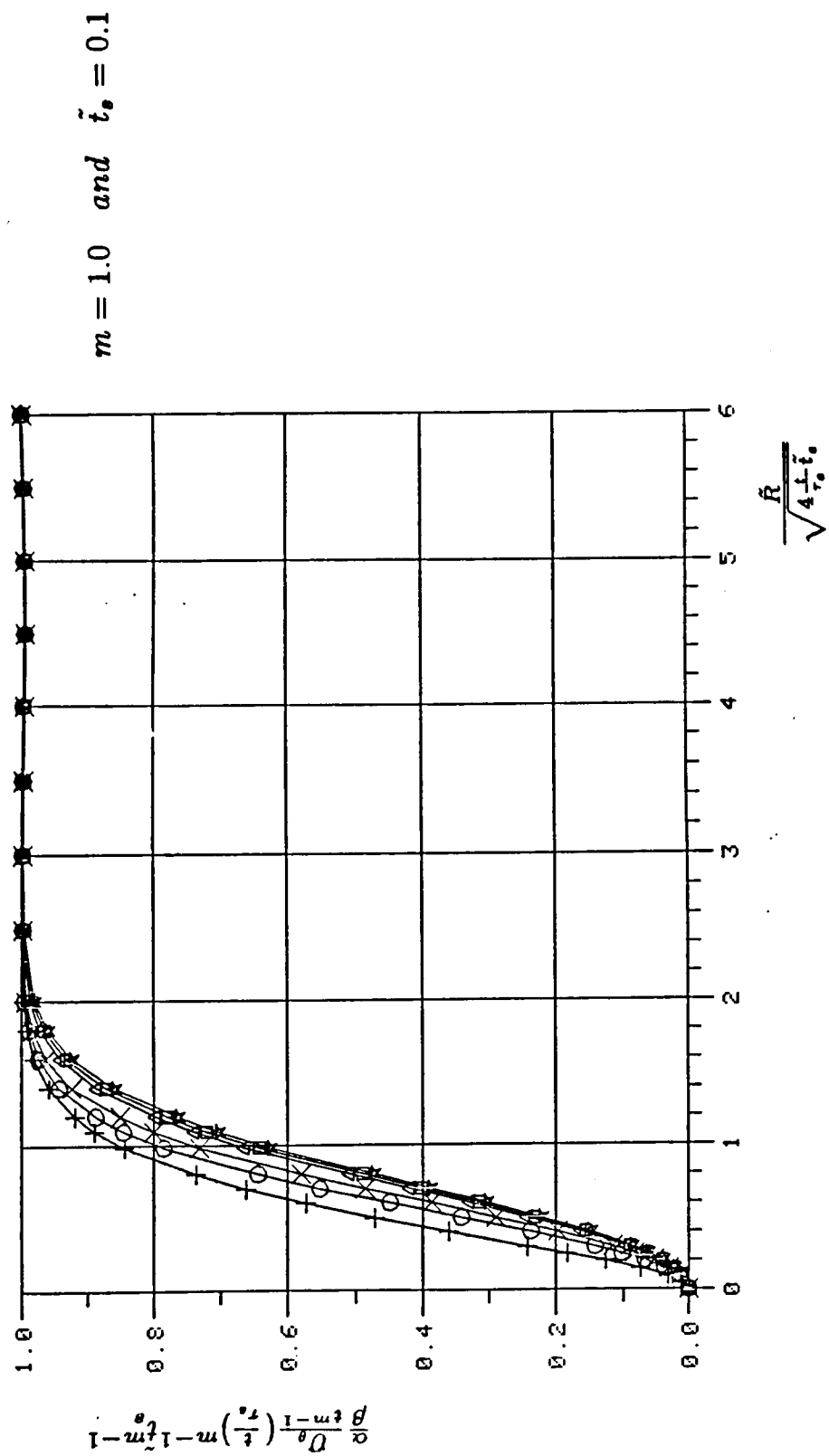


Figure 9. (continued)

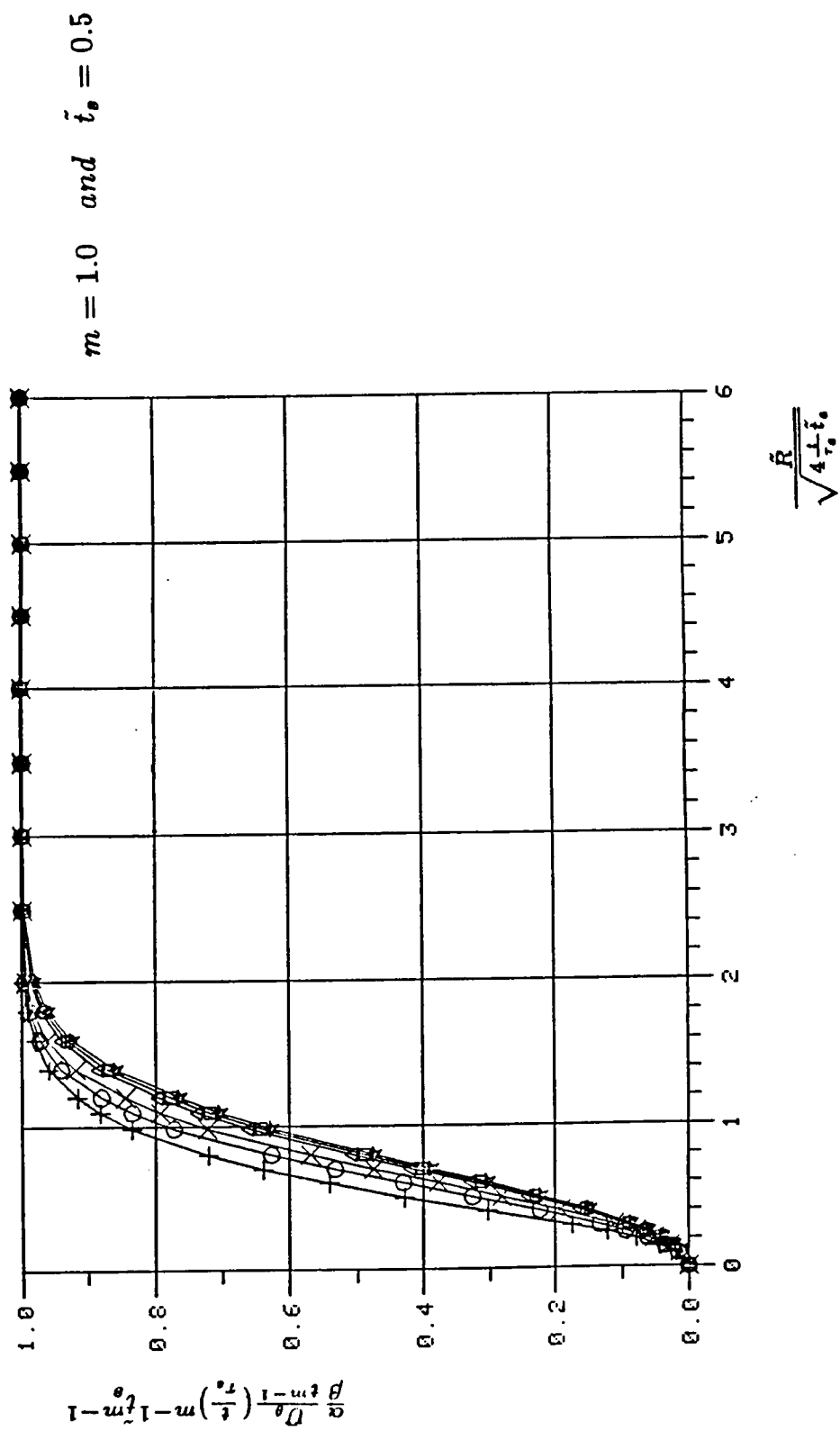


Figure 9. (continued)

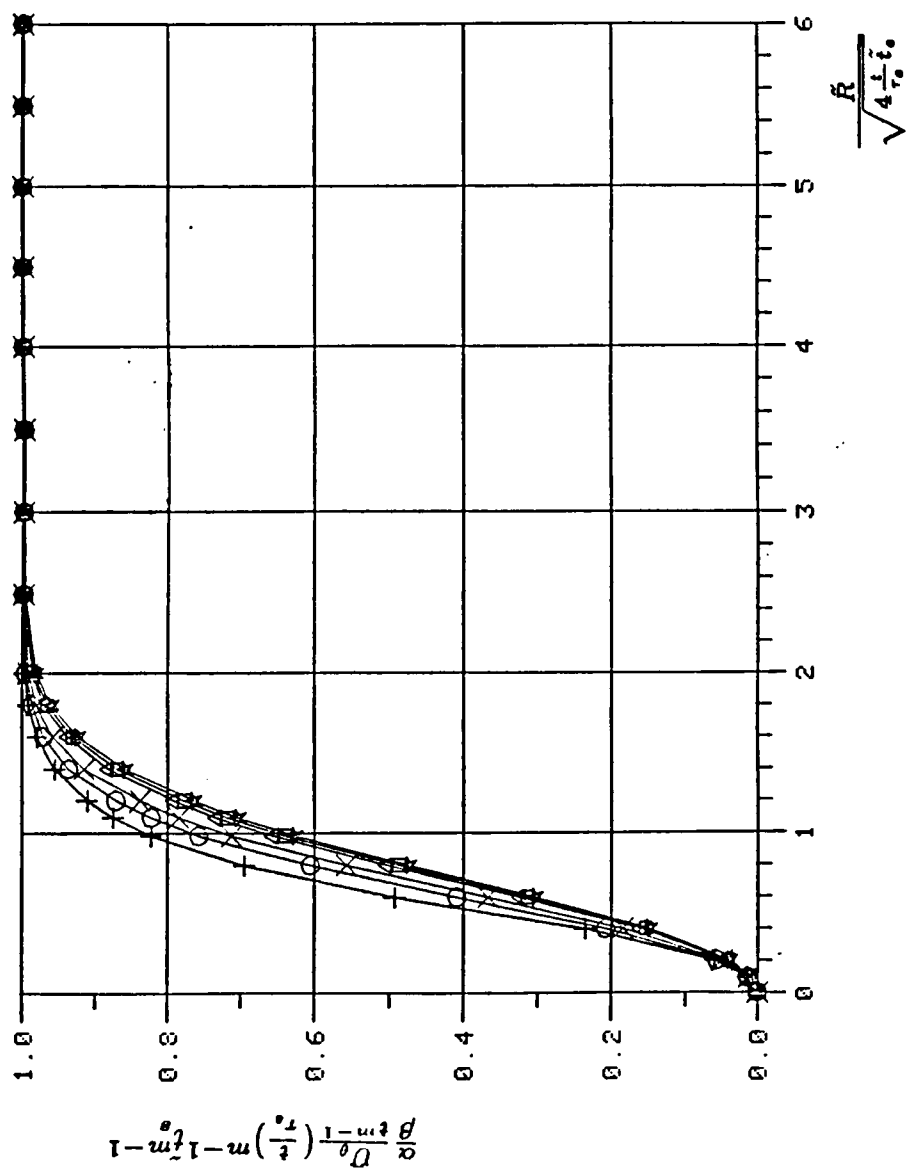


Figure 9. (continued)

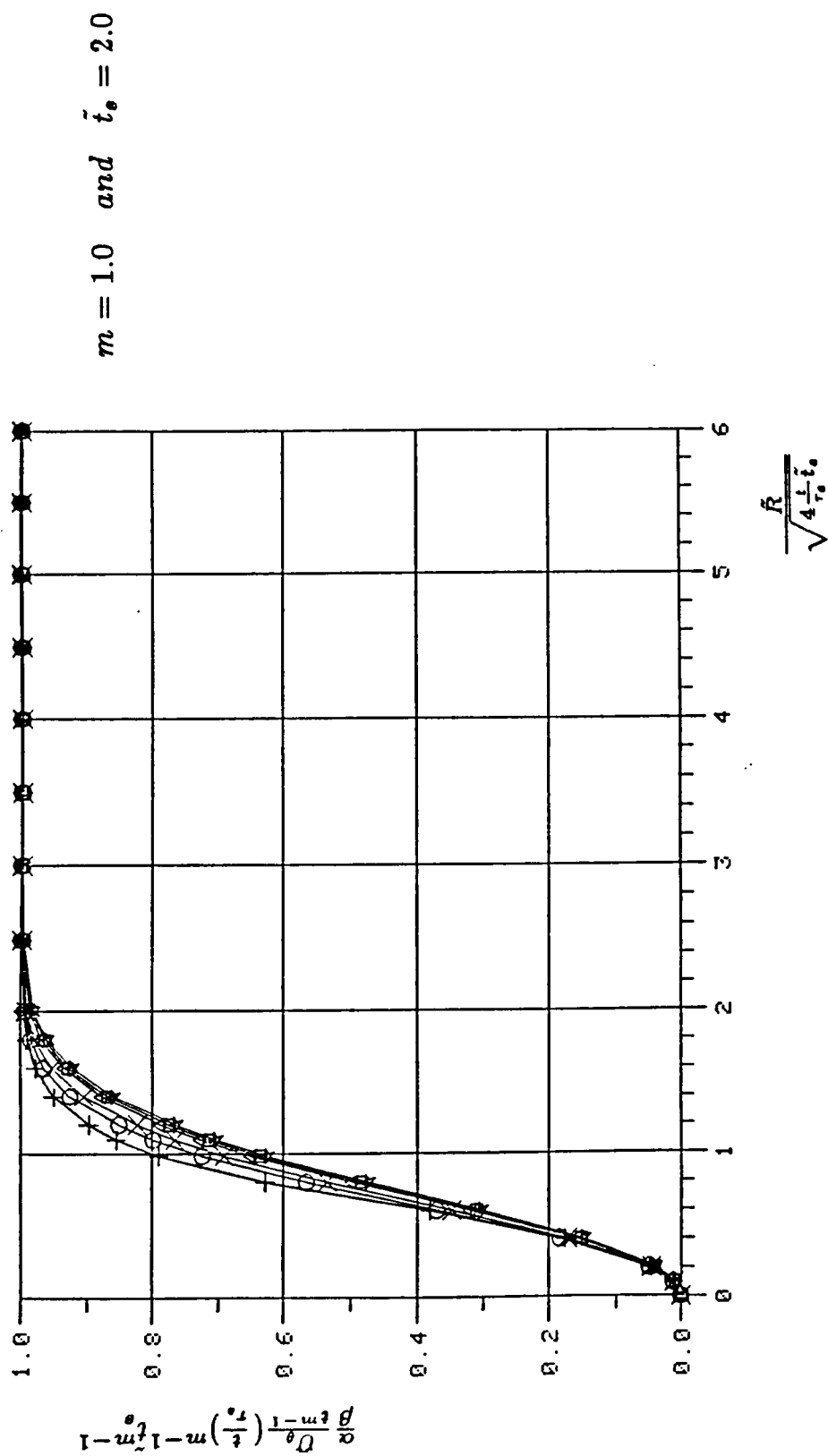


Figure 9. (continued)

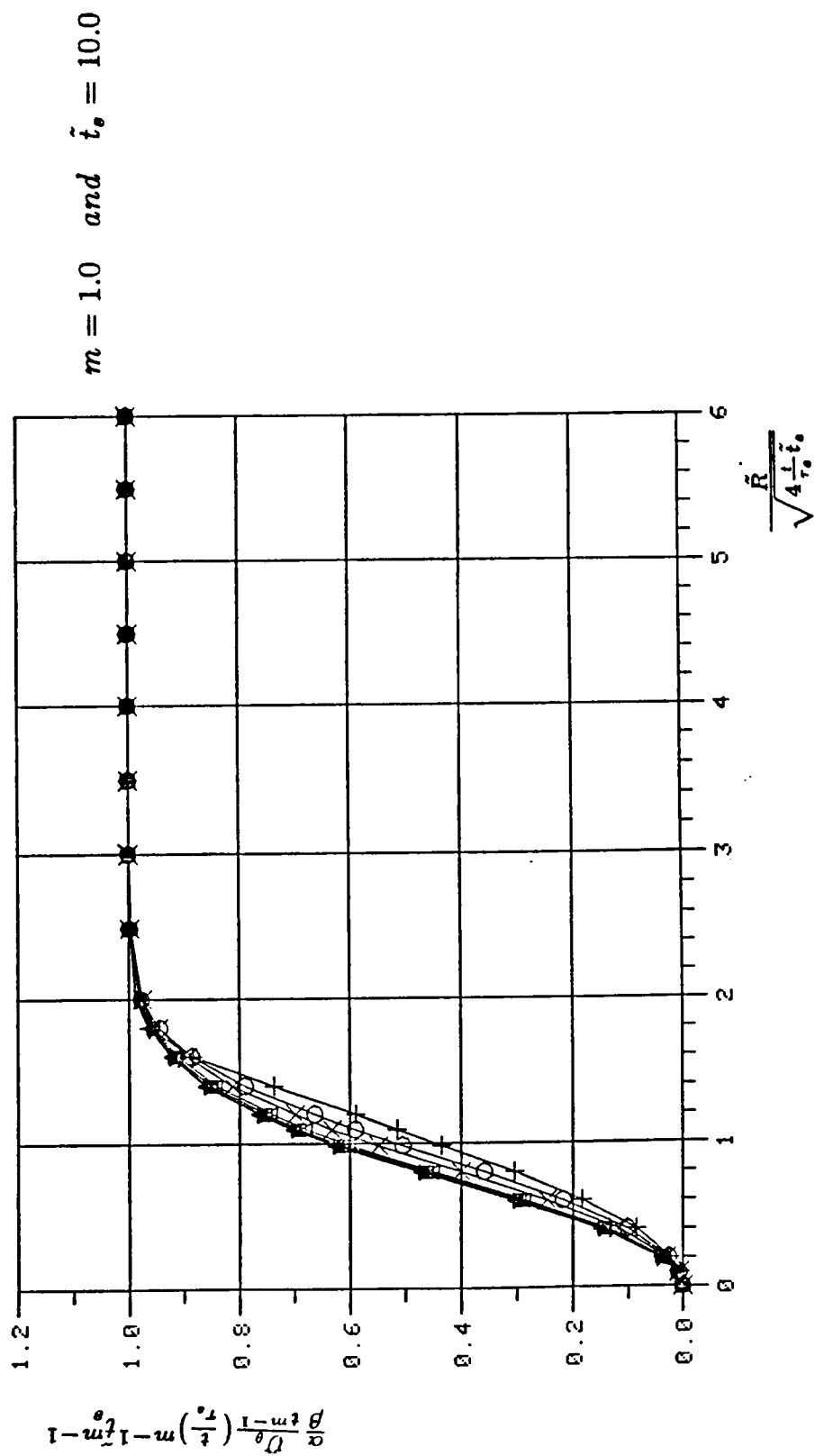


Figure 9. (continued)

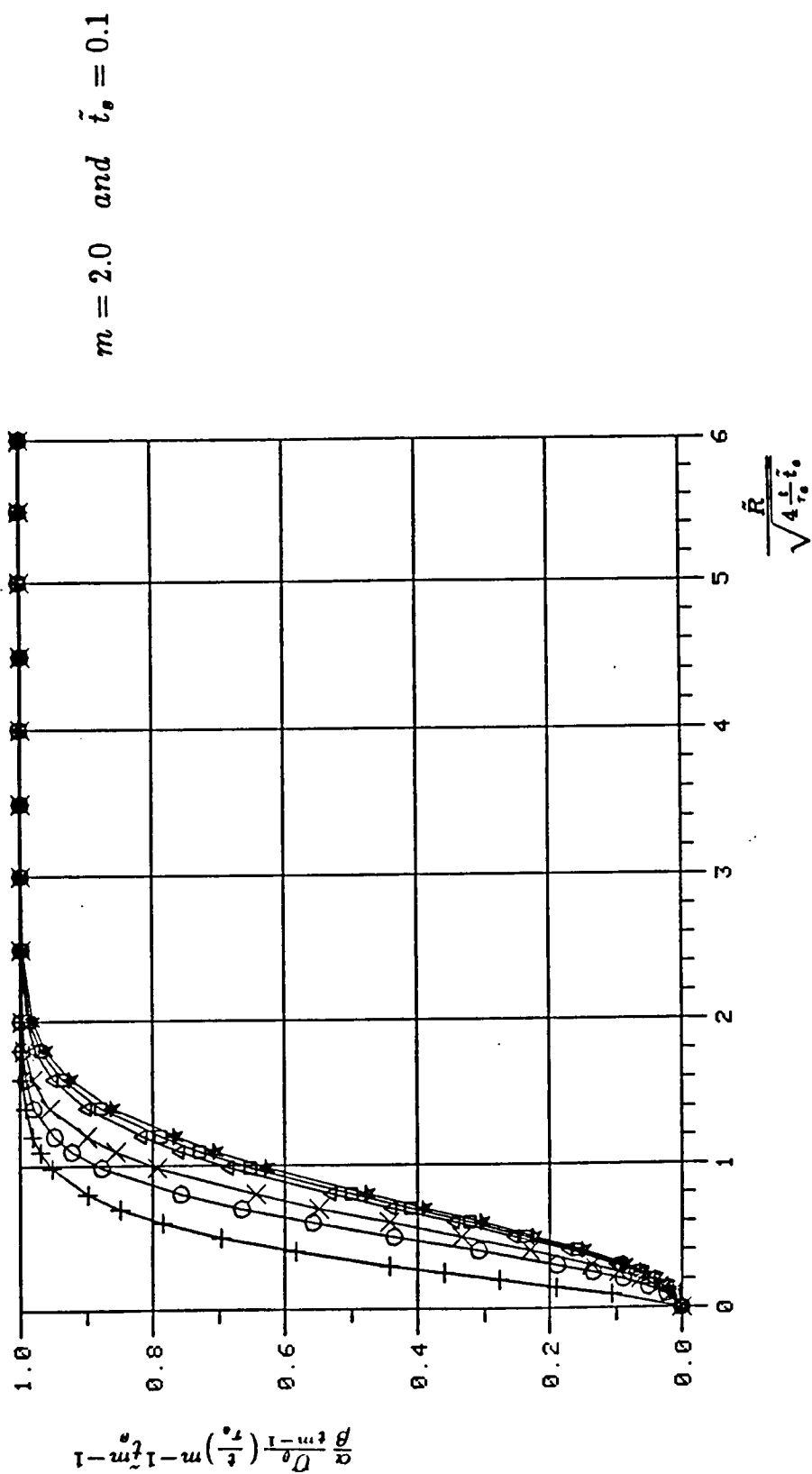


Figure 9. (continued)

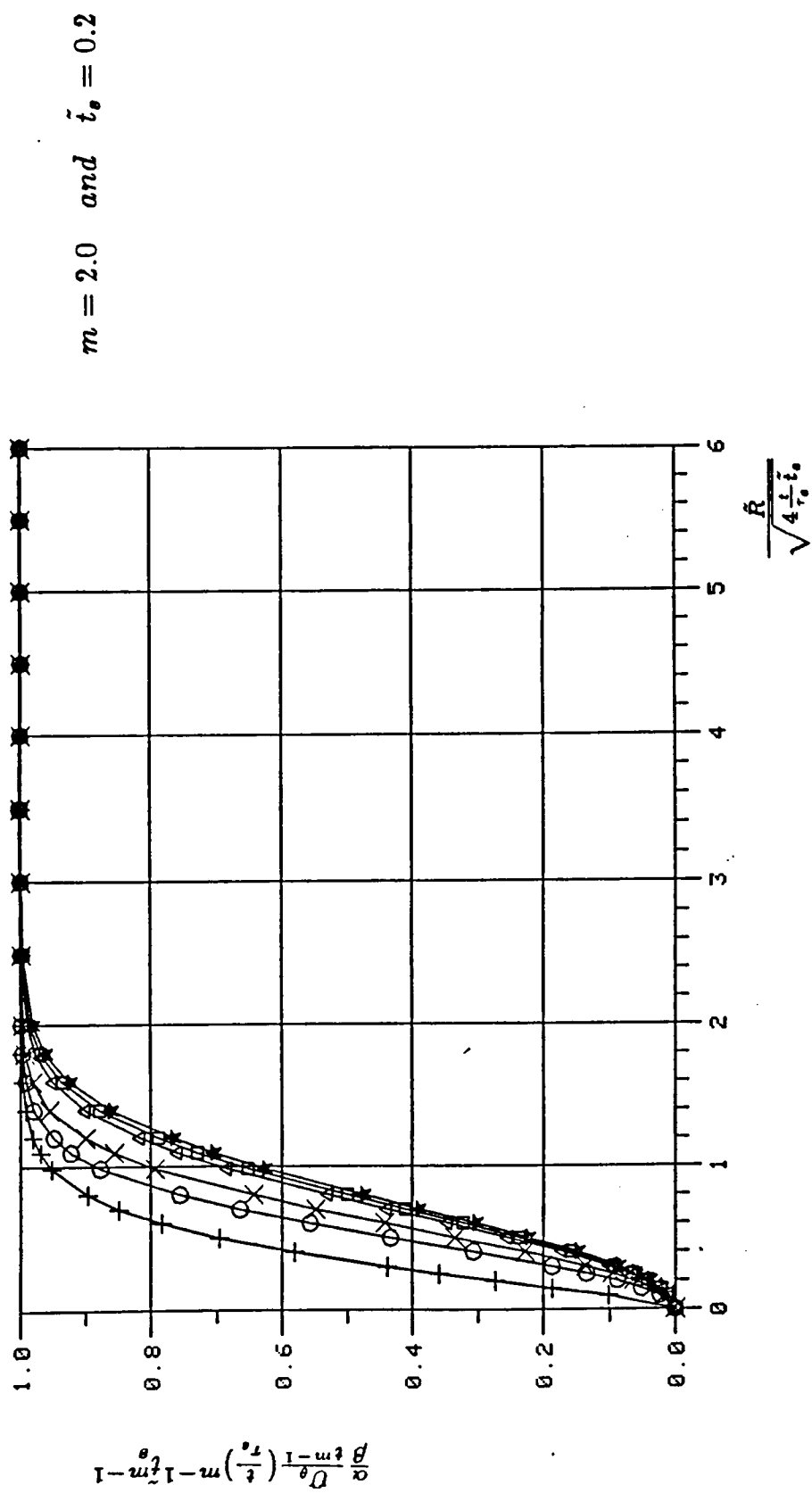


Figure 9. (continued)

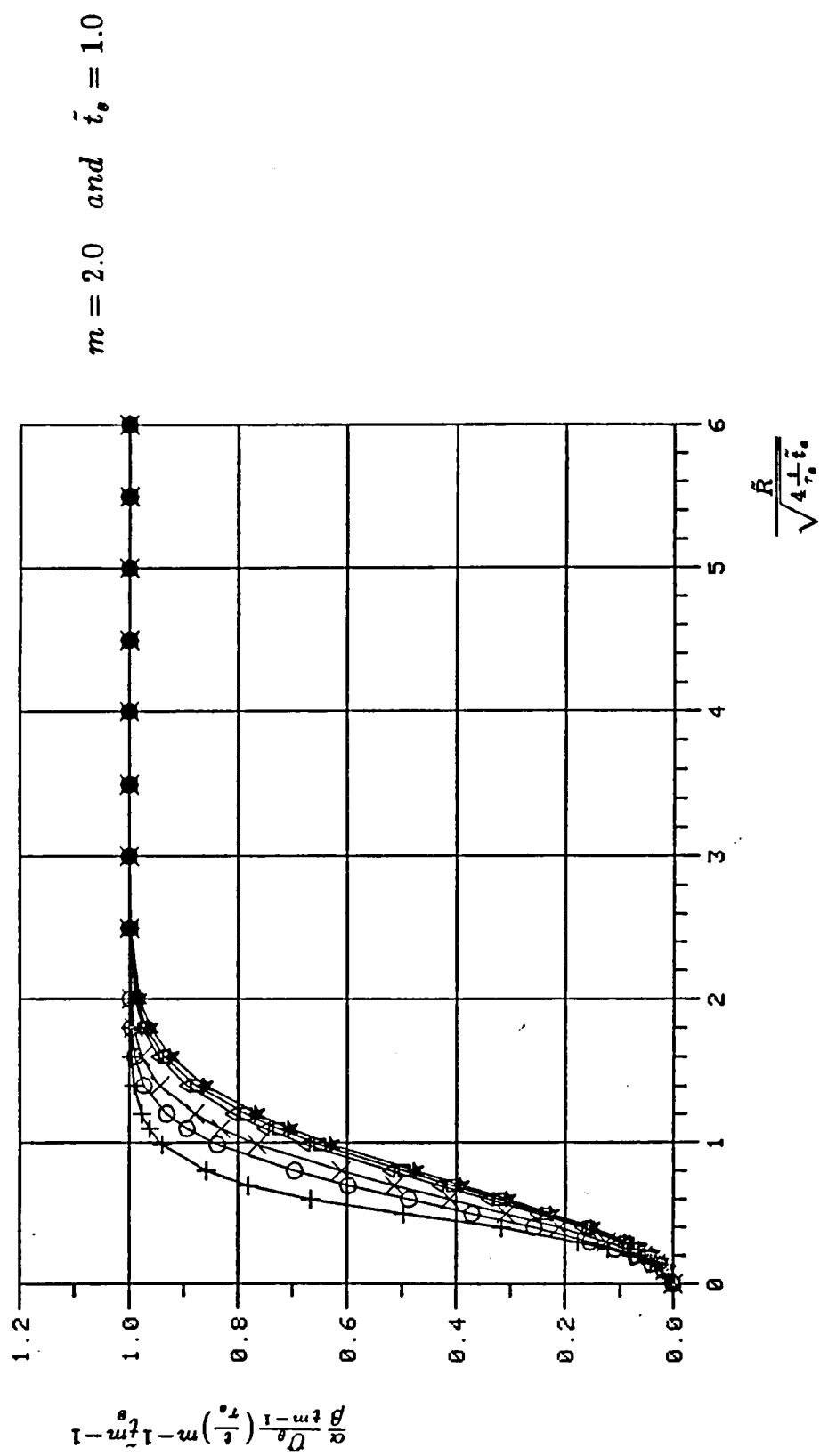


Figure 9. (continued)

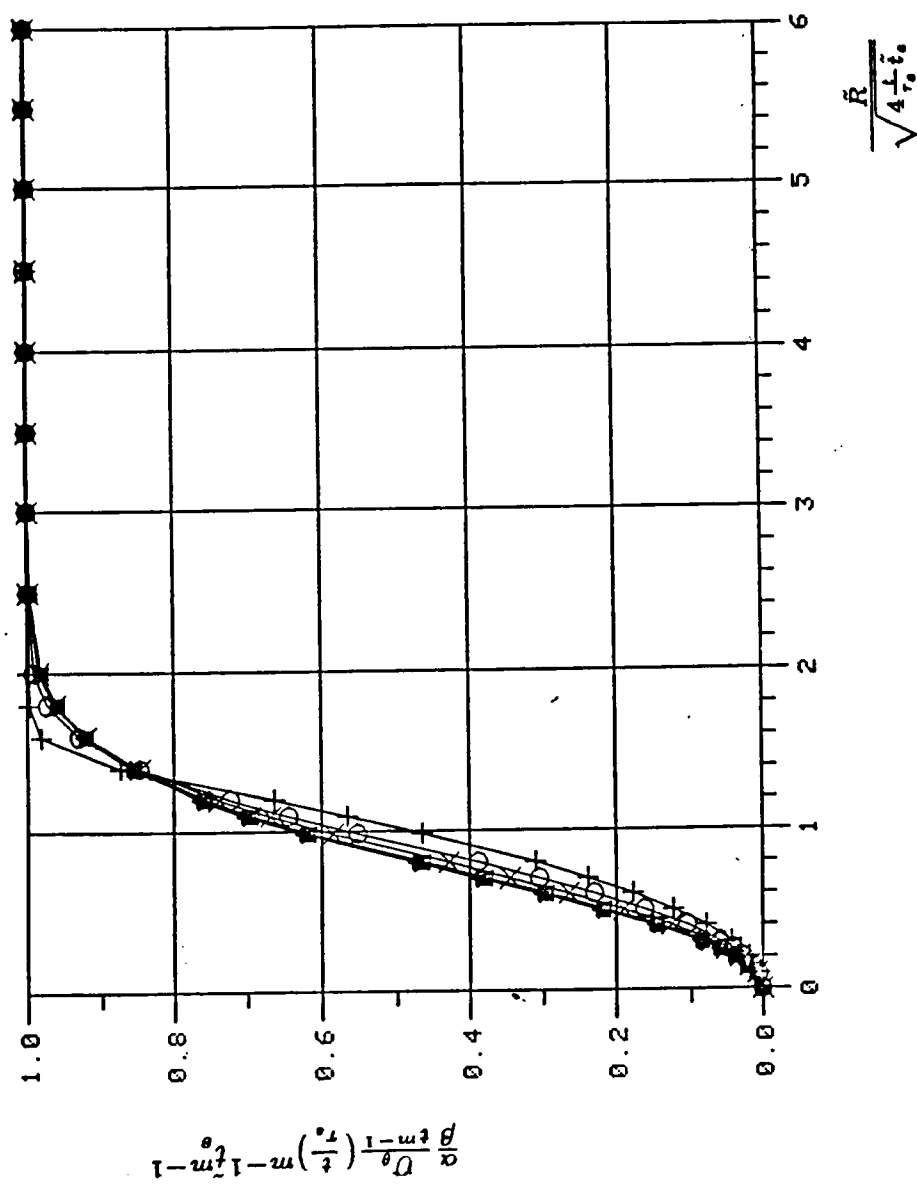


Figure 9. (continued)

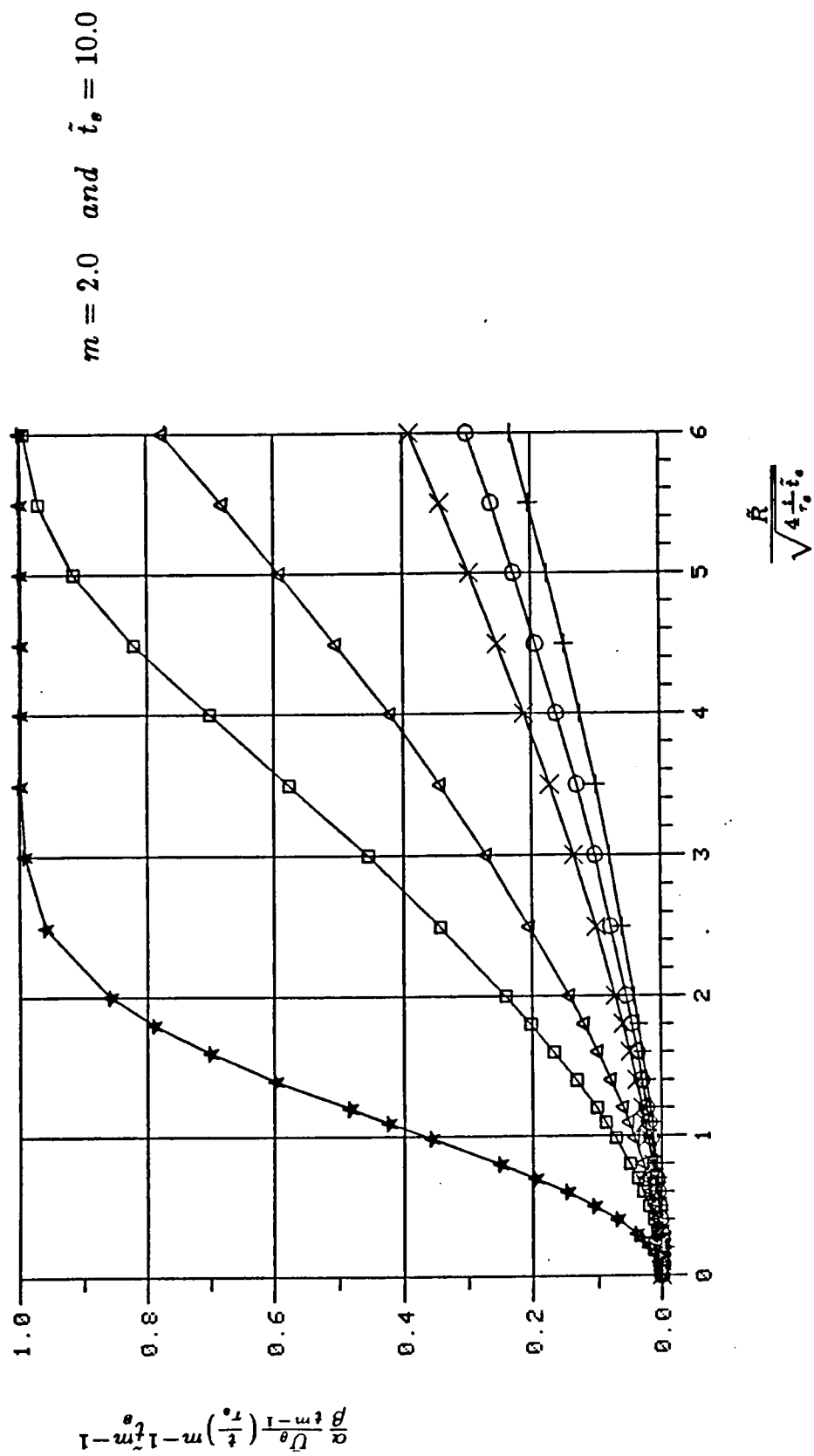


Figure 9. (continued)

CHAPTER VI

CONCLUSION

(1) In the formative stage of vortex, effect of viscosity removes the inviscid singularity and alters the radial profile significantly.

(2) Soon after the full separation from the body, the viscosity transforms the vortex into the Lamb-Oseen vortex.

LIST OF REFERENCES

LIST OF REFERENCES

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2. "Conduction of Heat in Solid" by Carslaw Jager (Oxford University Press).
3. "Handbook of Mathematical functions" by M. Abramowitz and I. A. Stegun (National Bureau of Standard).

APPENDIX

NUMERICAL DATA

Table 1. The effect of viscosity on the radial profile of vorticity of a vortex in pre-cut off stage.

R^*	$\nu^* = 10^{-3}$	$\nu^* = 10^{-2}$	$\nu^* = 0.1$	$\nu^* = 1.$	$\nu^* = 10.$
$m = 0.55$					
0.000E+00	0.1373E+05	1946.58	372	466	5470
0.1000	123.10	288.65	320.98	3354	5467
0.1500	58.10	75.55	320.98	44.33	5465
0.2000	34.23	37.58	27.69	4.32	5463
0.2500	22.73	23.86	27.69	4.22	5460
0.3000	16.29	16.62	25.80	4.21	5456
0.3500	12.30	12.82	23.73	4.14	5451
0.4000	9.77	9.76	21.65	4.11	5445
0.4500	7.42	7.45	19.75	4.03	5435
0.5000	5.35	5.45	17.62	4.03	5432
0.5500	4.35	4.41	15.75	3.91	5424
0.6000	3.52	3.50	13.00	3.85	5416
0.6500	3.34	3.35	12.40	3.81	5410
0.7000	3.27	3.27	10.95	3.75	5398
0.7500	3.22	3.22	8.72	3.72	5380
0.8000	3.22	3.22	7.67	3.72	5378
0.8500	3.22	3.22	6.54	3.65	5338
0.9000	3.22	3.22	5.41	3.53	5336
0.9500	3.22	3.22	4.22	3.22	5255
0.9900	3.22	3.22	3.79	2.51	5121
1.1000	3.22	3.22	3.45	2.12	4903
1.2000	3.22	3.22	3.13	1.85	4709
1.4000	3.22	3.22	2.79	1.45	4522
1.6000	3.22	3.22	2.45	1.24	4344
1.8000	3.22	3.22	2.13	1.07	4321
2.0000	3.22	3.22	1.85	0.93	3921
2.5000	3.22	3.22	1.53	0.75	3520
3.0000	3.22	3.22	1.34	0.63	3352

Table 1. (continued)

Table 1. (continued)

R^*	$\nu^* = 10^{-3}$	$\nu^* = 10^{-2}$	$\nu^* = 0.1$	$\nu^* = 1.$	$\nu^* = 10.$
$m = 0.6666$					
0.1000	48.609	74.622	10.528	1.830	0.2858
0.1500	26.087	30.193	10.938	1.825	0.2855
0.2000	16.054	17.499	9.536	1.808	0.2855
0.2500	12.154	12.377	9.070	1.797	0.2854
0.3000	9.159	7.386	8.554	1.795	0.2854
0.3500	7.259	5.018	8.028	1.771	0.2849
0.4000	5.976	3.027	7.444	1.756	0.2846
0.4500	4.247	2.065	6.898	1.739	0.2839
0.5000	3.651	1.706	6.595	1.721	0.2836
0.5500	3.230	1.458	6.425	1.701	0.2833
0.6000	2.864	1.278	6.319	1.680	0.2832
0.6500	2.563	1.149	6.257	1.653	0.2830
0.7000	2.311	1.052	6.220	1.636	0.2823
0.7500	2.097	0.976	6.150	1.611	0.2814
0.8000	1.915	0.924	6.050	1.589	0.2798
0.8500	1.748	0.886	5.926	1.563	0.2776
0.9000	1.623	0.859	5.780	1.538	0.2760
0.9500	1.523	0.840	5.620	1.512	0.2742
1.000	1.440	0.826	5.455	1.485	0.2728
1.200	1.200	0.800	5.185	1.408	0.2673
1.400	1.000	0.775	4.918	1.309	0.2622
1.600	0.800	0.750	4.672	1.244	0.2573
1.800	0.600	0.725	4.447	1.193	0.2528
2.000	0.400	0.700	4.242	1.151	0.2486
2.500	0.200	0.650	3.855	1.095	0.2414
3.000	0.100	0.600	3.528	1.045	0.2356
3.500	0.050	0.550	3.255	1.000	0.2302
4.000	0.025	0.500	3.028	0.960	0.2251
4.500	0.012	0.450	2.845	0.925	0.2202
5.000	0.006	0.400	2.706	0.895	0.2157
5.500	0.003	0.350	2.598	0.868	0.2114
6.000	0.001	0.300	2.515	0.844	0.2073
6.500	0.000	0.250	2.452	0.822	0.2034
7.000	0.000	0.200	2.405	0.802	0.1996
7.500	0.000	0.150	2.370	0.784	0.1960
8.000	0.000	0.100	2.345	0.768	0.1926
8.500	0.000	0.075	2.328	0.754	0.1894
9.000	0.000	0.050	2.316	0.742	0.1864
9.500	0.000	0.025	2.308	0.732	0.1836
10.000	0.000	0.012	2.303	0.724	0.1810

Table 1. (continued)

R^*	$\nu^* = 10^{-3}$	$\nu^* = 10^{-2}$	$\nu^* = 0.1$	$\nu^* = 1.$	$\nu^* = 10.$
$m = 1.$					
0.0	10.697	11.49	2.707	7613	0.1637
0.1	6.97	7.067	2.667	7604	0.1637
0.2	5.013	5.141	2.612	7590	0.1636
0.3	4.006	4.169	2.545	7574	0.1636
0.4	3.337	3.572	2.468	7553	0.1636
0.5	2.859	3.163	2.383	7529	0.1635
0.6	2.502	2.822	2.281	7501	0.1635
0.7	2.200	2.538	2.177	7470	0.1635
0.8	2.000	2.304	2.070	7436	0.1634
0.9	1.819	2.087	1.964	7399	0.1634
1.0	1.669	1.871	1.860	7357	0.1633
1.1	1.538	1.671	1.760	7312	0.1633
1.2	1.426	1.493	1.658	7265	0.1632
1.3	1.330	1.336	1.561	7214	0.1630
1.4	1.250	1.252	1.468	7161	0.1630
1.5	1.177	1.178	1.381	7106	0.1632
1.6	1.111	1.114	1.299	7044	0.1630
1.7	1.053	1.054	1.223	6984	0.1619
1.8	1.000	1.001	1.159	6934	0.1531
1.9	0.950	0.950	1.100	6883	0.1441
2.0	0.900	0.900	1.044	6831	0.1286
2.1	0.850	0.850	0.990	6779	0.1154
2.2	0.800	0.800	0.939	6726	0.1040
2.3	0.750	0.750	0.890	6673	0.9397E-01
2.4	0.700	0.700	0.842	6619	0.7352E-01
2.5	0.650	0.650	0.795	6565	0.5784E-01
2.6	0.600	0.600	0.750	6511	
2.7	0.550	0.550	0.707	6457	
2.8	0.500	0.500	0.666	6403	
2.9	0.450	0.450	0.627	6349	
3.0	0.400	0.400	0.590	6295	

Table 1. (continued)

R^*	$\nu^* = 10^{-3}$	$\nu^* = 10^{-2}$	$\nu^* = 0.1$	$\nu^* = 1.$	$\nu^* = 10.$
$m = 1.0$					
3.500	0.00000E+00	0.00000E+00	0.9432E-19	0.941E-02	0.9561E-01
4.500	0.00000E+00	0.00000E+00	0.5911E-18	0.2050E-03	0.3592E-01
4.500	0.00000E+00	0.00000E+00	0.1108E-22	0.5716E-03	0.2820E-01
5.500	0.00000E+00	0.00000E+00	0.6148E-28	0.1434E-04	0.2204E-01
5.500	0.00000E+00	0.00000E+00	0.0000E+00	0.3220E-04	0.1713E-01
6.000	0.00000E+00	0.00000E+00	0.0000E+00	0.6505E-05	0.1323E-01
6.000	0.00000E+00	0.00000E+00	0.0000E+00	0.1878E-05	0.7726E-02
7.500	0.00000E+00	0.00000E+00	0.0000E+00	0.2684E-07	0.5837E-02
7.500	0.00000E+00	0.00000E+00	0.0000E+00	0.3412E-08	0.4372E-02
8.500	0.00000E+00	0.00000E+00	0.0000E+00	0.3855E-09	0.3247E-02
8.500	0.00000E+00	0.00000E+00	0.0000E+00	0.3869E-10	0.2390E-02
9.500	0.00000E+00	0.00000E+00	0.0000E+00	0.3447E-11	0.1743E-02
9.500	0.00000E+00	0.00000E+00	0.0000E+00	0.2724E-12	0.1259E-02
10.00	0.00000E+00	0.00000E+00	0.0000E+00	0.2185E-14	0.1637E-03
11.00	0.00000E+00	0.00000E+00	0.0000E+00	0.3173E-17	0.3106E-03
12.00	0.00000E+00	0.00000E+00	0.0000E+00	0.3173E-17	0.3106E-03

Table 1. (continued)

R^*	$\nu^* = 10^{-3}$	$\nu^* = 10^{-2}$	$\nu^* = 0.1$	$\nu^* = 1.$	$\nu^* = 10.$
$m = 2.0$					
0.000E+00	4.326	2.424	0.716	3.234	0.9873E-01
0.1000	1.585	1.622	0.713	3.237	0.9875E-01
0.1500	1.292	1.306	0.711	3.237	0.9877E-01
0.2000	1.119	1.126	0.702	3.240	0.9881E-01
0.2500	1.000	1.055	0.696	3.245	0.9885E-01
0.3000	0.843	0.916	0.689	3.250	0.9891E-01
0.3500	0.750	0.846	0.680	3.256	0.9898E-01
0.4000	0.745	0.791	0.670	3.263	0.9907E-01
0.4500	0.772	0.746	0.659	3.271	0.9917E-01
0.5000	0.645	0.674	0.647	3.280	0.9929E-01
0.5500	0.626	0.650	0.634	3.299	0.9945E-01
0.6000	0.577	0.597	0.620	3.300	0.9955E-01
0.6500	0.559	0.555	0.606	3.323	0.9961E-01
0.7000	0.550	0.555	0.591	3.334	0.9967E-01
0.7500	0.543	0.552	0.576	3.356	0.9975E-01
0.8000	0.527	0.542	0.561	3.377	1.001
0.8500	0.513	0.527	0.547	3.391	1.005
0.9000	0.500	0.516	0.532	3.405	1.009
0.9500	0.483	0.500	0.517	3.438	1.000
1.000	0.460	0.480	0.503	3.550	0.9202E-01
1.200	0.400	0.400	0.431	3.520	0.8382E-01
1.400	0.300	0.300	0.315	3.117	0.7033E-01
1.600	0.200	0.200	0.255	1.777	0.5946E-01
1.800	0.100	0.100	0.152	1.141	0.5046E-01
2.000	0.000	0.000	0.080	0.576	0.4301E-01
2.500	0.000	0.000	0.012	0.145	0.2918E-01
3.000	0.000	0.000	0.000	0.000	0.1959E-01

Table 2. The effect of viscosity on the radial profile of tangential velocity of a vortex in pre-cut off stage.

R^*	$\nu^* = 10^{-3}$	$\nu^* = 10^{-2}$	$\nu^* = 0.1$	$\nu^* = 1.$	$\nu^* = 10.$
$m = 0.55$					
0.1000	45.73	41.69	3.632	3.157	0.4130
0.1500	31.59	33.83	4.777	4.191	0.5546
0.2000	23.54	23.44	5.532	4.722	0.6318
0.2500	20.49	20.45	6.137	5.250	0.6831
0.3000	18.22	18.24	6.675	5.743	0.7215
0.3500	16.43	16.40	7.155	6.172	0.7525
0.4000	15.03	15.03	7.599	6.576	0.7789
0.4500	13.85	13.88	8.013	6.923	0.8022
0.5000	12.85	12.93	8.350	7.234	0.8237
0.5500	11.97	11.71	8.633	7.509	0.8429
0.6000	11.20	10.94	8.860	7.746	0.8594
0.6500	10.54	10.26	9.028	7.940	0.8736
0.7000	9.97	9.66	9.133	8.097	0.8860
0.7500	9.47	9.13	9.183	8.207	0.8969
0.8000	9.01	8.63	9.193	8.271	0.9054
0.8500	8.59	8.17	9.163	8.293	0.9117
0.9000	8.21	7.73	9.093	8.275	0.9161
0.9500	7.85	7.30	8.983	8.213	0.9189
1.0000	7.51	6.92	8.832	8.109	0.9203
1.1000	6.99	6.35	8.552	7.933	0.9253
1.2000	6.55	5.91	8.257	7.733	0.9332
1.4000	5.71	5.11	7.502	7.460	0.9449
1.6000	5.01	4.41	6.590	6.925	0.9549
1.8000	4.41	3.82	5.902	6.256	0.9649

Table 2. (continued)

R^* $\nu^* = 10^{-3}$ $\nu^* = 10^{-2}$ $\nu^* = 0.1$ $\nu^* = 1.$ $\nu^* = 10.$

$m = 0.6666$

0.1000	9.3123	8.1866	0.5310	0.9190	0.0000	0.1430
0.1500	7.6526	7.3922	0.7673	0.1377	0.0000	0.2145
0.2000	6.6463	6.5224	1.0333	0.1633	0.0000	0.2860
0.2500	5.9539	5.8877	1.2655	0.2286	0.0000	0.3574
0.3000	5.4339	5.5011	1.4799	0.2737	0.0000	0.4286
0.3500	4.7169	4.6963	1.6799	0.3183	0.0000	0.5002
0.4000	4.4419	4.4333	1.8588	0.3622	0.0000	0.5715
0.4500	4.2256	4.2107	2.0163	0.4065	0.0000	0.6426
0.5000	4.0256	4.0178	2.1533	0.4495	0.0000	0.7137
0.5500	3.8355	3.8396	2.2708	0.4921	0.0000	0.7846
0.6000	3.6705	3.6596	2.3687	0.5340	0.0000	0.8554
0.6500	3.5211	3.5046	2.4478	0.5753	0.0000	0.9261
0.7000	3.3842	3.3689	2.5084	0.6155	0.0000	0.9967
0.7500	3.2421	3.2339	2.5585	0.6547	0.0000	1.0677
0.8000	3.1057	3.1005	2.6012	0.6934	0.0000	1.1388
0.8500	2.9657	2.9653	2.6115	0.7323	0.0000	1.2078
0.9000	2.8221	2.8233	2.6155	0.7694	0.0000	1.2748
0.9500	2.6755	2.6753	2.6051	0.8033	0.0000	1.3404
1.0000	2.5271	2.5275	2.5311	0.8335	0.0000	1.4047
1.2000	2.2494	2.2492	2.4049	0.8543	0.0000	1.5527
1.4000	2.1338	2.1338	2.1199	0.8543	0.0000	1.6777
1.6000	2.1871	2.1869	2.1860	0.8543	0.0000	1.9057
1.8000	1.9663	1.9662	1.9661	1.0074	0.0000	2.2089
2.1000	1.9425	1.9424	1.9424	1.0074	0.0000	2.2528

Table 2. (continued)

R^*	$\nu^* = 10^{-3}$	$\nu^* = 10^{-2}$	$\nu^* = 0.1$	$\nu^* = 1.$	$\nu^* = 10.$
$m = 0.6666$					
2.500	1.976	1.976	1.976	1.976	1.976
3.500	0.8551	0.8546	0.8542	0.8531	0.8525
4.500	0.7482	0.7477	0.7475	0.7461	0.7454
5.500	0.6651	0.6647	0.6644	0.6623	0.6613
6.500	0.5986	0.5982	0.5980	0.5974	0.5963
7.500	0.5442	0.5438	0.5436	0.5435	0.5424
8.500	0.4988	0.4985	0.4983	0.4983	0.4971
9.500	0.4604	0.4601	0.4600	0.4600	0.4588
10.500	0.4276	0.4273	0.4271	0.4271	0.4259
11.500	0.3991	0.3988	0.3986	0.3986	0.3974
12.00	0.3741	0.3739	0.3737	0.3737	0.3725
	0.3522	0.3519	0.3517	0.3517	0.3505
	0.3325	0.3323	0.3322	0.3322	0.3310
	0.3150	0.3148	0.3147	0.3147	0.3135
	0.2993	0.2991	0.2990	0.2990	0.2977
	0.2721	0.2719	0.2718	0.2718	0.2705
	0.2494	0.2492	0.2492	0.2492	0.2479

Table 2. (continued)

R^*	$\nu^* = 10^{-3}$	$\nu^* = 10^{-2}$	$\nu^* = 0.1$	$\nu^* = 1.$	$\nu^* = 10.$
$m = 1.$					
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	0.0098	0.8774	0.1361	0.008E-01	0.005E-01
0.1500	0.0955	0.9514	0.2027	0.3808E-01	0.1228E-01
0.2000	0.0975	0.9739	0.2675	0.5709E-01	0.1637E-01
0.2500	0.0984	0.9836	0.3300	0.7605E-01	0.2046E-01
0.3000	0.0989	0.9887	0.3899	0.9496E-01	0.2455E-01
0.3500	0.0992	0.9917	0.4460	0.1138	0.2863E-01
0.4000	0.0994	0.9937	0.5000	0.1326	0.3272E-01
0.4500	0.0995	0.9950	0.5498	0.1512	0.3681E-01
0.5000	0.0996	0.9960	0.5959	0.1698	0.4089E-01
0.5500	0.0997	0.9967	0.6383	0.1882	0.4497E-01
0.6000	0.0997	0.9972	0.6769	0.2065	0.4905E-01
0.6500	0.0998	0.9976	0.7119	0.2246	0.5313E-01
0.7000	0.0997	0.9980	0.7434	0.2426	0.5720E-01
0.7500	0.0997	0.9982	0.7716	0.2604	0.6126E-01
0.8000	0.0998	0.9984	0.7967	0.2785	0.6533E-01
0.8500	0.0998	0.9986	0.8189	0.2955	0.6938E-01
0.9000	0.0998	0.9988	0.8385	0.3127	0.7345E-01
0.9500	0.0999	0.9989	0.8557	0.3297	0.7752E-01
0.9900	0.0999	0.9990	0.8679	0.3458	0.8078E-01
1.1000	0.09107	0.9999	0.8812	0.3558	0.8920E-01
1.2000	0.08348	0.9099	0.8916	0.3910	0.9598E-01
1.4000	0.07155	0.8341	0.8119	0.4104	0.9595E-01
1.6000	0.06261	0.7149	0.7119	0.4304	0.1075
1.8000	0.05565	0.6261	0.5555	0.4275	0.1169
					0.1246

Table 2. (continued)

R^*	$\nu^* = 10^{-3}$	$\nu^* = 10^{-2}$	$\nu^* = 0.1$	$\nu^* = 1.$	$\nu^* = 10.$
$m = 1.$					
2.100	0.4779	0.4769	0.4762	0.4064	0.1336
2.500	0.4007	0.4004	0.4000	0.3698	0.1420
3.500	0.3339	0.3336	0.3333	0.3237	0.1492
3.500	0.2862	0.2860	0.2857	0.2827	0.1509
4.500	0.2564	0.2562	0.2560	0.2491	0.1510
4.500	0.2226	0.2224	0.2222	0.2220	0.1492
5.500	0.2003	0.2002	0.2000	0.1999	0.1462
5.500	0.1821	0.1820	0.1818	0.1817	0.1422
6.500	0.1670	0.1668	0.1667	0.1667	0.1375
6.500	0.1541	0.1540	0.1538	0.1538	0.1325
7.500	0.1431	0.1430	0.1429	0.1429	0.1273
7.500	0.1336	0.1335	0.1333	0.1333	0.1221
8.500	0.1252	0.1251	0.1250	0.1250	0.1169
8.500	0.1179	0.1178	0.1176	0.1176	0.1119
9.500	0.1113	0.1112	0.1111	0.1111	0.1070
9.500	0.1054	0.1054	0.1053	0.1053	0.1024
10.00	0.1002	0.1001	0.1000	0.1000	0.9800F-01
11.00	0.9107E-01	0.9099E-01	0.9091E-01	0.9091E-01	0.8996E-01
12.00	0.8348E-01	0.8341E-01	0.8333E-01	0.8333E-01	0.8290E-01

Table 2. (continued)

R^* $\nu^* = 10^{-3}$ $\nu^* = 10^{-2}$ $\nu^* = 0.1$ $\nu^* = 1.$ $\nu^* = 10.$

$m = 2.$

00E-20	00E+00	00E+00	00E+00	00E+00	00E+00
10000	00467	0097E-01	00552E-01	0017E-01	0036E-02
0.1000	0.1046	0.0969	0.0552	0.0170	0.0036
0.2500	0.1288	0.1246	0.118E-01	0.066E-01	0.0078
0.3500	0.1488	0.1462	0.0860	0.0423	0.0123
0.4500	0.1665	0.1640	0.1060	0.0678	0.0173
0.5000	0.1824	0.1810	0.1230	0.0867	0.0221
0.5500	0.1971	0.1960	0.1397	0.1063	0.0272
0.6000	0.2107	0.2050	0.1561	0.1237	0.0322
0.6500	0.2235	0.2235	0.1721	0.141E-01	0.0371
0.7000	0.2356	0.2356	0.1876	0.159E-01	0.0419
0.7500	0.2471	0.2477	0.2027	0.1760	0.0463
0.8000	0.2587	0.2588	0.2173	0.1900	0.0505
0.8500	0.2689	0.2685	0.2314	0.2037	0.0545
0.9000	0.2786	0.2780	0.2459	0.2161	0.0583
0.9500	0.2873	0.2866	0.2570	0.2293	0.0619
1.0000	0.2956	0.2944	0.2693	0.2417	0.0653
1.1000	0.3037	0.3037	0.2827	0.2542	0.0685
1.2000	0.3116	0.3114	0.2958	0.2669	0.0715
1.4000	0.3283	0.3278	0.3083	0.2785	0.0741
1.6000	0.3353	0.3346	0.3203	0.2893	0.0764
1.8000	0.3418	0.3408	0.3318	0.2995	0.0783
2.0000	0.3478	0.3466	0.3428	0.3093	0.0800
2.5000	0.3600	0.3585	0.3632	0.3302	0.0841
3.0000	0.3700	0.3683	0.3852	0.3511	0.0873
4.0000	0.3853	0.3835	0.4181	0.3861	0.0921
5.0000	0.4000	0.3980	0.4511	0.4283	0.0963
6.0000	0.4143	0.4121	0.4841	0.4711	0.1000
7.0000	0.4281	0.4258	0.5171	0.5161	0.1033
8.0000	0.4414	0.4390	0.5501	0.5611	0.1063
9.0000	0.4542	0.4517	0.5831	0.6061	0.1090
10.0000	0.4665	0.4639	0.6161	0.6511	0.1115
12.0000	0.4853	0.4826	0.6801	0.7383	0.1153
14.0000	0.5000	0.4972	0.7441	0.8253	0.1188
16.0000	0.5143	0.5114	0.8081	0.9123	0.1221
18.0000	0.5281	0.5251	0.8711	1.0000	0.1250
20.0000	0.5414	0.5383	0.9341	1.0873	0.1275
25.0000	0.5700	0.5668	1.0671	1.1687	0.1311
30.0000	0.5973	0.5939	1.1301	1.2511	0.1343
40.0000	0.6414	0.6378	1.2361	1.4067	0.1400
50.0000	0.6800	0.6762	1.3411	1.5429	0.1443
60.0000	0.7143	0.7104	1.4461	1.6783	0.1481
70.0000	0.7481	0.7441	1.5501	1.8133	0.1515
80.0000	0.7814	0.7773	1.6541	1.9483	0.1545
90.0000	0.8143	0.8101	1.7581	2.0833	0.1571
100.0000	0.8471	0.8428	1.8621	2.2183	0.1593
120.0000	0.8900	0.8856	2.0161	2.4033	0.1633
140.0000	0.9281	0.9236	2.1701	2.5883	0.1668
160.0000	0.9614	0.9568	2.3241	2.7733	0.1700
180.0000	0.9943	0.9896	2.4781	2.9583	0.1728
200.0000	1.0271	1.0223	2.6321	3.1433	0.1753
250.0000	1.0853	1.0804	2.9361	3.4383	0.1793
300.0000	1.1431	1.1381	3.2401	3.7333	0.1828
400.0000	1.2361	1.2310	3.8841	4.3283	0.1883
500.0000	1.3291	1.3239	4.5281	4.9233	0.1928
600.0000	1.4221	1.4168	5.1721	5.5183	0.1963
700.0000	1.5151	1.5097	5.8161	6.1133	0.1988
800.0000	1.6081	1.6026	6.4601	6.7083	0.2013
900.0000	1.7011	1.6955	7.1041	7.3033	0.2038
1000.0000	1.7941	1.7884	7.7481	7.8983	0.2063
1200.0000	1.9361	1.9303	8.7321	8.8933	0.2108
1400.0000	2.0781	2.0722	9.7161	9.8883	0.2153
1600.0000	2.2201	2.2141	10.7001	10.8833	0.2198
1800.0000	2.3621	2.3560	11.6841	11.8783	0.2243
2000.0000	2.5041	2.4979	12.6681	12.8733	0.2288
2500.0000	2.8901	2.8838	14.6021	14.8183	0.2383
3000.0000	3.2761	3.2697	16.5361	16.7633	0.2478
4000.0000	3.9921	3.9856	19.4701	19.7083	0.2623
5000.0000	4.7081	4.7015	22.4041	22.6533	0.2768
6000.0000	5.4241	5.4174	25.3381	25.5983	0.2913
7000.0000	6.1401	6.1333	28.2721	28.5433	0.3058
8000.0000	6.8561	6.8492	31.2061	31.4883	0.3203
9000.0000	7.5721	7.5651	34.1401	34.4333	0.3348
10000.0000	8.2881	8.2810	37.0741	37.3783	0.3493
12000.0000	9.4041	9.3969	43.0081	43.3233	0.3638
14000.0000	10.5201	10.5128	48.9421	49.2683	0.3783
16000.0000	11.6361	11.6287	54.8761	55.2133	0.3928
18000.0000	12.7521	12.7446	60.8101	61.1583	0.4073
20000.0000	13.8681	13.8605	66.7441	67.1033	0.4218
25000.0000	16.0001	15.9924	78.6781	79.0483	0.4413
30000.0000	18.1321	18.1243	90.6121	90.9933	0.4608
40000.0000	22.2641	22.2562	112.5461	112.9383	0.4803
50000.0000	26.3961	26.3881	134.4801	134.8833	0.4998
60000.0000	30.5281	30.5199	156.4141	156.8283	0.5193
70000.0000	34.6601	34.6518	178.3481	178.7733	0.5388
80000.0000	38.7921	38.7837	200.2821	200.7183	0.5583
90000.0000	42.9241	42.9156	222.2161	222.6633	0.5778
100000.0000	47.0561	47.0475	244.1501	244.6083	0.5973
120000.0000	53.1881	53.1794	286.0841	286.5533	0.6168
140000.0000	59.3201	59.3113	328.0181	328.4983	0.6363
160000.0000	65.4521	65.4432	370.9521	370.4433	0.6558
180000.0000	71.5841	71.5751	412.8861	412.3883	0.6753
200000.0000	77.7161	77.7070	454.8201	454.3333	0.6948
250000.0000	91.8481	91.8389	536.7541	536.2783	0.7143
300000.0000	105.9801	105.9708	618.6881	618.2233	0.7338
400000.0000	134.1121	134.1027	760.6221	760.1683	0.7533
500000.0000	162.2441	162.2346	902.5561	902.1133	0.7728
600000.0000	190.3761	190.3665	1044.4901	1044.0583	0.7923
700000.0000	218.5081	218.4984	1186.4241	1186.0033	0.8118
800000.0000	246.6401	246.6304	1328.3581	1327.9483	0.8313
900000.0000	274.7721	274.7623	1470.2921	1470.8933	0.8508
1000000.0000	302.9041	302.8942	1612.2261	1612.8383	0.8703
1200000.0000	341.0361	341.0261	1912.1601	1912.7833	0.8898
1400000.0000	379.1681	379.1580	2212.0941	2212.7283	0.9093
1600000.0000	417.3001	417.2900	2512.0281	2512.6733	0.9288
1800000.0000	455.4321	455.4220	2811.9621	2811.6183	0.9483
2000000.0000	493.5641	493.5540	3111.8961	3111.5633	0.9678
2500000.0000	581.6961	581.6859	3711.8301	3711.5083	0.9873
3000000.0000	669.8281	669.8179	4311.7641	4311.4533	1.0068
4000000.0000	811.9601	811.9498	5111.6981	5111.3983	1.0263
5000000.0000	954.0921	954.0818	5911.6321	5911.3433	1.0458
6000000.0000	1096.2241	1096.2138	6711.5661	6711.2883	1.0653
7000000.0000	1238.3561	1238.3458	7511.5001	7511.2333	1.0848
8000000.0000	1380.4881	1380.4778	8311.4341	8311.1783	1.1043
9000000.0000	1522.6201	1522.6098	9111.3681	9111.1233	1.1238
10000000.0000	1664.7521	1664.7418	9911.3021	9911.0683	1.1433
12000000.0000	1846.8841	1846.8738	11311.2361	11311.0133	1.1628
14000000.0000	2029.0161	2029.0058	12711.1701	12710.9583	1.1823
16000000.0000	2211.1481	2211.1378	14111.1041	14110.9033	1.2018
18000000.0000	2393.2801	2393.2698	15511.0381	15510.8483	1.2213
20000000.0000	2575.4121	2575.4018	16910.9721	16910.7933	1.2408
25000000.0000	3039.5441	3039.5338	19910.9061	19910.7383	1.2603
30000000.0000	3503.6761	3503.6658	22910.8401	22910.6833	1.2798
40000000.0000	4311.8081	4311.7978	27910.7741	27910.6283	1.2993
50000000.0000	5120.9401	5120.9298	31910.7081	31910.5733	1.3188
60000000.0000	5929.0721	5929.0618	35910.6421	35910.5183	1.3383
70000000.0000	6737.2041	6737.1938	39910.5761	39910.4633	1.3578
80000000.0000	7545.3361	7545.3258	43910.5101	43910.4083	1.3773
90000000.0000	8353.4681	8353.4578	47910.4441	47910.3533	1.3968
100000000.0000	9161.6001	9161.5898	51910.3781	51910.2983	1.4163
120000000.0000	10159.7321	10159.7218	59910.3121	59910.2433	1.4358
140000000.0000	11157.8641	11157.8538	67910.2461	67910.1883	1.4553
160000000.0000	12155.9961	12155.9858	75910.1801	75910.1333	1.4748
180000000.0000	13154.1281	13154.1178	83910.1141	83910.0783	1.4943
200000000.0000	14152.2601	14152.2498	91910.0481	91910.0233	1.5138
250000000.0000	16150.3921	16150.3818	105910.0121	105910.0083	1.5333
300000000.0000	18148.5241	18148.5138	119910.0061	119910.0033	1.5528
400000000.0000	22146.6561	22146.6458	139910.0001	139910.0000	1.5723
500000000.0000	26144.7881	26144.7778	159910.0001	159910.0000	1.5918
600000000.0000	30142.9201	30142.9098	179910.0001	179910.0000	1.6113
700000000.0000	34141.0521	34141.0418	199910.0001	199910.0000	1.6308
800000000.0000	38139.1841	38139.1738	219910.0001	219910.0000	1.6503
900000000.0000	42137.3161	42137.3058	239910.0001	239910.0000	1.6698
1000000000.0000	46135.4481	46135.4378	259910.0001	259910.0000	1.6893
1200000000.0000	52133.5801	52133.5698	299910.0001	299910.0000	1.7088
1400000000.0000	58131.7121	58131.7018	339910.0001	339910.0000	1.7283
1600000000.0000	64129.8441	64129.8338	379910.0001	379910.0000	1.7478
1800000000.0000	70127.9761	70127.9658	419910.0001	419910.0000	1.7673
2000000000.0000	76126.1081	76126.0978	45991		

Table 2. (continued)

R^*	$\nu^* = 10^{-3}$	$\nu^* = 10^{-2}$	$\nu^* = 0.1$	$\nu^* = 1.$	$\nu^* = 10.$
	$m = 2.$				
2.100	0.15334	0.15336	0.15333	0.15310	0.15342
3.500	0.15334	0.15336	0.15333	0.15310	0.15342
4.500	0.15334	0.15336	0.15333	0.15310	0.15342
5.500	0.15334	0.15336	0.15333	0.15310	0.15342
6.500	0.15334	0.15336	0.15333	0.15310	0.15342
7.500	0.15334	0.15336	0.15333	0.15310	0.15342
8.500	0.15334	0.15336	0.15333	0.15310	0.15342
9.500	0.15334	0.15336	0.15333	0.15310	0.15342
10.500	0.15334	0.15336	0.15333	0.15310	0.15342
11.500	0.15334	0.15336	0.15333	0.15310	0.15342
12.500	0.15334	0.15336	0.15333	0.15310	0.15342
13.500	0.15334	0.15336	0.15333	0.15310	0.15342
14.500	0.15334	0.15336	0.15333	0.15310	0.15342
15.500	0.15334	0.15336	0.15333	0.15310	0.15342
16.500	0.15334	0.15336	0.15333	0.15310	0.15342
17.500	0.15334	0.15336	0.15333	0.15310	0.15342
18.500	0.15334	0.15336	0.15333	0.15310	0.15342
19.500	0.15334	0.15336	0.15333	0.15310	0.15342
20.500	0.15334	0.15336	0.15333	0.15310	0.15342
21.500	0.15334	0.15336	0.15333	0.15310	0.15342
22.500	0.15334	0.15336	0.15333	0.15310	0.15342
23.500	0.15334	0.15336	0.15333	0.15310	0.15342
24.500	0.15334	0.15336	0.15333	0.15310	0.15342
25.500	0.15334	0.15336	0.15333	0.15310	0.15342
26.500	0.15334	0.15336	0.15333	0.15310	0.15342
27.500	0.15334	0.15336	0.15333	0.15310	0.15342
28.500	0.15334	0.15336	0.15333	0.15310	0.15342
29.500	0.15334	0.15336	0.15333	0.15310	0.15342
30.500	0.15334	0.15336	0.15333	0.15310	0.15342
31.500	0.15334	0.15336	0.15333	0.15310	0.15342
32.500	0.15334	0.15336	0.15333	0.15310	0.15342
33.500	0.15334	0.15336	0.15333	0.15310	0.15342
34.500	0.15334	0.15336	0.15333	0.15310	0.15342
35.500	0.15334	0.15336	0.15333	0.15310	0.15342
36.500	0.15334	0.15336	0.15333	0.15310	0.15342
37.500	0.15334	0.15336	0.15333	0.15310	0.15342
38.500	0.15334	0.15336	0.15333	0.15310	0.15342
39.500	0.15334	0.15336	0.15333	0.15310	0.15342
40.500	0.15334	0.15336	0.15333	0.15310	0.15342
41.500	0.15334	0.15336	0.15333	0.15310	0.15342
42.500	0.15334	0.15336	0.15333	0.15310	0.15342
43.500	0.15334	0.15336	0.15333	0.15310	0.15342
44.500	0.15334	0.15336	0.15333	0.15310	0.15342
45.500	0.15334	0.15336	0.15333	0.15310	0.15342
46.500	0.15334	0.15336	0.15333	0.15310	0.15342
47.500	0.15334	0.15336	0.15333	0.15310	0.15342
48.500	0.15334	0.15336	0.15333	0.15310	0.15342
49.500	0.15334	0.15336	0.15333	0.15310	0.15342
50.500	0.15334	0.15336	0.15333	0.15310	0.15342

Table 3. The change of the radial profile of vorticity of a vortex with time in pre-cut off stage.

$\tilde{R}$	$\tilde{t} = 0.1$	$\tilde{t} = 0.5$	$\tilde{t} = 1.0$	$\tilde{t} = 2.0$	$\tilde{t} = 10.$
$m = 0.55$					
0.1000E-25	35.12	745	4.440	2.362	0.5457
0.1000	35.32	8.30	4.430	366	0.5454
0.1500	34.36	8.26	4.418	356	0.5454
0.2000	33.05	8.19	4.401	346	0.5449
0.3000	31.45	8.01	4.379	339	0.5446
0.3500	29.13	7.90	4.352	330	0.5444
0.4000	25.94	7.77	4.328	321	0.5443
0.4500	22.06	7.62	4.245	310	0.5437
0.5000	17.40	7.49	4.200	298	0.5432
0.5500	14.96	7.35	4.159	284	0.5426
0.6000	12.53	7.21	4.104	270	0.5420
0.6500	10.81	7.08	4.033	254	0.5415
0.7000	9.23	6.93	3.920	237	0.5398
0.7500	7.86	6.77	3.854	219	0.5389
0.8000	6.61	6.60	3.784	200	0.5380
0.8500	5.57	6.53	3.712	186	0.5375
0.9000	4.72	6.44	3.640	169	0.5359
0.9500	4.15	6.37	3.576	138	0.5349
0.9900	3.77	6.30	3.509	119	0.5333
1.1000	3.30	6.26	3.467	106	0.5331
1.2000	2.97	6.19	3.409	94	0.5328
1.4000	2.55	6.07	3.357	81	0.5315
1.6000	2.22	5.95	3.297	73	0.5294
1.8000	2.02	5.83	3.230	65	0.5275
2.000	1.86	5.76	3.173	58	0.5078
3.000	1.34	5.66	3.071	52	0.4994
		0.2276E-01	0.73713	0.58702	0.47523
		0.0000E-08	0.3718	0.6702	0.4477

Table 3. (continued)

Table 3. (continued)

$\tilde{R}$	$\tilde{t} = 0.1$	$\tilde{t} = 0.5$	$\tilde{t} = 1.0$	$\tilde{t} = 2.0$	$\tilde{t} = 10.$
$m = 0.6666$					
0.1000E-25	10.0453	3.0689	1.8400	1.1012	0.0006
0.1000	9.8424	0.0540	1.8336	1.1099	0.0003
0.1500	9.6227	0.0294	1.8266	1.1098	0.0003
0.2500	9.3278	0.0099	1.8199	1.1095	0.0003
0.3000	8.7064	0.0034	1.8099	1.1089	0.0003
0.3500	7.0061	0.0015	1.7896	1.1085	0.0003
0.4500	5.1522	0.0004	1.7722	1.1081	0.0003
0.5000	4.3549	0.0001	1.7757	1.1076	0.0003
0.5500	3.6434	0.0000	1.7740	1.1071	0.0003
0.6000	3.0340	0.0000	1.7703	1.1060	0.0003
0.6500	2.5042	0.0000	1.7682	1.1053	0.0003
0.7000	2.1551	0.0000	1.7663	1.1046	0.0003
0.7500	1.9327	0.0000	1.7637	1.1039	0.0003
0.8000	1.8047	0.0000	1.7618	1.1031	0.0003
0.8500	1.6890	0.0000	1.7587	1.1023	0.0003
0.9000	1.5925	0.0000	1.7562	1.1014	0.0003
0.9500	1.5067	0.0000	1.7538	1.1007	0.0003
1.0000	1.4001	0.0000	1.7509	1.0986	0.0003
1.1000	1.2719	0.0000	1.7465	1.0958	0.0003
1.2000	1.1544	0.0000	1.7409	1.0921	0.0003
1.3000	1.0389	0.0000	1.7346	1.0877	0.0003
1.4000	0.9310	0.0000	1.7279	1.0827	0.0003
1.5000	0.8370	0.0000	1.7208	1.0771	0.0003
1.6000	0.7540	0.0000	1.7135	1.0711	0.0003
1.7000	0.6801	0.0000	1.7060	1.0649	0.0003
1.8000	0.6141	0.0000	1.6984	1.0586	0.0003
1.9000	0.5551	0.0000	1.6907	1.0523	0.0003
2.0000	0.5027	0.0000	1.6829	1.0460	0.0003
2.5000	0.3927	0.0000	1.6637	1.0234	0.0003
3.0000	0.3061	0.0000	1.6418	1.0007	0.0003
3.5000	0.2395	0.0000	1.6182	0.9861	0.0003
4.0000	0.1901	0.0000	1.5935	0.9858	0.0003
4.5000	0.1544	0.0000	1.5685	0.9954	0.0003
5.0000	0.1289	0.0000	1.5456	0.9987	0.0003
5.5000	0.1091	0.0000	1.5250	0.9944	0.0003
6.0000	0.0944	0.0000	1.5055	0.9914	0.0003
6.5000	0.0829	0.0000	1.4863	0.9884	0.0003
7.0000	0.0741	0.0000	1.4684	0.9857	0.0003
7.5000	0.0672	0.0000	1.4517	0.9831	0.0003
8.0000	0.0619	0.0000	1.4359	0.9807	0.0003
8.5000	0.0571	0.0000	1.4209	0.9784	0.0003
9.0000	0.0527	0.0000	1.4066	0.9761	0.0003
9.5000	0.0487	0.0000	1.3929	0.9739	0.0003
10.0000	0.0451	0.0000	1.3798	0.9717	0.0003
11.0000	0.0401	0.0000	1.3674	0.9694	0.0003
12.0000	0.0357	0.0000	1.3556	0.9671	0.0003
13.0000	0.0318	0.0000	1.3443	0.9648	0.0003
14.0000	0.0283	0.0000	1.3335	0.9625	0.0003
15.0000	0.0252	0.0000	1.3230	0.9602	0.0003
16.0000	0.0224	0.0000	1.3129	0.9579	0.0003
17.0000	0.0200	0.0000	1.3031	0.9556	0.0003
18.0000	0.0178	0.0000	1.2936	0.9533	0.0003
19.0000	0.0159	0.0000	1.2844	0.9510	0.0003
20.0000	0.0142	0.0000	1.2754	0.9487	0.0003
25.0000	0.0107	0.0000	1.2450	0.9425	0.0003
30.0000	0.0080	0.0000	1.2109	0.9270	0.0003
35.0000	0.0060	0.0000	1.1728	0.9098	0.0003
40.0000	0.0046	0.0000	1.1311	0.8914	0.0003
45.0000	0.0035	0.0000	1.0864	0.8719	0.0003
50.0000	0.0027	0.0000	1.0394	0.8514	0.0003
55.0000	0.0020	0.0000	0.9907	0.8299	0.0003
60.0000	0.0015	0.0000	0.9409	0.8076	0.0003
65.0000	0.0011	0.0000	0.8904	0.7848	0.0003
70.0000	0.0008	0.0000	0.8397	0.7617	0.0003
75.0000	0.0006	0.0000	0.7884	0.7384	0.0003
80.0000	0.0004	0.0000	0.7369	0.7147	0.0003
85.0000	0.0003	0.0000	0.6856	0.6907	0.0003
90.0000	0.0002	0.0000	0.6347	0.6664	0.0003
95.0000	0.0001	0.0000	0.5844	0.6417	0.0003
100.0000	0.0001	0.0000	0.5346	0.6171	0.0003
110.0000	0.0000	0.0000	0.4854	0.5925	0.0003
120.0000	0.0000	0.0000	0.4368	0.5680	0.0003
130.0000	0.0000	0.0000	0.3889	0.5435	0.0003
140.0000	0.0000	0.0000	0.3418	0.5190	0.0003
150.0000	0.0000	0.0000	0.2956	0.4946	0.0003
160.0000	0.0000	0.0000	0.2503	0.4703	0.0003
170.0000	0.0000	0.0000	0.2059	0.4461	0.0003
180.0000	0.0000	0.0000	0.1625	0.4220	0.0003
190.0000	0.0000	0.0000	0.1201	0.3980	0.0003
200.0000	0.0000	0.0000	0.0786	0.3742	0.0003
250.0000	0.0000	0.0000	0.0371	0.3209	0.0003
300.0000	0.0000	0.0000	0.0194	0.2686	0.0003
350.0000	0.0000	0.0000	0.0107	0.2168	0.0003
400.0000	0.0000	0.0000	0.0060	0.1654	0.0003
450.0000	0.0000	0.0000	0.0035	0.1144	0.0003
500.0000	0.0000	0.0000	0.0020	0.0639	0.0003
550.0000	0.0000	0.0000	0.0011	0.0331	0.0003
600.0000	0.0000	0.0000	0.0006	0.0186	0.0003
650.0000	0.0000	0.0000	0.0003	0.0107	0.0003
700.0000	0.0000	0.0000	0.0002	0.0060	0.0003
750.0000	0.0000	0.0000	0.0001	0.0035	0.0003
800.0000	0.0000	0.0000	0.0000	0.0020	0.0003
850.0000	0.0000	0.0000	0.0000	0.0011	0.0003
900.0000	0.0000	0.0000	0.0000	0.0006	0.0003
950.0000	0.0000	0.0000	0.0000	0.0003	0.0003
1000.0000	0.0000	0.0000	0.0000	0.0002	0.0003

Table 3. (continued)

Table 3. (continued)

$\tilde{R}$	$\tilde{t} = 0.1$	$\tilde{t} = 0.5$	$\tilde{t} = 1.0$	$\tilde{t} = 2.0$	$\tilde{t} = 10.$
$m = 1.0$					
0.1000E-25	1.637	9897	7621	722	2739
0.1000	1.671	9875	7613	721	2738
0.1500	1.718	9857	7604	720	2737
0.2000	1.757	9826	7590	719	2736
0.2500	1.795	9787	7574	718	2735
0.3000	1.832	9739	7553	717	2734
0.3500	1.868	9684	7529	716	2733
0.4000	1.902	9622	7501	715	2732
0.4500	1.935	9545	7470	714	2731
0.5000	1.967	9449	7436	713	2730
0.5500	2.000	9345	7398	712	2729
0.6000	2.031	9221	7357	711	2728
0.6500	2.062	9077	7312	710	2727
0.7000	2.093	8916	7265	709	2726
0.7500	2.123	8737	7216	708	2725
0.8000	2.153	8542	7161	707	2724
0.8500	2.182	8335	7106	706	2723
0.9000	2.211	8116	7044	705	2722
0.9500	2.239	7883	6983	704	2721
1.0000	2.267	7632	6933	703	2720
1.1000	2.300	7355	6801	702	2697
1.2000	2.331	7053	6609	701	2676
1.3000	2.361	6727	6359	700	2657
1.4000	2.390	6377	6151	699	2633
1.5000	2.418	5997	5899	698	2612
2.0000	2.495	5283	5109	697	2545
2.5000	2.561	4597	4335	696	2496
3.0000	2.613	3957	3690	695	2466

Table 3. (continued)

Table 3. (continued)

Table 4. The change of the radial profile of tangential velocity of a vortex with time in pre-cut off stage.

$\tilde{R}$	$\tilde{t} = 0.1$	$\tilde{t} = 0.5$	$\tilde{t} = 1.0$	$\tilde{t} = 2.0$	$\tilde{t} = 3.$	$\tilde{t} = 10.$
$m = 0.55$						
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	1.789	0.4171	0.2221	0.1183	0.8177E-01	0.2733E-01
0.1500	2.647	0.6238	0.3327	0.1773	0.1226	0.4099E-01
0.2000	3.462	0.8286	0.4428	0.2361	0.1634	0.5464E-01
0.2500	4.215	0.031	0.5521	0.2948	0.2040	0.6828E-01
0.3000	4.914	1.229	0.6605	0.3533	0.2446	0.8191E-01
0.3500	5.490	1.424	0.7679	0.4113	0.2850	0.9553E-01
0.4000	5.949	1.614	0.8739	0.4691	0.3253	0.1091
0.4500	6.304	1.799	0.9786	0.5265	0.3653	0.1227
0.5000	6.563	1.978	1.082	0.5835	0.4052	0.1363
0.5500	6.737	2.149	1.183	0.6399	0.4449	0.1498
0.6000	6.870	2.314	1.282	0.6953	0.4843	0.1633
0.6500	6.978	2.475	1.375	0.7513	0.5234	0.1768
0.7000	7.088	2.629	1.468	0.8061	0.5623	0.1903
0.7500	7.178	2.770	1.559	0.8603	0.6009	0.2037
0.8000	7.251	2.895	1.646	0.9137	0.6391	0.2171
0.8500	7.315	3.009	1.730	0.9664	0.6770	0.2305
0.9000	7.366	3.111	1.814	1.0170	0.7145	0.2438
0.9500	7.405	3.207	1.891	1.0670	0.7517	0.2571
1.000	7.436	3.296	1.968	1.1108	0.7817	0.2696
1.1000	7.531	3.413	2.048	1.1518	0.8607	0.2966
1.2000	7.583	3.506	2.128	1.1911	0.9311	0.3228
1.4000	7.651	3.583	2.269	1.2348	0.9661	0.3744
1.6000	7.684	3.583	2.468	1.2897	1.0199	0.4251
1.800	7.684	3.495	2.68	1.3575	1.1309	0.4747

Table 4. (continued)

$\tilde{R}$ $\tilde{t} = 0.1$ $\tilde{t} = 0.5$ $\tilde{t} = 1.0$ $\tilde{t} = 2.0$ $\tilde{t} = 3.$ $\tilde{t} = 10.$

$m = 0.55$

0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	2	2	2	2	2	2	2
3	2	2	2	2	2	2	2
4	1	1	1	1	1	1	1
5	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1
7	1	1	1	1	1	1	1
8	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0
81	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0
83	0	0	0	0	0	0	0
84	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0
86	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0

Table 4. (continued)

Table 4. (continued)

$\tilde{R}$	$\tilde{t} = 0.1$	$\tilde{t} = 0.5$	$\tilde{t} = 1.0$	$\tilde{t} = 2.0$	$\tilde{t} = 3.$	$\tilde{t} = 10.$
$m = 0.6666$						
2.1000	0.65110	1.0252	1.0076	0.5537	0.713	0.3464
3.5000	0.5527	0.7855	1.0307	0.5537	0.8326	0.3939
3.5000	0.4627	0.6774	0.8310	0.5510	0.8811	0.4612
4.0000	0.3966	0.5932	0.7401	0.5134	0.8891	0.5230
4.5000	0.3470	0.5274	0.6523	0.4579	0.8704	0.5786
5.0000	0.3085	0.4747	0.5974	0.4058	0.8354	0.6281
5.5000	0.2776	0.4315	0.5435	0.3539	0.7916	0.6684
6.0000	0.2524	0.3955	0.4983	0.3061	0.7444	0.6939
6.5000	0.2314	0.3651	0.4600	0.2641	0.6972	0.7073
7.0000	0.2136	0.3390	0.4271	0.2280	0.6521	0.7112
7.5000	0.1983	0.3164	0.3989	0.2007	0.6102	0.7077
8.0000	0.1853	0.2967	0.3737	0.1707	0.5721	0.6985
8.5000	0.1733	0.2792	0.3517	0.1431	0.5376	0.6859
9.0000	0.1632	0.2637	0.3322	0.1185	0.5066	0.6688
9.5000	0.1542	0.2498	0.3147	0.0967	0.4787	0.6499
10.000	0.1461	0.2373	0.2990	0.0767	0.4537	0.6298
11.000	0.1388	0.2268	0.2718	0.0584	0.4311	0.6092
12.000	0.1157	0.1978	0.2492	0.0361	0.3919	0.5676
						0.5279

Table 4. (continued)

$\tilde{R}$	$\tilde{t} = 0.1$	$\tilde{t} = 0.5$	$\tilde{t} = 1.0$	$\tilde{t} = 2.0$	$\tilde{t} = 3.$	$\tilde{t} = 10.$
$m = 1.$						
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	0.8157E-01	0.4944E-01	0.0808E-01	0.0600E-01	0.055E-01	0.0369E-01
0.1500	0.1124	0.7408E-01	0.5709E-01	0.4289E-01	0.3592E-01	0.1365E-01
0.2500	0.1309	0.9861E-01	0.9495E-01	0.7714E-01	0.4787E-01	0.2733E-01
0.3000	0.1422	0.1230	0.1338	0.5561E-01	0.5717E-01	0.4106E-01
0.3500	0.1482	0.1713	0.1326	0.1140	0.7135E-01	0.4790E-01
0.4000	0.1509	0.1951	0.1512	0.1181	0.8354E-01	0.5473E-01
0.4500	0.1510	0.2187	0.1698	0.1221	0.9354E-01	0.6155E-01
0.5000	0.1492	0.2420	0.1882	0.1281	0.1074	0.6837E-01
0.5500	0.1422	0.2627	0.2246	0.1561	0.1310	0.7519E-01
0.6000	0.1375	0.2791	0.2424	0.1700	0.1428	0.8199E-01
0.6500	0.1324	0.2920	0.2578	0.1839	0.1545	0.8879E-01
0.7000	0.1274	0.3056	0.2730	0.1977	0.1662	0.9559E-01
0.7500	0.1221	0.3151	0.2957	0.2140	0.1778	0.1027
0.8000	0.1119	0.3185	0.3127	0.2238	0.1804	0.1051
0.8500	0.1070	0.3222	0.3297	0.2353	0.2009	0.1159
0.9000	0.1024	0.3247	0.3465	0.2504	0.2232	0.1227
0.9500	0.9896E-01	0.3297	0.3598	0.2676	0.2395	0.1248
1.1000	0.8996E-01	0.3197	0.3910	0.2808	0.2577	0.1348
1.2000	0.8290E-01	0.2910	0.4104	0.3066	0.2806	0.1456
1.4000	0.7135E-01	0.2795	0.4307	0.3303	0.3069	0.1629
1.6000	0.6249E-01	0.2755	0.4343	0.3473	0.3369	0.1895
1.8000	0.5555E-01	0.2595	0.4275	0.4739	0.4067	0.2158
						0.2418

Table 4. (continued)

$\tilde{R}$	$\tilde{t} = 0.1$	$\tilde{t} = 0.5$	$\tilde{t} = 1.0$	$\tilde{t} = 2.0$	$\tilde{t} = 3.$	$\tilde{t} = 10.$
			$m = 1.$			
2.00	0.4000	0.2381	0.1664	0.1268	0.0968	0.0720
3.00	0.3333	0.1664	0.1111	0.0756	0.0536	0.0330
4.00	0.2500	0.1250	0.0833	0.0556	0.0417	0.0247
5.00	0.2000	0.1000	0.0667	0.0434	0.0323	0.0189
6.00	0.1667	0.0833	0.0556	0.0370	0.0271	0.0163
7.00	0.1429	0.0714	0.0476	0.0323	0.0230	0.0139
8.00	0.1250	0.0625	0.0417	0.0286	0.0207	0.0125
9.00	0.1111	0.0556	0.0370	0.0259	0.0190	0.0112
10.00	0.1000	0.0500	0.0333	0.0237	0.0176	0.0100
11.00	0.0909	0.0455	0.0303	0.0219	0.0161	0.0091
12.00	0.0833	0.0417	0.0278	0.0200	0.0146	0.0081

Table 4. (continued)

$\tilde{R}$	$\tilde{t} = 0.1$	$\tilde{t} = 0.5$	$\tilde{t} = 1.0$	$\tilde{t} = 2.0$	$\tilde{t} = 3.$	$\tilde{t} = 10.$
$m = 2.$						
0.1000E-35	0.0802E-03	0.1130E-03	0.1612E-03	0.1675E-03	0.1580E-03	0.0000E+00
0.15000	0.7777E-03	0.1703E-03	0.2423E-03	0.2334E-03	0.2370E-03	0.1236E-01
0.25000	0.7698E-03	0.2254E-03	0.4048E-03	0.3349E-03	0.3160E-03	0.1854E-01
0.30000	0.7451E-03	0.3366E-03	0.4862E-03	0.4185E-03	0.3950E-03	0.2473E-01
0.35000	0.7114E-03	0.3672E-03	0.5678E-03	0.5021E-03	0.4739E-03	0.3090E-01
0.40000	0.6733E-03	0.4073E-03	0.6496E-03	0.5859E-03	0.5527E-03	0.3708E-01
0.45000	0.6343E-03	0.4409E-03	0.7317E-03	0.6692E-03	0.6315E-03	0.4344E-01
0.50000	0.5958E-03	0.4689E-03	0.8141E-03	0.7527E-03	0.7102E-03	0.4956E-01
0.55000	0.5522E-03	0.4953E-03	0.8960E-03	0.8361E-03	0.7888E-03	0.5561E-01
0.60000	0.4922E-03	0.4015E-03	0.1063E-02	0.9104E-03	0.8674E-03	0.6179E-01
0.65000	0.4622E-03	0.3953E-03	0.1143E-02	0.1086E-02	0.1024E-02	0.6741E-01
0.70000	0.4355E-03	0.3880E-03	0.1232E-02	0.1253E-02	0.1181E-02	0.7412E-01
0.75000	0.4108E-03	0.3801E-03	0.1316E-02	0.1417E-02	0.1336E-02	0.8028E-01
0.80000	0.3884E-03	0.3714E-03	0.1401E-02	0.1584E-02	0.1492E-02	0.8644E-01
0.85000	0.3679E-03	0.3655E-03	0.1573E-02	0.1788E-02	0.1727E-02	0.9260E-01
0.90000	0.3455E-03	0.3534E-03	0.1642E-02	0.1931E-02	0.1854E-02	0.9876E-01
0.95000	0.3277E-03	0.3385E-03	0.1785E-02	0.2263E-02	0.2182E-02	0.1049
1.00000	0.3022E-03	0.3228E-03	0.1856E-02	0.2695E-02	0.2483E-02	0.1111
1.10000	0.2776E-03	0.2853E-03	0.1788E-02	0.3155E-02	0.2775E-02	0.1172
1.20000	0.2538E-03	0.2553E-03	0.1688E-02	0.3635E-02	0.3029E-02	0.1221
1.40000	0.2381E-03	0.2285E-03	0.1561E-02	0.4277E-02	0.3536E-02	0.1356
1.60000	0.2208E-03	0.2082E-03	0.1416E-02	0.5021E-02	0.4194E-02	0.1479
1.80000	0.2083E-03	0.1853E-03	0.1268E-02	0.5859E-02	0.4959E-02	0.1611
						0.1723
						0.1966
						0.2208

Table 4. (continued)

$\tilde{R}$	$\tilde{t} = 0.1$	$\tilde{t} = 0.5$	$\tilde{t} = 1.0$	$\tilde{t} = 2.0$	$\tilde{t} = 3.$	$\tilde{t} = 10.$
$m = 2.$						
0	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30	0	0	0	0	0	0
31	0	0	0	0	0	0
32	0	0	0	0	0	0
33	0	0	0	0	0	0
34	0	0	0	0	0	0
35	0	0	0	0	0	0
36	0	0	0	0	0	0
37	0	0	0	0	0	0
38	0	0	0	0	0	0
39	0	0	0	0	0	0
40	0	0	0	0	0	0
41	0	0	0	0	0	0
42	0	0	0	0	0	0
43	0	0	0	0	0	0
44	0	0	0	0	0	0
45	0	0	0	0	0	0
46	0	0	0	0	0	0
47	0	0	0	0	0	0
48	0	0	0	0	0	0
49	0	0	0	0	0	0
50	0	0	0	0	0	0
51	0	0	0	0	0	0
52	0	0	0	0	0	0
53	0	0	0	0	0	0
54	0	0	0	0	0	0
55	0	0	0	0	0	0
56	0	0	0	0	0	0
57	0	0	0	0	0	0
58	0	0	0	0	0	0
59	0	0	0	0	0	0
60	0	0	0	0	0	0
61	0	0	0	0	0	0
62	0	0	0	0	0	0
63	0	0	0	0	0	0
64	0	0	0	0	0	0
65	0	0	0	0	0	0
66	0	0	0	0	0	0
67	0	0	0	0	0	0
68	0	0	0	0	0	0
69	0	0	0	0	0	0
70	0	0	0	0	0	0
71	0	0	0	0	0	0
72	0	0	0	0	0	0
73	0	0	0	0	0	0
74	0	0	0	0	0	0
75	0	0	0	0	0	0
76	0	0	0	0	0	0
77	0	0	0	0	0	0
78	0	0	0	0	0	0
79	0	0	0	0	0	0
80	0	0	0	0	0	0
81	0	0	0	0	0	0
82	0	0	0	0	0	0
83	0	0	0	0	0	0
84	0	0	0	0	0	0
85	0	0	0	0	0	0
86	0	0	0	0	0	0
87	0	0	0	0	0	0
88	0	0	0	0	0	0
89	0	0	0	0	0	0
90	0	0	0	0	0	0
91	0	0	0	0	0	0
92	0	0	0	0	0	0
93	0	0	0	0	0	0
94	0	0	0	0	0	0
95	0	0	0	0	0	0
96	0	0	0	0	0	0
97	0	0	0	0	0	0
98	0	0	0	0	0	0
99	0	0	0	0	0	0
100	0	0	0	0	0	0

Table 5. The decay of the radial profile of vorticity of a vortex in post-cut off stage.

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 0.55 \quad \text{and} \quad \tilde{t}_0 = 0.1$					
0.000E+00	36.15	25.03	16.79	6.315	3.062	0.2788
0.1000	35.33	24.52	16.29	6.242	3.043	0.2787
0.1500	34.68	23.10	15.91	6.187	3.025	0.2786
0.2000	33.48	22.09	15.48	6.131	3.012	0.2784
0.2500	31.15	20.58	14.88	6.031	2.991	0.2782
0.3000	29.98	19.17	14.26	5.919	2.967	0.2780
0.3500	25.95	16.70	13.50	5.815	2.935	0.2777
0.4000	22.09	15.17	12.81	5.694	2.908	0.2774
0.4500	20.69	13.69	12.02	5.557	2.835	0.2771
0.5000	17.42	11.99	11.21	5.411	2.794	0.2767
0.5500	14.94	10.22	10.33	5.254	2.750	0.2763
0.6000	12.67	8.81	9.55	5.090	2.704	0.2759
0.6500	10.63	7.73	8.73	4.917	2.656	0.2754
0.7000	8.74	6.27	7.93	4.738	2.604	0.2749
0.7500	7.29	5.33	7.15	4.551	2.555	0.2744
0.8000	5.70	4.65	6.41	4.366	2.505	0.2738
0.8500	4.70	4.10	5.77	4.174	2.458	0.2732
0.9000	3.79	3.66	5.15	3.982	2.390	0.2726
0.9500	2.304	2.35	3.37	3.823	2.356	0.2721
1.000	1.717	1.58	2.60	3.708	2.265	0.2705
1.1000	0.900E-01	0.594E-01	1.580E-01	3.603	2.186	0.2690
1.2000	0.717E-01	0.491E-01	1.341E-01	3.507	1.805	0.2655
1.4000	0.405E-01	0.238E-01	0.905E-01	3.208	1.350	0.2615
1.6000	0.173E-01	0.105E-01	0.515E-01	2.883	1.114	0.2571
1.8000	0.104E-01	0.062E-01	0.315E-01	2.607	0.933	0.2523
2.0000	0.343E-01	0.237E-01	0.157E-01	0.243E-01	0.3153	0.2385
2.5000	0.343E-01	0.237E-01	0.157E-01	0.123E-01	0.1388	0.2227
3.0000	0.967E-01	0.425E-01	0.231E-01	0.184E-01	0.5389E-01	0.1869
4.000	0.1697E-01	0.281E-01	0.1104E-01	0.2152E-01	0.1844E-01	0.1680

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.55 \quad \text{and} \quad \tilde{t}_s = 0.1$					
5.000	0.1261E+00	0.559E-18	0.2830E-12	0.1953E-04	0.5567E-02	0.1491
5.500	0.1060E+00	0.4577E-22	0.23891E-15	0.1381E-05	0.1482E-02	0.1306
6.000	0.0000E+00	0.1583E+00	0.2870E-18	0.7616E-07	0.3480E-03	0.1133
6.500	0.0000E+00	0.0000E+00	0.1135E-21	0.3275E-08	0.7208E-04	0.9686E-01
7.000	0.0000E+00	0.0000E+00	0.2407E-25	0.1098E-09	0.1317E-05	0.8180E-01
7.500	0.0000E+00	0.0000E+00	0.0000E+00	0.2872E-11	0.2124E-06	0.6823E-01
8.000	0.0000E+00	0.0000E+00	0.0000E+00	0.5854E-15	0.3021E-07	0.5920E-01
8.500	0.0000E+00	0.0000E+00	0.0000E+00	0.9302E-18	0.3793E-08	0.4572E-01
9.000	0.0000E+00	0.0000E+00	0.0000E+00	0.1152E-18	0.4209E-09	0.3672E-01
9.500	0.0000E+00	0.0000E+00	0.0000E+00	0.8371E-21	0.4109E-10	0.2914E-01
10.000	0.0000E+00	0.0000E+00	0.0000E+00	0.2243E-25	0.3547E-10	0.2283E-01
11.000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.1817E-12	0.1350E-01
12.000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.5651E-15	0.7590E-02

Table 5. (continued)

$\tilde{R}$	$\frac{t}{r_0} = 1.0$	$\frac{t}{r_0} = 1.4$	$\frac{t}{r_0} = 2.0$	$\frac{t}{r_0} = 5.0$	$\frac{t}{r_0} = 10.$	$\frac{t}{r_0} = 100.$
	$m = 0.55 \text{ and } \tilde{t}_0 = 0.5$					
0E+00	92	30	22	1.48	71	50
0000	35	10	11	1.49	16	50
01000	30	8	8	1.47	17	50
02500	22	7	7	1.47	17	50
03000	16	6	6	1.47	17	50
04000	15	6	6	1.46	16	50
05000	14	6	6	1.45	15	50
06500	14	6	6	1.45	14	50
07500	13	6	6	1.45	13	50
08500	13	6	6	1.43	13	50
09000	13	6	6	1.42	12	50
09500	13	6	6	1.42	12	50
1000	13	6	6	1.40	10	50
11000	13	6	6	1.38	9	50
12000	13	6	6	1.37	8	50
13000	13	6	6	1.36	8	50
14000	13	6	6	1.35	8	50
15000	13	6	6	1.34	8	50
16000	13	6	6	1.33	8	50
18000	13	6	6	1.32	8	50
22000	13	6	6	1.31	8	50
23000	13	6	6	1.30	8	50
25000	13	6	6	1.29	8	50
3000	13	6	6	1.28	8	50
3500	13	6	6	1.27	8	50
4000	13	6	6	1.26	8	50
4500	13	6	6	1.25	8	50
5000	13	6	6	1.24	8	50
5500	13	6	6	1.23	8	50
6000	13	6	6	1.22	8	50
6500	13	6	6	1.21	8	50
7000	13	6	6	1.20	8	50
7500	13	6	6	1.19	8	50
8000	13	6	6	1.18	8	50
8500	13	6	6	1.17	8	50
9000	13	6	6	1.16	8	50
9500	13	6	6	1.15	8	50
10000	13	6	6	1.14	8	50
11000	13	6	6	1.13	8	50
12000	13	6	6	1.12	8	50
13000	13	6	6	1.11	8	50
14000	13	6	6	1.10	8	50
15000	13	6	6	1.09	8	50
16000	13	6	6	1.08	8	50
18000	13	6	6	1.07	8	50
22000	13	6	6	1.06	8	50
23000	13	6	6	1.05	8	50
25000	13	6	6	1.04	8	50
3000	13	6	6	1.03	8	50
3500	13	6	6	1.02	8	50
4000	13	6	6	1.01	8	50
4500	13	6	6	1.00	8	50

Table 5. (continued)

$\bar{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.55 \quad \text{and} \quad \bar{t}_0 = 0.5$					
5.000	0.000	0.000	0.000	0.000	0.000	0.000
5.500	0.000	0.000	0.000	0.000	0.000	0.000
6.000	0.000	0.000	0.000	0.000	0.000	0.000
6.500	0.000	0.000	0.000	0.000	0.000	0.000
7.000	0.000	0.000	0.000	0.000	0.000	0.000
7.500	0.000	0.000	0.000	0.000	0.000	0.000
8.000	0.000	0.000	0.000	0.000	0.000	0.000
8.500	0.000	0.000	0.000	0.000	0.000	0.000
9.000	0.000	0.000	0.000	0.000	0.000	0.000
9.500	0.000	0.000	0.000	0.000	0.000	0.000
10.000	0.000	0.000	0.000	0.000	0.000	0.000
11.000	0.000	0.000	0.000	0.000	0.000	0.000
12.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.55 \text{ and } \tilde{t}_s = 1.0$					
0.00E+00	4.464	1.16	8.927	7.933	5.0	0.0
0.1000	4.454	1.109	8.927	7.933	3.84	0.0
0.1500	4.441	1.092	8.927	7.933	3.84	0.0
0.2000	4.422	1.078	8.927	7.933	3.84	0.0
0.2500	4.402	1.061	8.927	7.933	3.84	0.0
0.3000	4.375	1.042	8.927	7.933	3.84	0.0
0.3500	4.348	1.025	8.927	7.933	3.84	0.0
0.4000	4.327	1.009	8.927	7.933	3.84	0.0
0.4500	4.307	0.993	8.927	7.933	3.84	0.0
0.5000	4.283	0.977	8.927	7.933	3.84	0.0
0.5500	4.261	0.961	8.927	7.933	3.84	0.0
0.6000	4.241	0.945	8.927	7.933	3.84	0.0
0.6500	4.216	0.929	8.927	7.933	3.84	0.0
0.7000	4.194	0.913	8.927	7.933	3.84	0.0
0.7500	4.174	0.897	8.927	7.933	3.84	0.0
0.8000	4.159	0.881	8.927	7.933	3.84	0.0
0.8500	4.149	0.865	8.927	7.933	3.84	0.0
0.9000	4.137	0.849	8.927	7.933	3.84	0.0
0.9500	4.125	0.833	8.927	7.933	3.84	0.0
1.0000	4.115	0.817	8.927	7.933	3.84	0.0
1.1000	4.100	0.801	8.927	7.933	3.84	0.0
1.2000	4.089	0.785	8.927	7.933	3.84	0.0
1.4000	4.073	0.769	8.927	7.933	3.84	0.0
1.6000	4.061	0.753	8.927	7.933	3.84	0.0
1.8000	4.053	0.737	8.927	7.933	3.84	0.0
2.0000	4.048	0.721	8.927	7.933	3.84	0.0
2.2000	4.043	0.705	8.927	7.933	3.84	0.0
2.3000	4.041	0.699	8.927	7.933	3.84	0.0
2.4000	4.039	0.693	8.927	7.933	3.84	0.0
2.5000	4.037	0.687	8.927	7.933	3.84	0.0
2.6000	4.035	0.681	8.927	7.933	3.84	0.0
2.7000	4.033	0.675	8.927	7.933	3.84	0.0
2.8000	4.031	0.669	8.927	7.933	3.84	0.0
2.9000	4.029	0.663	8.927	7.933	3.84	0.0
3.0000	4.027	0.657	8.927	7.933	3.84	0.0
3.1000	4.025	0.651	8.927	7.933	3.84	0.0
3.2000	4.023	0.645	8.927	7.933	3.84	0.0
3.3000	4.021	0.639	8.927	7.933	3.84	0.0
3.4000	4.019	0.633	8.927	7.933	3.84	0.0
3.5000	4.017	0.627	8.927	7.933	3.84	0.0
3.6000	4.015	0.621	8.927	7.933	3.84	0.0
3.7000	4.013	0.615	8.927	7.933	3.84	0.0
3.8000	4.011	0.609	8.927	7.933	3.84	0.0
3.9000	4.009	0.603	8.927	7.933	3.84	0.0
4.0000	4.007	0.597	8.927	7.933	3.84	0.0
4.1000	4.005	0.591	8.927	7.933	3.84	0.0
4.2000	4.003	0.585	8.927	7.933	3.84	0.0
4.3000	4.001	0.579	8.927	7.933	3.84	0.0
4.4000	4.000	0.573	8.927	7.933	3.84	0.0
4.5000	4.000	0.567	8.927	7.933	3.84	0.0
4.6000	4.000	0.561	8.927	7.933	3.84	0.0
4.7000	4.000	0.555	8.927	7.933	3.84	0.0
4.8000	4.000	0.549	8.927	7.933	3.84	0.0
4.9000	4.000	0.543	8.927	7.933	3.84	0.0
5.0000	4.000	0.537	8.927	7.933	3.84	0.0
5.1000	4.000	0.531	8.927	7.933	3.84	0.0
5.2000	4.000	0.525	8.927	7.933	3.84	0.0
5.3000	4.000	0.519	8.927	7.933	3.84	0.0
5.4000	4.000	0.513	8.927	7.933	3.84	0.0
5.5000	4.000	0.507	8.927	7.933	3.84	0.0
5.6000	4.000	0.501	8.927	7.933	3.84	0.0
5.7000	4.000	0.495	8.927	7.933	3.84	0.0
5.8000	4.000	0.489	8.927	7.933	3.84	0.0
5.9000	4.000	0.483	8.927	7.933	3.84	0.0
6.0000	4.000	0.477	8.927	7.933	3.84	0.0
6.1000	4.000	0.471	8.927	7.933	3.84	0.0
6.2000	4.000	0.465	8.927	7.933	3.84	0.0
6.3000	4.000	0.459	8.927	7.933	3.84	0.0
6.4000	4.000	0.453	8.927	7.933	3.84	0.0
6.5000	4.000	0.447	8.927	7.933	3.84	0.0
6.6000	4.000	0.441	8.927	7.933	3.84	0.0
6.7000	4.000	0.435	8.927	7.933	3.84	0.0
6.8000	4.000	0.429	8.927	7.933	3.84	0.0
6.9000	4.000	0.423	8.927	7.933	3.84	0.0
7.0000	4.000	0.417	8.927	7.933	3.84	0.0
7.1000	4.000	0.411	8.927	7.933	3.84	0.0
7.2000	4.000	0.405	8.927	7.933	3.84	0.0
7.3000	4.000	0.399	8.927	7.933	3.84	0.0
7.4000	4.000	0.393	8.927	7.933	3.84	0.0
7.5000	4.000	0.387	8.927	7.933	3.84	0.0
7.6000	4.000	0.381	8.927	7.933	3.84	0.0
7.7000	4.000	0.375	8.927	7.933	3.84	0.0
7.8000	4.000	0.369	8.927	7.933	3.84	0.0
7.9000	4.000	0.363	8.927	7.933	3.84	0.0
8.0000	4.000	0.357	8.927	7.933	3.84	0.0
8.1000	4.000	0.351	8.927	7.933	3.84	0.0
8.2000	4.000	0.345	8.927	7.933	3.84	0.0
8.3000	4.000	0.339	8.927	7.933	3.84	0.0
8.4000	4.000	0.333	8.927	7.933	3.84	0.0
8.5000	4.000	0.327	8.927	7.933	3.84	0.0
8.6000	4.000	0.321	8.927	7.933	3.84	0.0
8.7000	4.000	0.315	8.927	7.933	3.84	0.0
8.8000	4.000	0.309	8.927	7.933	3.84	0.0
8.9000	4.000	0.303	8.927	7.933	3.84	0.0
9.0000	4.000	0.297	8.927	7.933	3.84	0.0
9.1000	4.000	0.291	8.927	7.933	3.84	0.0
9.2000	4.000	0.285	8.927	7.933	3.84	0.0
9.3000	4.000	0.279	8.927	7.933	3.84	0.0
9.4000	4.000	0.273	8.927	7.933	3.84	0.0
9.5000	4.000	0.267	8.927	7.933	3.84	0.0
9.6000	4.000	0.261	8.927	7.933	3.84	0.0
9.7000	4.000	0.255	8.927	7.933	3.84	0.0
9.8000	4.000	0.249	8.927	7.933	3.84	0.0
9.9000	4.000	0.243	8.927	7.933	3.84	0.0
10.0000	4.000	0.237	8.927	7.933	3.84	0.0
10.1000	4.000	0.231	8.927	7.933	3.84	0.0
10.2000	4.000	0.225	8.927	7.933	3.84	0.0
10.3000	4.000	0.219	8.927	7.933	3.84	0.0
10.4000	4.000	0.213	8.927	7.933	3.84	0.0
10.5000	4.000	0.207	8.927	7.933	3.84	0.0
10.6000	4.000	0.201	8.927	7.933	3.84	0.0
10.7000	4.000	0.195	8.927	7.933	3.84	0.0
10.8000	4.000	0.189	8.927	7.933	3.84	0.0
10.9000	4.000	0.183	8.927	7.933	3.84	0.0
11.0000	4.000	0.177	8.927	7.933	3.84	0.0
11.1000	4.000	0.171	8.927	7.933	3.84	0.0
11.2000	4.000	0.165	8.927	7.933	3.84	0.0
11.3000	4.000	0.159	8.927	7.933	3.84	0.0
11.4000	4.000	0.153	8.927	7.933	3.84	0.0
11.5000	4.000	0.147	8.927	7.933	3.84	0.0
11.6000	4.000	0.141	8.927	7.933	3.84	0.0
11.7000	4.000	0.135	8.927	7.933	3.84	0.0
11.8000	4.000	0.129	8.927	7.933	3.84	0.0
11.9000	4.000	0.123	8.927	7.933	3.84	0.0
12.0000	4.000	0.117	8.927	7.933	3.84	0.0
12.1000	4.000	0.111	8.927	7.933	3.84	0.0
12.2000	4.000	0.105	8.927	7.933	3.84	0.0
12.3000	4.000	0.099	8.927	7.933	3.84	0.0
12.4000	4.000	0.093	8.927	7.933	3.84	0.0
12.5000	4.000	0.087	8.927	7.933	3.84	0.0
12.6000	4.000	0.081	8.927	7.933	3.84	0.0
12.7000	4.000	0.075	8.927	7.933	3.84	0.0
12.8000	4.000	0.069	8.927	7.933	3.84	0.0
12.9000	4.000	0.063	8.927	7.933	3.84	0.0
13.0000	4.000	0.057	8.927	7.933	3.84	0.0
13.1000	4.000	0.051	8.927	7.933	3.84	0.0
13.2000	4.000	0.045	8.927	7.933	3.84	0.0
13.3000	4.000	0.039	8.927	7.933	3.84	0.0
13.4000	4.000	0.033	8.927	7.933	3.84	0.0
13.5000	4.000	0.027	8.927	7.933	3.84	0.0
13.6000	4.000	0.021	8.927	7.933	3.84	0.0
13.7000	4.000	0.015	8.927	7.933	3.84	0.0
13.8000	4.000	0.009	8.927	7.933	3.84	0.0
13.9000	4.000	0.003	8.927	7.933	3.84	0.0
14.0000	4.000	0.000	8.927	7.933	3.84	0.0

Table 5. (continued)

$\tilde{R}$	$\frac{t}{r_0} = 1.0$	$\frac{t}{r_0} = 1.4$	$\frac{t}{r_0} = 2.0$	$\frac{t}{r_0} = 5.0$	$\frac{t}{r_0} = 10.$	$\frac{t}{r_0} = 100.$
5.5	0.00	0.00	0.00	0.00	0.00	0.00
6.0	0.00	0.00	0.00	0.00	0.00	0.00
6.5	0.00	0.00	0.00	0.00	0.00	0.00
7.0	0.00	0.00	0.00	0.00	0.00	0.00
7.5	0.00	0.00	0.00	0.00	0.00	0.00
8.0	0.00	0.00	0.00	0.00	0.00	0.00
8.5	0.00	0.00	0.00	0.00	0.00	0.00
9.0	0.00	0.00	0.00	0.00	0.00	0.00
9.5	0.00	0.00	0.00	0.00	0.00	0.00
10.0	0.00	0.00	0.00	0.00	0.00	0.00
11.0	0.00	0.00	0.00	0.00	0.00	0.00
12.0	0.00	0.00	0.00	0.00	0.00	0.00

Table 5. (continued)

$\bar{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 0.55 \quad \text{and} \quad \bar{t}_0 = 2.0$					
0.000E+00	375	664	123	44	3	000
0.1000	372	660	122	53	206	1E-01
0.1500	369	655	121	51	206	1E-01
0.2000	364	654	120	50	206	1E-01
0.2500	358	654	118	47	206	1E-01
0.3000	351	654	116	44	206	1E-01
0.3500	343	654	114	41	206	1E-01
0.4000	333	654	111	37	205	1E-01
0.4500	322	654	108	32	205	1E-01
0.5000	310	654	104	27	205	1E-01
0.5500	296	654	100	21	205	1E-01
0.6000	282	654	96	15	205	1E-01
0.6500	269	654	92	8	205	1E-01
0.7000	249	654	87	1	205	1E-01
0.7500	231	654	82	1	204	1E-01
0.8000	222	654	77	1	204	1E-01
0.8500	219	654	75	1	204	1E-01
0.9000	217	654	74	1	204	1E-01
0.9500	219	654	72	1	204	1E-01
1.0000	220	654	72	1	204	1E-01
1.2000	242	654	65	1	203	1E-01
1.4000	270	654	57	1	203	1E-01
1.6000	299	654	47	1	203	1E-01
1.8000	327	654	36	1	202	1E-01
2.0000	353	654	23	1	201	1E-01
2.5000	427	654	9	1	199	1E-01
3.0000	505	654	3	1	198	1E-01
3.5000	583	654	0	1	196	1E-01
4.0000	663	654	0	1	194	1E-01
4.5000	747	654	0	1	187	1E-01
5.0000	825	654	0	1	184	1E-01
5.5000	905	654	0	1	176	1E-01
6.0000	985	654	0	1	168	1E-01
6.5000	1065	654	0	1	159	1E-01
7.0000	1145	654	0	1	159	1E-01
7.5000	1225	654	0	1	159	1E-01
8.0000	1305	654	0	1	159	1E-01
8.5000	1385	654	0	1	159	1E-01
9.0000	1465	654	0	1	159	1E-01
9.5000	1545	654	0	1	159	1E-01
10.0000	1625	654	0	1	159	1E-01
11.0000	1705	654	0	1	159	1E-01
12.0000	1785	654	0	1	159	1E-01
13.0000	1865	654	0	1	159	1E-01
14.0000	1945	654	0	1	159	1E-01
15.0000	2025	654	0	1	159	1E-01
16.0000	2105	654	0	1	159	1E-01
17.0000	2185	654	0	1	159	1E-01
18.0000	2265	654	0	1	159	1E-01
19.0000	2345	654	0	1	159	1E-01
20.0000	2425	654	0	1	159	1E-01
21.0000	2505	654	0	1	159	1E-01
22.0000	2585	654	0	1	159	1E-01
23.0000	2665	654	0	1	159	1E-01
24.0000	2745	654	0	1	159	1E-01
25.0000	2825	654	0	1	159	1E-01
26.0000	2905	654	0	1	159	1E-01
27.0000	2985	654	0	1	159	1E-01
28.0000	3065	654	0	1	159	1E-01
29.0000	3145	654	0	1	159	1E-01
30.0000	3225	654	0	1	159	1E-01
31.0000	3305	654	0	1	159	1E-01
32.0000	3385	654	0	1	159	1E-01
33.0000	3465	654	0	1	159	1E-01
34.0000	3545	654	0	1	159	1E-01
35.0000	3625	654	0	1	159	1E-01
36.0000	3705	654	0	1	159	1E-01
37.0000	3785	654	0	1	159	1E-01
38.0000	3865	654	0	1	159	1E-01
39.0000	3945	654	0	1	159	1E-01
40.0000	4025	654	0	1	159	1E-01
41.0000	4105	654	0	1	159	1E-01
42.0000	4185	654	0	1	159	1E-01
43.0000	4265	654	0	1	159	1E-01
44.0000	4345	654	0	1	159	1E-01
45.0000	4425	654	0	1	159	1E-01
46.0000	4505	654	0	1	159	1E-01
47.0000	4585	654	0	1	159	1E-01
48.0000	4665	654	0	1	159	1E-01
49.0000	4745	654	0	1	159	1E-01
50.0000	4825	654	0	1	159	1E-01
51.0000	4905	654	0	1	159	1E-01
52.0000	4985	654	0	1	159	1E-01
53.0000	5065	654	0	1	159	1E-01
54.0000	5145	654	0	1	159	1E-01
55.0000	5225	654	0	1	159	1E-01
56.0000	5305	654	0	1	159	1E-01
57.0000	5385	654	0	1	159	1E-01
58.0000	5465	654	0	1	159	1E-01
59.0000	5545	654	0	1	159	1E-01
60.0000	5625	654	0	1	159	1E-01
61.0000	5705	654	0	1	159	1E-01
62.0000	5785	654	0	1	159	1E-01
63.0000	5865	654	0	1	159	1E-01
64.0000	5945	654	0	1	159	1E-01
65.0000	6025	654	0	1	159	1E-01
66.0000	6105	654	0	1	159	1E-01
67.0000	6185	654	0	1	159	1E-01
68.0000	6265	654	0	1	159	1E-01
69.0000	6345	654	0	1	159	1E-01
70.0000	6425	654	0	1	159	1E-01
71.0000	6505	654	0	1	159	1E-01
72.0000	6585	654	0	1	159	1E-01
73.0000	6665	654	0	1	159	1E-01
74.0000	6745	654	0	1	159	1E-01
75.0000	6825	654	0	1	159	1E-01
76.0000	6905	654	0	1	159	1E-01
77.0000	6985	654	0	1	159	1E-01
78.0000	7065	654	0	1	159	1E-01
79.0000	7145	654	0	1	159	1E-01
80.0000	7225	654	0	1	159	1E-01
81.0000	7305	654	0	1	159	1E-01
82.0000	7385	654	0	1	159	1E-01
83.0000	7465	654	0	1	159	1E-01
84.0000	7545	654	0	1	159	1E-01
85.0000	7625	654	0	1	159	1E-01
86.0000	7705	654	0	1	159	1E-01
87.0000	7785	654	0	1	159	1E-01
88.0000	7865	654	0	1	159	1E-01
89.0000	7945	654	0	1	159	1E-01
90.0000	8025	654	0	1	159	1E-01
91.0000	8105	654	0	1	159	1E-01
92.0000	8185	654	0	1	159	1E-01
93.0000	8265	654	0	1	159	1E-01
94.0000	8345	654	0	1	159	1E-01
95.0000	8425	654	0	1	159	1E-01
96.0000	8505	654	0	1	159	1E-01
97.0000	8585	654	0	1	159	1E-01
98.0000	8665	654	0	1	159	1E-01
99.0000	8745	654	0	1	159	1E-01
100.0000	8825	654	0	1	159	1E-01

$$\frac{t}{\tau_s} = 1.0 \quad \frac{t}{\tau_s} = 1.4 \quad \frac{t}{\tau_s} = 2.0 \quad \frac{t}{\tau_s} = 5.0 \quad \frac{t}{\tau_s} = 10. \quad \frac{t}{\tau_s} = 100.$$
[illegible]

Table 5. (continued)

[illegible]

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.55 \quad \text{and} \quad \tilde{t}_s = 10.0$					
5.000	0.2819	0.2336	0.1895	0.8788	0.4547E-01	0.4385E-01
5.500	0.2417	0.1939	0.1768	0.8559E-01	0.4487E-01	0.4385E-01
6.000	0.2051	0.1718	0.1640	0.8309E-01	0.4423E-01	0.4377E-01
6.500	0.1723	0.1509	0.1506	0.8044E-01	0.4355E-01	0.4372E-01
7.000	0.1471	0.1312	0.1379	0.7773E-01	0.4280E-01	0.4365E-01
7.500	0.1171	0.1131	0.1253	0.7491E-01	0.4202E-01	0.4357E-01
8.000	0.9497E-01	0.1657E-01	0.1132	0.7205E-01	0.4121E-01	0.4348E-01
8.500	0.7612E-01	0.1371E-01	0.1016	0.6908E-01	0.4036E-01	0.4339E-01
9.000	0.6030E-01	0.1060E-01	0.9060E-01	0.6607E-01	0.3948E-01	0.4330E-01
9.500	0.4720E-01	0.8152E-01	0.8026E-01	0.6300E-01	0.3859E-01	0.4320E-01
10.000	0.3653E-01	0.6894E-01	0.7095E-01	0.5995E-01	0.3765E-01	0.4309E-01
11.000	0.2109E-01	0.5330E-01	0.5369E-01	0.5390E-01	0.3571E-01	0.4287E-01
12.000	0.1161E-01	0.2488E-01	0.3977E-01	0.4795E-01	0.3337E-01	0.4262E-01

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.6666$ and $\tilde{t}_s = 0.1$					
0.0000E+00	10.03	6.297	4.007	1.457	0.708	0.6858E-C1
0.1000	9.844	6.144	3.948	1.447	0.705	0.6857E-C1
0.1500	9.623	5.960	3.876	1.438	0.703	0.6854E-C1
0.2000	9.323	5.711	3.776	1.424	0.700	0.6849E-C1
0.2500	8.980	5.408	3.652	1.403	0.696	0.6843E-C1
0.3000	8.604	5.061	3.507	1.387	0.691	0.6837E-C1
0.3500	8.204	4.681	3.342	1.364	0.685	0.6824E-C1
0.4000	7.790	4.287	3.167	1.337	0.679	0.6815E-C1
0.4500	7.352	3.873	2.970	1.307	0.671	0.6797E-C1
0.5000	6.893	3.465	2.755	1.270	0.664	0.6786E-C1
0.5500	6.433	3.068	2.535	1.240	0.657	0.6775E-C1
0.6000	5.972	2.689	2.322	1.203	0.650	0.6762E-C1
0.6500	5.511	2.337	2.152	1.164	0.642	0.6749E-C1
0.7000	5.051	2.009	1.951	1.124	0.635	0.6735E-C1
0.7500	4.592	1.705	1.756	1.083	0.628	0.6721E-C1
0.8000	4.137	1.443	1.569	1.043	0.621	0.6705E-C1
0.8500	3.689	1.207	1.393	1.004	0.615	0.6692E-C1
0.9000	3.257	1.001	1.229	0.964	0.608	0.6679E-C1
0.9500	2.849	0.837	1.076	0.924	0.602	0.6665E-C1
1.000	2.467	0.706	0.930	0.883	0.595	0.6653E-C1
1.100	2.106	0.604	0.793	0.842	0.588	0.6641E-C1
1.200	1.775	0.524	0.657	0.801	0.582	0.6630E-C1
1.300	1.480	0.464	0.527	0.761	0.576	0.6620E-C1
1.400	1.225	0.415	0.447	0.722	0.570	0.6611E-C1
1.500	1.000	0.379	0.377	0.685	0.564	0.6603E-C1
1.600	0.800	0.351	0.327	0.650	0.558	0.6595E-C1
1.700	0.625	0.327	0.294	0.616	0.552	0.6587E-C1
1.800	0.480	0.306	0.267	0.583	0.546	0.6580E-C1
1.900	0.360	0.288	0.244	0.552	0.540	0.6573E-C1
2.000	0.270	0.273	0.227	0.522	0.534	0.6566E-C1
2.100	0.200	0.260	0.208	0.494	0.528	0.6560E-C1
2.200	0.150	0.249	0.191	0.468	0.522	0.6554E-C1
2.300	0.110	0.240	0.176	0.444	0.516	0.6548E-C1
2.400	0.080	0.232	0.163	0.422	0.510	0.6542E-C1
2.500	0.060	0.225	0.151	0.402	0.504	0.6536E-C1
2.600	0.045	0.219	0.140	0.383	0.498	0.6530E-C1
2.700	0.035	0.214	0.130	0.365	0.492	0.6524E-C1
2.800	0.028	0.209	0.121	0.348	0.486	0.6518E-C1
2.900	0.022	0.205	0.113	0.332	0.480	0.6512E-C1
3.000	0.018	0.201	0.106	0.317	0.474	0.6506E-C1
3.100	0.015	0.198	0.100	0.303	0.468	0.6500E-C1
3.200	0.012	0.195	0.094	0.290	0.462	0.6494E-C1
3.300	0.010	0.192	0.089	0.278	0.456	0.6488E-C1
3.400	0.008	0.189	0.084	0.267	0.450	0.6482E-C1
3.500	0.007	0.187	0.080	0.257	0.444	0.6476E-C1
3.600	0.006	0.185	0.076	0.247	0.438	0.6470E-C1
3.700	0.005	0.183	0.072	0.238	0.432	0.6464E-C1
3.800	0.004	0.181	0.069	0.229	0.426	0.6458E-C1
3.900	0.003	0.179	0.066	0.221	0.420	0.6452E-C1
4.000	0.003	0.177	0.063	0.213	0.414	0.6446E-C1

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.6666$ and $\tilde{t}_s = 0.1$					
4.500	0.1724E-21	0.2959E-15	0.1357E-10	0.3911E-04	0.3987E-02	0.4129E-01
5.500	0.1117E+00	0.5706E-19	0.3333E-13	0.3411E-05	0.1186E-02	0.3566E-01
5.500	0.0000E+00	0.4536E-23	0.1412E-16	0.2333E-06	0.3109E-03	0.3211E-01
6.500	0.0000E+00	0.1484E-27	0.3144E-19	0.1245E-07	0.7183E-04	0.2783E-01
6.500	0.0000E+00	0.0000E+00	0.1205E-22	0.5185E-09	0.1463E-05	0.2379E-01
7.500	0.0000E+00	0.0000E+00	0.2480E-26	0.1688E-10	0.2627E-06	0.2009E-01
7.500	0.0000E+00	0.0000E+00	0.0000E+00	0.4293E-12	0.4161E-07	0.1675E-01
8.500	0.0000E+00	0.0000E+00	0.0000E+00	0.8522E-14	0.5814E-08	0.1380E-01
8.500	0.0000E+00	0.0000E+00	0.0000E+00	0.1322E-15	0.7169E-09	0.1122E-01
9.500	0.0000E+00	0.0000E+00	0.0000E+00	0.1601E-17	0.7801E-10	0.9010E-02
9.500	0.0000E+00	0.0000E+00	0.0000E+00	0.1512E-19	0.7493E-11	0.7146E-02
10.00	0.0000E+00	0.0000E+00	0.0000E+00	0.1115E-21	0.6353E-13	0.5597E-02
11.00	0.0000E+00	0.0000E+00	0.0000E+00	0.2875E-26	0.3144E-16	0.3307E-02
12.00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.9464E-16	0.1858E-02

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
$m = 0.6666$ and $\tilde{t}_0 = 0.5$						
0-0000E+00	3.0679	2.0800	1.3450	0.5549	0.2415	0.0000E-01
0-01000	3.0057	2.0055	1.3340	0.4942	0.2412	0.0000E-01
0-01500	3.0043	2.0042	1.3334	0.4942	0.2412	0.0000E-01
0-02500	3.0029	2.0027	1.3321	0.4933	0.2410	0.0000E-01
0-03500	3.0009	1.9997	1.3308	0.4920	0.2407	0.0000E-01
0-04000	3.0004	1.9994	1.3302	0.4891	0.2404	0.0000E-01
0-04500	3.0000	1.9990	1.3288	0.4871	0.2400	0.0000E-01
0-05000	3.0000	1.9985	1.3272	0.4850	0.2395	0.0000E-01
0-05500	3.0000	1.9981	1.3256	0.4829	0.2390	0.0000E-01
0-06000	3.0000	1.9976	1.3240	0.4809	0.2384	0.0000E-01
0-06500	3.0000	1.9971	1.3225	0.4789	0.2378	0.0000E-01
0-07000	3.0000	1.9967	1.3210	0.4770	0.2371	0.0000E-01
0-07500	3.0000	1.9963	1.3194	0.4750	0.2365	0.0000E-01
0-08000	3.0000	1.9959	1.3178	0.4730	0.2358	0.0000E-01
0-08500	3.0000	1.9955	1.3162	0.4710	0.2351	0.0000E-01
0-09000	3.0000	1.9950	1.3146	0.4690	0.2344	0.0000E-01
0-09500	3.0000	1.9946	1.3130	0.4670	0.2337	0.0000E-01
0-10000	3.0000	1.9941	1.3114	0.4650	0.2330	0.0000E-01
0-11000	3.0000	1.9937	1.3098	0.4630	0.2323	0.0000E-01
0-12000	3.0000	1.9932	1.3082	0.4610	0.2316	0.0000E-01
0-13000	3.0000	1.9928	1.3066	0.4590	0.2309	0.0000E-01
0-14000	3.0000	1.9924	1.3050	0.4570	0.2302	0.0000E-01
0-15000	3.0000	1.9920	1.3034	0.4550	0.2295	0.0000E-01
0-16000	3.0000	1.9916	1.3018	0.4530	0.2288	0.0000E-01
0-17000	3.0000	1.9912	1.3002	0.4510	0.2281	0.0000E-01
0-18000	3.0000	1.9908	1.2986	0.4490	0.2274	0.0000E-01
0-19000	3.0000	1.9904	1.2970	0.4470	0.2267	0.0000E-01
0-20000	3.0000	1.9900	1.2954	0.4450	0.2260	0.0000E-01
0-21000	3.0000	1.9896	1.2938	0.4430	0.2253	0.0000E-01
0-22000	3.0000	1.9892	1.2922	0.4410	0.2246	0.0000E-01
0-23000	3.0000	1.9888	1.2906	0.4390	0.2239	0.0000E-01
0-24000	3.0000	1.9884	1.2890	0.4370	0.2232	0.0000E-01
0-25000	3.0000	1.9880	1.2874	0.4350	0.2225	0.0000E-01
0-26000	3.0000	1.9876	1.2858	0.4330	0.2218	0.0000E-01
0-27000	3.0000	1.9872	1.2842	0.4310	0.2211	0.0000E-01
0-28000	3.0000	1.9868	1.2826	0.4290	0.2204	0.0000E-01
0-29000	3.0000	1.9864	1.2810	0.4270	0.2197	0.0000E-01
0-30000	3.0000	1.9860	1.2794	0.4250	0.2190	0.0000E-01
0-31000	3.0000	1.9856	1.2778	0.4230	0.2183	0.0000E-01
0-32000	3.0000	1.9852	1.2762	0.4210	0.2176	0.0000E-01
0-33000	3.0000	1.9848	1.2746	0.4190	0.2169	0.0000E-01
0-34000	3.0000	1.9844	1.2730	0.4170	0.2162	0.0000E-01
0-35000	3.0000	1.9840	1.2714	0.4150	0.2155	0.0000E-01
0-36000	3.0000	1.9836	1.2698	0.4130	0.2148	0.0000E-01
0-37000	3.0000	1.9832	1.2682	0.4110	0.2141	0.0000E-01
0-38000	3.0000	1.9828	1.2666	0.4090	0.2134	0.0000E-01
0-39000	3.0000	1.9824	1.2650	0.4070	0.2127	0.0000E-01
0-40000	3.0000	1.9820	1.2634	0.4050	0.2120	0.0000E-01
0-41000	3.0000	1.9816	1.2618	0.4030	0.2113	0.0000E-01
0-42000	3.0000	1.9812	1.2602	0.4010	0.2106	0.0000E-01
0-43000	3.0000	1.9808	1.2586	0.3990	0.2099	0.0000E-01
0-44000	3.0000	1.9804	1.2570	0.3970	0.2092	0.0000E-01
0-45000	3.0000	1.9800	1.2554	0.3950	0.2085	0.0000E-01
0-46000	3.0000	1.9796	1.2538	0.3930	0.2078	0.0000E-01
0-47000	3.0000	1.9792	1.2522	0.3910	0.2071	0.0000E-01
0-48000	3.0000	1.9788	1.2506	0.3890	0.2064	0.0000E-01
0-49000	3.0000	1.9784	1.2490	0.3870	0.2057	0.0000E-01
0-50000	3.0000	1.9780	1.2474	0.3850	0.2050	0.0000E-01
0-51000	3.0000	1.9776	1.2458	0.3830	0.2043	0.0000E-01
0-52000	3.0000	1.9772	1.2442	0.3810	0.2036	0.0000E-01
0-53000	3.0000	1.9768	1.2426	0.3790	0.2029	0.0000E-01
0-54000	3.0000	1.9764	1.2410	0.3770	0.2022	0.0000E-01
0-55000	3.0000	1.9760	1.2394	0.3750	0.2015	0.0000E-01
0-56000	3.0000	1.9756	1.2378	0.3730	0.2008	0.0000E-01
0-57000	3.0000	1.9752	1.2362	0.3710	0.2001	0.0000E-01
0-58000	3.0000	1.9748	1.2346	0.3690	0.1994	0.0000E-01
0-59000	3.0000	1.9744	1.2330	0.3670	0.1987	0.0000E-01
0-60000	3.0000	1.9740	1.2314	0.3650	0.1980	0.0000E-01
0-61000	3.0000	1.9736	1.2298	0.3630	0.1973	0.0000E-01
0-62000	3.0000	1.9732	1.2282	0.3610	0.1966	0.0000E-01
0-63000	3.0000	1.9728	1.2266	0.3590	0.1959	0.0000E-01
0-64000	3.0000	1.9724	1.2250	0.3570	0.1952	0.0000E-01
0-65000	3.0000	1.9720	1.2234	0.3550	0.1945	0.0000E-01
0-66000	3.0000	1.9716	1.2218	0.3530	0.1938	0.0000E-01
0-67000	3.0000	1.9712	1.2202	0.3510	0.1931	0.0000E-01
0-68000	3.0000	1.9708	1.2186	0.3490	0.1924	0.0000E-01
0-69000	3.0000	1.9704	1.2170	0.3470	0.1917	0.0000E-01
0-70000	3.0000	1.9700	1.2154	0.3450	0.1910	0.0000E-01
0-71000	3.0000	1.9696	1.2138	0.3430	0.1903	0.0000E-01
0-72000	3.0000	1.9692	1.2122	0.3410	0.1896	0.0000E-01
0-73000	3.0000	1.9688	1.2106	0.3390	0.1889	0.0000E-01
0-74000	3.0000	1.9684	1.2090	0.3370	0.1882	0.0000E-01
0-75000	3.0000	1.9680	1.2074	0.3350	0.1875	0.0000E-01
0-76000	3.0000	1.9676	1.2058	0.3330	0.1868	0.0000E-01
0-77000	3.0000	1.9672	1.2042	0.3310	0.1861	0.0000E-01
0-78000	3.0000	1.9668	1.2026	0.3290	0.1854	0.0000E-01
0-79000	3.0000	1.9664	1.2010	0.3270	0.1847	0.0000E-01
0-80000	3.0000	1.9660	1.1994	0.3250	0.1840	0.0000E-01
0-81000	3.0000	1.9656	1.1978	0.3230	0.1833	0.0000E-01
0-82000	3.0000	1.9652	1.1962	0.3210	0.1826	0.0000E-01
0-83000	3.0000	1.9648	1.1946	0.3190	0.1819	0.0000E-01
0-84000	3.0000	1.9644	1.1930	0.3170	0.1812	0.0000E-01
0-85000	3.0000	1.9640	1.1914	0.3150	0.1805	0.0000E-01
0-86000	3.0000	1.9636	1.1898	0.3130	0.1798	0.0000E-01
0-87000	3.0000	1.9632	1.1882	0.3110	0.1791	0.0000E-01
0-88000	3.0000	1.9628	1.1866	0.3090	0.1784	0.0000E-01
0-89000	3.0000	1.9624	1.1850	0.3070	0.1777	0.0000E-01
0-90000	3.0000	1.9620	1.1834	0.3050	0.1770	0.0000E-01
0-91000	3.0000	1.9616	1.1818	0.3030	0.1763	0.0000E-01
0-92000	3.0000	1.9612	1.1802	0.3010	0.1756	0.0000E-01
0-93000	3.0000	1.9608	1.1786	0.2990	0.1749	0.0000E-01
0-94000	3.0000	1.9604	1.1770	0.2970	0.1742	0.0000E-01
0-95000	3.0000	1.9600	1.1754	0.2950	0.1735	0.0000E-01
0-96000	3.0000	1.9596	1.1738	0.2930	0.1728	0.0000E-01
0-97000	3.0000	1.9592	1.1722	0.2910	0.1721	0.0000E-01
0-98000	3.0000	1.9588	1.1706	0.2890	0.1714	0.0000E-01
0-99000	3.0000	1.9584	1.1690	0.2870	0.1707	0.0000E-01
0-100000	3.0000	1.9580	1.1674	0.2850	0.1700	0.0000E-01

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 0.6666 \quad \text{and} \quad \tilde{t}_0 = 0.5$					
4.500	3987E-04	6463E-03	5040E-02	522E-01	576E-01	118E-01
5.500	3454E-05	1104E-03	1435E-03	526E-01	672E-01	219E-01
6.500	2346E-07	1587E-04	3625E-04	209E-01	514E-01	201E-01
7.500	1248E-09	1955E-05	9119E-04	134E-02	383E-01	195E-01
8.500	5169E-10	1665E-06	1612E-04	102E-02	278E-01	189E-01
9.500	2277E-12	1195E-08	2835E-05	795E-03	197E-01	163E-01
10.500	8522E-14	7165E-10	4168E-06	510E-03	136E-01	170E-01
11.500	3160E-15	3611E-11	6088E-07	325E-03	917E-01	163E-01
12.00	1512E-17	1526E-12	7426E-08	269E-03	602E-01	163E-01
	1152E-19	5403E-14	8014E-10	109E-04	385E-02	159E-01
	1876E-21	1604E-15	7648E-11	421E-04	240E-02	142E-01
	2000E-26	309E-19	3170E-13	154E-05	146E-03	127E-01
		211E-22	950E-16	170E-06	501E-03	114E-01

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 0.6666 \text{ and } \tilde{t}_0 = 1.0$					
0.0000E+00	1.840	284	8418	0	1519	0
0.1000	1.836	1.2281	8406	3111	1519	1477E-01
0.1500	1.832	1.2773	8391	3106	1518	1477E-01
0.2000	1.826	1.2773	8370	3102	1518	1477E-01
0.2500	1.819	1.2699	8343	3098	1517	1476E-01
0.3000	1.810	1.2590	8310	3093	1516	1476E-01
0.3500	1.799	1.2408	8272	3088	1515	1476E-01
0.4000	1.786	1.2240	8228	3080	1513	1476E-01
0.4500	1.773	1.2162	8178	3069	1512	1476E-01
0.5000	1.757	1.2027	8126	3054	1508	1475E-01
0.5500	1.740	1.1871	8069	3034	1503	1475E-01
0.6000	1.723	1.1711	7999	3014	1498	1475E-01
0.6500	1.703	1.1555	7929	2993	1495	1475E-01
0.7000	1.682	1.1396	7848	2972	1492	1474E-01
0.7500	1.660	1.1236	7768	2953	1488	1474E-01
0.8000	1.636	1.1076	7683	2933	1485	1473E-01
0.8500	1.612	1.0916	7593	2913	1482	1473E-01
0.9000	1.587	1.0754	7490	2893	1478	1473E-01
0.9500	1.561	1.0593	7383	2873	1475	1472E-01
1.0000	1.535	1.0433	7270	2853	1472	1471E-01
1.1000	1.509	1.0273	7153	2833	1468	1471E-01
1.2000	1.483	1.0113	7035	2813	1465	1469E-01
1.3000	1.457	0.9953	6914	2793	1462	1468E-01
1.4000	1.430	0.9793	6794	2773	1459	1467E-01
1.5000	1.403	0.9633	6674	2753	1455	1465E-01
1.6000	1.376	0.9473	6554	2733	1452	1464E-01
1.7000	1.349	0.9313	6434	2713	1448	1462E-01
1.8000	1.323	0.9153	6314	2693	1445	1461E-01
1.9000	1.296	0.8993	6194	2673	1442	1459E-01
2.0000	1.270	0.8833	6074	2653	1439	1458E-01
2.2000	1.244	0.8673	5954	2633	1435	1456E-01
2.3000	1.218	0.8513	5834	2613	1432	1454E-01
2.4000	1.192	0.8353	5714	2593	1429	1453E-01
2.5000	1.166	0.8193	5594	2573	1426	1451E-01
2.6000	1.140	0.8033	5474	2553	1423	1449E-01
2.7000	1.114	0.7873	5354	2533	1420	1448E-01
2.8000	1.088	0.7713	5234	2513	1417	1446E-01
2.9000	1.062	0.7553	5114	2493	1414	1445E-01
3.0000	1.036	0.7393	4994	2473	1411	1443E-01
3.1000	1.010	0.7233	4874	2453	1408	1442E-01
3.2000	0.984	0.7073	4754	2433	1405	1440E-01
3.3000	0.958	0.6913	4634	2413	1402	1439E-01
3.4000	0.932	0.6753	4514	2393	1399	1437E-01
3.5000	0.906	0.6593	4394	2373	1396	1436E-01
3.6000	0.880	0.6433	4274	2353	1393	1434E-01
3.7000	0.854	0.6273	4154	2333	1390	1433E-01
3.8000	0.828	0.6113	4034	2313	1387	1431E-01
3.9000	0.802	0.5953	3914	2293	1384	1430E-01
4.0000	0.776	0.5793	3794	2273	1381	1428E-01
4.1000	0.750	0.5633	3674	2253	1378	1427E-01
4.2000	0.724	0.5473	3554	2233	1375	1425E-01
4.3000	0.698	0.5313	3434	2213	1372	1424E-01
4.4000	0.672	0.5153	3314	2193	1369	1422E-01
4.5000	0.646	0.4993	3194	2173	1366	1421E-01
4.6000	0.620	0.4833	3074	2153	1363	1419E-01
4.7000	0.594	0.4673	2954	2133	1360	1418E-01
4.8000	0.568	0.4513	2834	2113	1357	1416E-01
4.9000	0.542	0.4353	2714	2093	1354	1415E-01
5.0000	0.516	0.4193	2594	2073	1351	1413E-01
5.1000	0.490	0.4033	2474	2053	1348	1412E-01
5.2000	0.464	0.3873	2354	2033	1345	1410E-01
5.3000	0.438	0.3713	2234	2013	1342	1409E-01
5.4000	0.412	0.3553	2114	1993	1339	1407E-01
5.5000	0.386	0.3393	1994	1973	1336	1406E-01
5.6000	0.360	0.3233	1874	1953	1333	1404E-01
5.7000	0.334	0.3073	1754	1933	1330	1403E-01
5.8000	0.308	0.2913	1634	1913	1327	1401E-01
5.9000	0.282	0.2753	1514	1893	1324	1400E-01
6.0000	0.256	0.2593	1394	1873	1321	1398E-01
6.1000	0.230	0.2433	1274	1853	1318	1397E-01
6.2000	0.204	0.2273	1154	1833	1315	1395E-01
6.3000	0.178	0.2113	1034	1813	1312	1394E-01
6.4000	0.152	0.1953	914	1793	1309	1392E-01
6.5000	0.126	0.1793	794	1773	1306	1391E-01
6.6000	0.100	0.1633	674	1753	1303	1389E-01
6.7000	0.074	0.1473	554	1733	1300	1388E-01
6.8000	0.048	0.1313	434	1713	1297	1386E-01
6.9000	0.022	0.1153	314	1693	1294	1385E-01
7.0000	0.000	0.0993	194	1673	1291	1383E-01
7.1000	0.000	0.0833	74	1653	1288	1382E-01
7.2000	0.000	0.0673	0	1633	1285	1380E-01
7.3000	0.000	0.0513	0	1613	1282	1379E-01
7.4000	0.000	0.0353	0	1593	1279	1377E-01
7.5000	0.000	0.0193	0	1573	1276	1376E-01
7.6000	0.000	0.0033	0	1553	1273	1374E-01
7.7000	0.000	0.0000	0	1533	1270	1373E-01
7.8000	0.000	0.0000	0	1513	1267	1371E-01
7.9000	0.000	0.0000	0	1493	1264	1370E-01
8.0000	0.000	0.0000	0	1473	1261	1368E-01
8.1000	0.000	0.0000	0	1453	1258	1367E-01
8.2000	0.000	0.0000	0	1433	1255	1365E-01
8.3000	0.000	0.0000	0	1413	1252	1364E-01
8.4000	0.000	0.0000	0	1393	1249	1362E-01
8.5000	0.000	0.0000	0	1373	1246	1361E-01
8.6000	0.000	0.0000	0	1353	1243	1359E-01
8.7000	0.000	0.0000	0	1333	1240	1358E-01
8.8000	0.000	0.0000	0	1313	1237	1356E-01
8.9000	0.000	0.0000	0	1293	1234	1355E-01
9.0000	0.000	0.0000	0	1273	1231	1353E-01
9.1000	0.000	0.0000	0	1253	1228	1352E-01
9.2000	0.000	0.0000	0	1233	1225	1350E-01
9.3000	0.000	0.0000	0	1213	1222	1349E-01
9.4000	0.000	0.0000	0	1193	1219	1347E-01
9.5000	0.000	0.0000	0	1173	1216	1346E-01
9.6000	0.000	0.0000	0	1153	1213	1344E-01
9.7000	0.000	0.0000	0	1133	1210	1343E-01
9.8000	0.000	0.0000	0	1113	1207	1341E-01
9.9000	0.000	0.0000	0	1093	1204	1340E-01
10.0000	0.000	0.0000	0	1073	1201	1338E-01

Table 5. (continued)

$\tilde{R}$	$\frac{t}{r_s} = 1.0$	$\frac{t}{r_s} = 1.4$	$\frac{t}{r_s} = 2.0$	$\frac{t}{r_s} = 5.0$	$\frac{t}{r_s} = 10.$	$\frac{t}{r_s} = 100.$
	$m = 0.6666$ and $\tilde{t}_s = 1.0$					
4.5000	0.5037E-03	0.1766E-02	0.3507E-02	0.1843E-01	0.9062E-01	0.1404E-01
5.5000	0.3627E-03	0.1236E-02	0.2567E-02	0.6415E-01	0.8025E-01	0.1387E-01
6.5000	0.1613E-03	0.5677E-03	0.1257E-02	0.3432E-01	0.7019E-01	0.1366E-01
7.5000	0.4437E-04	0.2957E-03	0.1044E-02	0.2435E-01	0.6067E-01	0.1348E-01
8.5000	0.6092E-07	0.2295E-03	0.4027E-03	0.1656E-01	0.4349E-01	0.1306E-01
9.5000	0.7430E-08	0.1663E-03	0.5006E-04	0.1071E-01	0.3614E-01	0.1283E-01
10.00	0.8017E-10	0.1349E-03	0.1613E-04	0.1212E-02	0.2403E-01	0.1258E-01
11.00	0.6453E-11	0.2334E-03	0.4895E-05	0.5505E-02	0.2222E-01	0.1206E-01
12.00	0.3510E-16	0.2507E-11	0.5029E-08	0.1772E-03	0.1518E-01	0.1178E-01
						0.1149E-01
						0.1109E-01
						0.1030E-01

Table 5. (continued)

$\tilde{R}$	$\frac{t}{r_s} = 1.0$	$\frac{t}{r_s} = 1.4$	$\frac{t}{r_s} = 2.0$	$\frac{t}{r_s} = 5.0$	$\frac{t}{r_s} = 10.$	$\frac{t}{r_s} = 100.$
	$m = 0.6666 \text{ and } \tilde{t}_s = 2.0$					
0.000E+00	1.102	7891	5241	0.54	0.01	0.00
0.1000	1.101	7883	5237	1.95	0.01	0.00
0.1500	1.109	7872	5233	1.95	0.01	0.00
0.2000	1.109	7858	5223	1.95	0.01	0.00
0.2500	1.109	7840	5218	1.95	0.01	0.00
0.3000	1.108	7818	5206	1.95	0.01	0.00
0.3500	1.108	7791	5182	1.94	0.01	0.00
0.4000	1.108	7767	5165	1.94	0.01	0.00
0.4500	1.107	7729	5150	1.94	0.01	0.00
0.5000	1.107	7687	5131	1.93	0.01	0.00
0.5500	1.106	7647	5108	1.93	0.01	0.00
0.6000	1.105	7605	5084	1.93	0.01	0.00
0.6500	1.105	7550	5063	1.92	0.01	0.00
0.7000	1.104	7444	5038	1.92	0.01	0.00
0.7500	1.103	7325	5011	1.92	0.01	0.00
0.8000	1.103	7254	4995	1.91	0.01	0.00
0.8500	1.102	7187	4971	1.90	0.01	0.00
0.9000	1.101	7125	4933	1.89	0.01	0.00
0.9500	1.097	6978	4881	1.85	0.01	0.00
1.000	0.986	6693	4563	1.82	0.01	0.00
1.1000	0.921	6233	4176	1.75	0.01	0.00
1.1500	0.869	6033	3960	1.72	0.01	0.00
1.2000	0.848	5844	3780	1.66	0.01	0.00
1.2500	0.818	5618	3602	1.61	0.01	0.00
1.3000	0.791	5408	3438	1.54	0.01	0.00
1.3500	0.770	5157	3279	1.42	0.01	0.00
1.4000	0.734	486E-01	2222	1.17	0.01	0.00
1.4500	0.638		1711		0.01	0.00
1.500	0.536				0.01	0.00
1.5500	0.427				0.01	0.00
1.6000	0.334				0.01	0.00
1.6500	0.270				0.01	0.00
1.7000	0.163				0.01	0.00
1.7500	0.336E-01				0.01	0.00
1.8000					0.01	0.00
1.8500					0.01	0.00
1.9000					0.01	0.00
1.9500					0.01	0.00
2.000					0.01	0.00
2.0500					0.01	0.00
2.1000					0.01	0.00
2.1500					0.01	0.00
2.2000					0.01	0.00
2.2500					0.01	0.00
2.3000					0.01	0.00
2.3500					0.01	0.00
2.4000					0.01	0.00
2.4500					0.01	0.00
2.5000					0.01	0.00
2.5500					0.01	0.00
2.6000					0.01	0.00
2.6500					0.01	0.00
2.7000					0.01	0.00
2.7500					0.01	0.00
2.8000					0.01	0.00
2.8500					0.01	0.00
2.9000					0.01	0.00
2.9500					0.01	0.00
3.000					0.01	0.00
3.0500					0.01	0.00
3.1000					0.01	0.00
3.1500					0.01	0.00
3.2000					0.01	0.00
3.2500					0.01	0.00
3.3000					0.01	0.00
3.3500					0.01	0.00
3.4000					0.01	0.00
3.4500					0.01	0.00
3.5000					0.01	0.00
3.5500					0.01	0.00
3.6000					0.01	0.00
3.6500					0.01	0.00
3.7000					0.01	0.00
3.7500					0.01	0.00
3.8000					0.01	0.00
3.8500					0.01	0.00
3.9000					0.01	0.00
3.9500					0.01	0.00
4.000					0.01	0.00
4.0500					0.01	0.00
4.1000					0.01	0.00
4.1500					0.01	0.00
4.2000					0.01	0.00
4.2500					0.01	0.00
4.3000					0.01	0.00
4.3500					0.01	0.00
4.4000					0.01	0.00
4.4500					0.01	0.00
4.5000					0.01	0.00
4.5500					0.01	0.00
4.6000					0.01	0.00
4.6500					0.01	0.00
4.7000					0.01	0.00
4.7500					0.01	0.00
4.8000					0.01	0.00
4.8500					0.01	0.00
4.9000					0.01	0.00
4.9500					0.01	0.00
5.000					0.01	0.00

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.6666 \text{ and } \tilde{t}_s = 2.0$					
4.500	5111E-01	9358E-01	1273E-01	1153E-01	7383E-01	3901E-01
5.500	2633E-01	5760E-01	9156E-01	1019E-01	6495E-01	0114E-01
6.500	1282E-01	3397E-01	6370E-01	8350E-01	4990E-01	0955E-01
7.500	5557E-02	1922E-01	4289E-01	5506E-01	6040E-01	8291E-01
8.500	2546E-03	1043E-01	2796E-01	558E-01	5777E-01	821E-01
9.500	4033E-03	5771E-02	1766E-01	4520E-01	466E-01	8747E-01
10.500	1455E-04	1300E-02	9410E-02	3696E-01	4227E-01	6684E-01
11.500	5014E-05	2628E-03	3688E-02	2376E-01	3805E-01	6596E-01
12.00	4893E-05	1109E-04	1155E-03	1899E-01	3404E-01	8403E-01
	1396E-07	4481E-05	5857E-04	1451E-02	3027E-01	8307E-01
	9473E-08	6434E-06	1478E-04	8414E-02	2672E-01	8206E-01
	5033E-08	7772E-06	3305E-04	4635E-02	2044E-01	7953E-01
					1525E-01	7766E-01

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.6666 \text{ and } \tilde{t}_s = 10.0$					
0.000E+00	3337	504	1725	6610E	011	3179E-C2
0.1000	3336	2504	1725	6610E	011	3179E-C2
0.1500	3335	2503	1724	6610E	011	3179E-C2
0.2000	3334	2502	1724	6610E	011	3179E-C2
0.2500	3333	2501	1723	6609E	011	3179E-C2
0.3000	3331	2499	1722	6607E	011	3179E-C2
0.3500	3329	2497	1721	6606E	011	3179E-C2
0.4000	3327	2495	1720	6605E	011	3179E-C2
0.4500	3324	2493	1719	6603E	011	3179E-C2
0.5000	3321	2491	1718	6602E	011	3179E-C2
0.5500	3318	2488	1717	6600E	011	3179E-C2
0.6000	3314	2485	1715	6598E	011	3179E-C2
0.6500	3311	2482	1714	6595E	011	3179E-C2
0.7000	3306	2478	1712	6591E	011	3179E-C2
0.7500	3302	2475	1710	6588E	011	3179E-C2
0.8000	3297	2472	1709	6585E	011	3179E-C2
0.8500	3292	2468	1707	6583E	011	3179E-C2
0.9000	3287	2464	1704	6580E	011	3179E-C2
0.9500	3281	2461	1703	6577E	011	3179E-C2
1.000	3277	2451	1698	6573E	011	3179E-C2
1.100	3263	2445	1692	6561E	011	3179E-C2
1.200	3249	2440	1681	6556E	011	3179E-C2
1.400	3218	2435	1668	6552E	011	3179E-C2
1.600	3182	2362	1665	6550E	011	3179E-C2
1.800	3143	2336	1653	6547E	011	3179E-C2
2.000	3095	2330	1653	6540E	011	3179E-C2
2.500	2830	2236	1533	6531E	011	3179E-C2
3.000	2498	2001	1395	6520E	011	3179E-C2
3.500	2249	1865	1395	6508E	011	3179E-C2

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 0.6666 \quad \text{and} \quad \tilde{t}_0 = 10.0$					
4.5000	0.2320	0.1720	0.1312	0.0556	0.0000	0.0000
5.5000	0.1988	0.1569	0.1237	0.0556	0.0000	0.0000
6.5000	0.1642	0.1417	0.1153	0.0556	0.0000	0.0000
7.5000	0.1345	0.1118	0.0822	0.0556	0.0000	0.0000
8.5000	0.1092	0.0976	0.0744	0.0556	0.0000	0.0000
9.5000	0.0878	0.0844	0.0674	0.0556	0.0000	0.0000
10.5000	0.0700	0.0688	0.0589	0.0556	0.0000	0.0000
11.5000	0.0552	0.0608	0.0535	0.0556	0.0000	0.0000
12.00	0.0433	0.0537	0.0489	0.0556	0.0000	0.0000
	0.3548	0.4237	0.5114	0.6199	0.7077	0.7848
	0.3122	0.3766	0.4558	0.5578	0.6488	0.7252
	0.2748	0.3377	0.4148	0.5195	0.6077	0.6843
	0.2427	0.3046	0.3834	0.4854	0.5733	0.6506
	0.2152	0.2761	0.3555	0.4575	0.5454	0.6227
	0.1922	0.2521	0.3313	0.4395	0.5274	0.6096
	0.1735	0.2324	0.3116	0.4215	0.5094	0.5905
	0.1588	0.2167	0.2959	0.4035	0.4914	0.5725
	0.1470	0.2049	0.2841	0.3855	0.4733	0.5546
	0.1379	0.1958	0.2750	0.3675	0.4553	0.5366
	0.1305	0.1893	0.2685	0.3495	0.4373	0.5186
	0.1245	0.1841	0.2633	0.3315	0.4193	0.5006
	0.1197	0.1799	0.2591	0.3135	0.4013	0.4826
	0.1160	0.1766	0.2558	0.2955	0.3833	0.4646
	0.1132	0.1742	0.2534	0.2775	0.3653	0.4466
	0.1112	0.1726	0.2518	0.2595	0.3473	0.4286
	0.1099	0.1716	0.2508	0.2415	0.3293	0.4106
	0.1092	0.1711	0.2503	0.2235	0.3113	0.3926
	0.1090	0.1710	0.2502	0.2055	0.2933	0.3746
	0.1090	0.1710	0.2502	0.1875	0.2753	0.3566
	0.1090	0.1710	0.2502	0.1695	0.2573	0.3386
	0.1090	0.1710	0.2502	0.1515	0.2393	0.3206
	0.1090	0.1710	0.2502	0.1335	0.2213	0.3026
	0.1090	0.1710	0.2502	0.1155	0.2033	0.2846
	0.1090	0.1710	0.2502	0.0975	0.1853	0.2666
	0.1090	0.1710	0.2502	0.0795	0.1673	0.2486
	0.1090	0.1710	0.2502	0.0615	0.1493	0.2306
	0.1090	0.1710	0.2502	0.0435	0.1313	0.2126
	0.1090	0.1710	0.2502	0.0255	0.1133	0.1946
	0.1090	0.1710	0.2502	0.0075	0.0953	0.1766
	0.1090	0.1710	0.2502	0.0000	0.0773	0.1586
	0.1090	0.1710	0.2502	0.0000	0.0593	0.1406
	0.1090	0.1710	0.2502	0.0000	0.0413	0.1226
	0.1090	0.1710	0.2502	0.0000	0.0233	0.1046
	0.1090	0.1710	0.2502	0.0000	0.0053	0.0866
	0.1090	0.1710	0.2502	0.0000	0.0000	0.0686

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 1.0 \text{ and } \tilde{t}_s = 0.1$					
00E+00	1.637	1.42	3.377	113	00	00
0000	1.222	1.34	3.377	110	00	00
001000	1.218	1.33	3.302	109	00	00
002000	1.352	1.55	3.207	108	00	00
003000	1.578	1.69	3.092	105	00	00
004000	1.552	1.67	2.923	104	00	00
005000	1.552	1.67	2.798	104	00	00
006000	1.552	1.67	2.538	104	00	00
007000	1.552	1.67	2.401	104	00	00
008000	1.552	1.67	2.209	104	00	00
009000	1.552	1.67	2.015	104	00	00
010000	1.552	1.67	1.823	104	00	00
011000	1.552	1.67	1.634	104	00	00
012000	1.552	1.67	1.454	104	00	00
013000	1.552	1.67	1.284	104	00	00
014000	1.552	1.67	1.124	104	00	00
015000	1.552	1.67	1.066	104	00	00
016000	1.552	1.67	1.009	104	00	00
017000	1.552	1.67	0.949	104	00	00
018000	1.552	1.67	0.887	104	00	00
019000	1.552	1.67	0.824	104	00	00
020000	1.552	1.67	0.761	104	00	00
021000	1.552	1.67	0.698	104	00	00
022000	1.552	1.67	0.635	104	00	00
023000	1.552	1.67	0.572	104	00	00
024000	1.552	1.67	0.509	104	00	00
025000	1.552	1.67	0.446	104	00	00
026000	1.552	1.67	0.383	104	00	00
027000	1.552	1.67	0.320	104	00	00
028000	1.552	1.67	0.257	104	00	00
029000	1.552	1.67	0.194	104	00	00
030000	1.552	1.67	0.131	104	00	00
031000	1.552	1.67	0.068	104	00	00
032000	1.552	1.67	0.005	104	00	00
033000	1.552	1.67	0.000	104	00	00
034000	1.552	1.67	0.000	104	00	00
035000	1.552	1.67	0.000	104	00	00
036000	1.552	1.67	0.000	104	00	00
037000	1.552	1.67	0.000	104	00	00
038000	1.552	1.67	0.000	104	00	00
039000	1.552	1.67	0.000	104	00	00
040000	1.552	1.67	0.000	104	00	00
041000	1.552	1.67	0.000	104	00	00
042000	1.552	1.67	0.000	104	00	00
043000	1.552	1.67	0.000	104	00	00
044000	1.552	1.67	0.000	104	00	00
045000	1.552	1.67	0.000	104	00	00
046000	1.552	1.67	0.000	104	00	00
047000	1.552	1.67	0.000	104	00	00
048000	1.552	1.67	0.000	104	00	00
049000	1.552	1.67	0.000	104	00	00
050000	1.552	1.67	0.000	104	00	00
051000	1.552	1.67	0.000	104	00	00
052000	1.552	1.67	0.000	104	00	00
053000	1.552	1.67	0.000	104	00	00
054000	1.552	1.67	0.000	104	00	00
055000	1.552	1.67	0.000	104	00	00
056000	1.552	1.67	0.000	104	00	00
057000	1.552	1.67	0.000	104	00	00
058000	1.552	1.67	0.000	104	00	00
059000	1.552	1.67	0.000	104	00	00
060000	1.552	1.67	0.000	104	00	00
061000	1.552	1.67	0.000	104	00	00
062000	1.552	1.67	0.000	104	00	00
063000	1.552	1.67	0.000	104	00	00
064000	1.552	1.67	0.000	104	00	00
065000	1.552	1.67	0.000	104	00	00
066000	1.552	1.67	0.000	104	00	00
067000	1.552	1.67	0.000	104	00	00
068000	1.552	1.67	0.000	104	00	00
069000	1.552	1.67	0.000	104	00	00
070000	1.552	1.67	0.000	104	00	00
071000	1.552	1.67	0.000	104	00	00
072000	1.552	1.67	0.000	104	00	00
073000	1.552	1.67	0.000	104	00	00
074000	1.552	1.67	0.000	104	00	00
075000	1.552	1.67	0.000	104	00	00
076000	1.552	1.67	0.000	104	00	00
077000	1.552	1.67	0.000	104	00	00
078000	1.552	1.67	0.000	104	00	00
079000	1.552	1.67	0.000	104	00	00
080000	1.552	1.67	0.000	104	00	00
081000	1.552	1.67	0.000	104	00	00
082000	1.552	1.67	0.000	104	00	00
083000	1.552	1.67	0.000	104	00	00
084000	1.552	1.67	0.000	104	00	00
085000	1.552	1.67	0.000	104	00	00
086000	1.552	1.67	0.000	104	00	00
087000	1.552	1.67	0.000	104	00	00
088000	1.552	1.67	0.000	104	00	00
089000	1.552	1.67	0.000	104	00	00
090000	1.552	1.67	0.000	104	00	00
091000	1.552	1.67	0.000	104	00	00
092000	1.552	1.67	0.000	104	00	00
093000	1.552	1.67	0.000	104	00	00
094000	1.552	1.67	0.000	104	00	00
095000	1.552	1.67	0.000	104	00	00
096000	1.552	1.67	0.000	104	00	00
097000	1.552	1.67	0.000	104	00	00
098000	1.552	1.67	0.000	104	00	00
099000	1.552	1.67	0.000	104	00	00
100000	1.552	1.67	0.000	104	00	00

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 1.0 \quad \text{and} \quad \tilde{t}_s = 0.5$					
0.0000E+00	0.9897	0.9897	0.9897	0.9897	0.9897	0.9897
0.1000	0.9879	0.9879	0.9879	0.9879	0.9879	0.9879
0.1500	0.9857	0.9857	0.9857	0.9857	0.9857	0.9857
0.2000	0.9826	0.9826	0.9826	0.9826	0.9826	0.9826
0.2500	0.9787	0.9787	0.9787	0.9787	0.9787	0.9787
0.3000	0.9739	0.9739	0.9739	0.9739	0.9739	0.9739
0.3500	0.9684	0.9684	0.9684	0.9684	0.9684	0.9684
0.4000	0.9620	0.9620	0.9620	0.9620	0.9620	0.9620
0.4500	0.9549	0.9549	0.9549	0.9549	0.9549	0.9549
0.5000	0.9471	0.9471	0.9471	0.9471	0.9471	0.9471
0.5500	0.9384	0.9384	0.9384	0.9384	0.9384	0.9384
0.6000	0.9290	0.9290	0.9290	0.9290	0.9290	0.9290
0.6500	0.9187	0.9187	0.9187	0.9187	0.9187	0.9187
0.7000	0.9077	0.9077	0.9077	0.9077	0.9077	0.9077
0.7500	0.8960	0.8960	0.8960	0.8960	0.8960	0.8960
0.8000	0.8837	0.8837	0.8837	0.8837	0.8837	0.8837
0.8500	0.8709	0.8709	0.8709	0.8709	0.8709	0.8709
0.9000	0.8576	0.8576	0.8576	0.8576	0.8576	0.8576
0.9500	0.8439	0.8439	0.8439	0.8439	0.8439	0.8439
1.0000	0.8297	0.8297	0.8297	0.8297	0.8297	0.8297
1.2000	0.7992	0.7992	0.7992	0.7992	0.7992	0.7992
1.4000	0.7682	0.7682	0.7682	0.7682	0.7682	0.7682
1.6000	0.7367	0.7367	0.7367	0.7367	0.7367	0.7367
1.8000	0.7048	0.7048	0.7048	0.7048	0.7048	0.7048
2.0000	0.6725	0.6725	0.6725	0.6725	0.6725	0.6725
2.5000	0.6100	0.6100	0.6100	0.6100	0.6100	0.6100
3.0000	0.5475	0.5475	0.5475	0.5475	0.5475	0.5475
3.5000	0.4850	0.4850	0.4850	0.4850	0.4850	0.4850
4.0000	0.4225	0.4225	0.4225	0.4225	0.4225	0.4225
4.5000	0.3600	0.3600	0.3600	0.3600	0.3600	0.3600
5.0000	0.2975	0.2975	0.2975	0.2975	0.2975	0.2975
5.5000	0.2350	0.2350	0.2350	0.2350	0.2350	0.2350
6.0000	0.1725	0.1725	0.1725	0.1725	0.1725	0.1725
6.5000	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100
7.0000	0.0475	0.0475	0.0475	0.0475	0.0475	0.0475
7.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
10.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 1.0 \text{ and } \tilde{t}_0 = 0.5$					
4.5	0.0	0.0	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	0.0	0.0	0.0
5.5	0.0	0.0	0.0	0.0	0.0	0.0
6.0	0.0	0.0	0.0	0.0	0.0	0.0
6.5	0.0	0.0	0.0	0.0	0.0	0.0
7.0	0.0	0.0	0.0	0.0	0.0	0.0
7.5	0.0	0.0	0.0	0.0	0.0	0.0
8.0	0.0	0.0	0.0	0.0	0.0	0.0
8.5	0.0	0.0	0.0	0.0	0.0	0.0
9.0	0.0	0.0	0.0	0.0	0.0	0.0
9.5	0.0	0.0	0.0	0.0	0.0	0.0
10.0	0.0	0.0	0.0	0.0	0.0	0.0
11.0	0.0	0.0	0.0	0.0	0.0	0.0
12.0	0.0	0.0	0.0	0.0	0.0	0.0
13.0	0.0	0.0	0.0	0.0	0.0	0.0
14.0	0.0	0.0	0.0	0.0	0.0	0.0
15.0	0.0	0.0	0.0	0.0	0.0	0.0
16.0	0.0	0.0	0.0	0.0	0.0	0.0
17.0	0.0	0.0	0.0	0.0	0.0	0.0
18.0	0.0	0.0	0.0	0.0	0.0	0.0
19.0	0.0	0.0	0.0	0.0	0.0	0.0
20.0	0.0	0.0	0.0	0.0	0.0	0.0
21.0	0.0	0.0	0.0	0.0	0.0	0.0
22.0	0.0	0.0	0.0	0.0	0.0	0.0
23.0	0.0	0.0	0.0	0.0	0.0	0.0
24.0	0.0	0.0	0.0	0.0	0.0	0.0
25.0	0.0	0.0	0.0	0.0	0.0	0.0
26.0	0.0	0.0	0.0	0.0	0.0	0.0
27.0	0.0	0.0	0.0	0.0	0.0	0.0
28.0	0.0	0.0	0.0	0.0	0.0	0.0
29.0	0.0	0.0	0.0	0.0	0.0	0.0
30.0	0.0	0.0	0.0	0.0	0.0	0.0
31.0	0.0	0.0	0.0	0.0	0.0	0.0
32.0	0.0	0.0	0.0	0.0	0.0	0.0
33.0	0.0	0.0	0.0	0.0	0.0	0.0
34.0	0.0	0.0	0.0	0.0	0.0	0.0
35.0	0.0	0.0	0.0	0.0	0.0	0.0
36.0	0.0	0.0	0.0	0.0	0.0	0.0
37.0	0.0	0.0	0.0	0.0	0.0	0.0
38.0	0.0	0.0	0.0	0.0	0.0	0.0
39.0	0.0	0.0	0.0	0.0	0.0	0.0
40.0	0.0	0.0	0.0	0.0	0.0	0.0
41.0	0.0	0.0	0.0	0.0	0.0	0.0
42.0	0.0	0.0	0.0	0.0	0.0	0.0
43.0	0.0	0.0	0.0	0.0	0.0	0.0
44.0	0.0	0.0	0.0	0.0	0.0	0.0
45.0	0.0	0.0	0.0	0.0	0.0	0.0
46.0	0.0	0.0	0.0	0.0	0.0	0.0
47.0	0.0	0.0	0.0	0.0	0.0	0.0
48.0	0.0	0.0	0.0	0.0	0.0	0.0
49.0	0.0	0.0	0.0	0.0	0.0	0.0
50.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 1.0 \text{ and } \tilde{t}_s = 1.0$					
0.000E+00	0.7621	5221	3201	0.1092	5220E-01	0.5021E-02
0.1000	0.7613	5208	3190	0.1092	5218E-01	0.5021E-02
0.1500	0.7604	5191	3181	0.1092	5217E-01	0.5021E-02
0.2000	0.7590	5168	3169	0.1092	5216E-01	0.5021E-02
0.2500	0.7574	5138	3155	0.1092	5215E-01	0.5021E-02
0.3000	0.7553	5101	3139	0.1092	5214E-01	0.5021E-02
0.3500	0.7529	5058	3128	0.1092	5213E-01	0.5021E-02
0.4000	0.7501	5009	3108	0.1092	5212E-01	0.5021E-02
0.4500	0.7470	4954	3075	0.1092	5211E-01	0.5021E-02
0.5000	0.7436	4894	3049	0.1092	5210E-01	0.5021E-02
0.5500	0.7398	4827	3021	0.1092	5209E-01	0.5021E-02
0.6000	0.7357	4755	2990	0.1092	5208E-01	0.5021E-02
0.6500	0.7312	4679	2958	0.1092	5207E-01	0.5021E-02
0.7000	0.7265	4591	2923	0.1092	5206E-01	0.5021E-02
0.7500	0.7214	4497	2887	0.1092	5205E-01	0.5021E-02
0.8000	0.7157	4397	2849	0.1092	5204E-01	0.5021E-02
0.8500	0.7097	4292	2809	0.1092	5203E-01	0.5021E-02
0.9000	0.6986	4176	2767	0.1092	5202E-01	0.5021E-02
0.9500	0.6881	4043	2733	0.1092	5201E-01	0.5021E-02
1.0000	0.6783	3881	2693	0.1092	5200E-01	0.5021E-02
1.1000	0.6693	3693	2633	0.1092	5199E-01	0.5021E-02
1.2000	0.6619	3481	2553	0.1092	5198E-01	0.5021E-02
1.3000	0.6551	3259	2467	0.1092	5197E-01	0.5021E-02
1.4000	0.6489	3027	2373	0.1092	5196E-01	0.5021E-02
1.5000	0.6431	2787	2273	0.1092	5195E-01	0.5021E-02
1.6000	0.6377	2535	2163	0.1092	5194E-01	0.5021E-02
1.7000	0.6327	2275	2039	0.1092	5193E-01	0.5021E-02
1.8000	0.6280	2011	1907	0.1092	5192E-01	0.5021E-02
1.9000	0.6236	1747	1770	0.1092	5191E-01	0.5021E-02
2.0000	0.6194	1484	1628	0.1092	5190E-01	0.5021E-02
2.1000	0.6154	1222	1481	0.1092	5189E-01	0.5021E-02
2.2000	0.6116	961	1330	0.1092	5188E-01	0.5021E-02
2.3000	0.6080	701	1175	0.1092	5187E-01	0.5021E-02
2.4000	0.6046	442	1017	0.1092	5186E-01	0.5021E-02
2.5000	0.6013	184	857	0.1092	5185E-01	0.5021E-02
2.6000	0.5982	2	695	0.1092	5184E-01	0.5021E-02
2.7000	0.5952		531	0.1092	5183E-01	0.5021E-02
2.8000	0.5923		364	0.1092	5182E-01	0.5021E-02
2.9000	0.5895		200	0.1092	5181E-01	0.5021E-02
3.0000	0.5868		135	0.1092	5180E-01	0.5021E-02
3.1000	0.5842		69	0.1092	5179E-01	0.5021E-02
3.2000	0.5817		3	0.1092	5178E-01	0.5021E-02
3.3000	0.5792			0.1092	5177E-01	0.5021E-02
3.4000	0.5768			0.1092	5176E-01	0.5021E-02
3.5000	0.5744			0.1092	5175E-01	0.5021E-02
3.6000	0.5721			0.1092	5174E-01	0.5021E-02
3.7000	0.5698			0.1092	5173E-01	0.5021E-02
3.8000	0.5676			0.1092	5172E-01	0.5021E-02
3.9000	0.5654			0.1092	5171E-01	0.5021E-02
4.0000	0.5632			0.1092	5170E-01	0.5021E-02
4.1000	0.5611			0.1092	5169E-01	0.5021E-02
4.2000	0.5590			0.1092	5168E-01	0.5021E-02
4.3000	0.5569			0.1092	5167E-01	0.5021E-02
4.4000	0.5549			0.1092	5166E-01	0.5021E-02
4.5000	0.5529			0.1092	5165E-01	0.5021E-02
4.6000	0.5509			0.1092	5164E-01	0.5021E-02
4.7000	0.5489			0.1092	5163E-01	0.5021E-02
4.8000	0.5470			0.1092	5162E-01	0.5021E-02
4.9000	0.5451			0.1092	5161E-01	0.5021E-02
5.0000	0.5432			0.1092	5160E-01	0.5021E-02
5.1000	0.5414			0.1092	5159E-01	0.5021E-02
5.2000	0.5396			0.1092	5158E-01	0.5021E-02
5.3000	0.5378			0.1092	5157E-01	0.5021E-02
5.4000	0.5360			0.1092	5156E-01	0.5021E-02
5.5000	0.5342			0.1092	5155E-01	0.5021E-02
5.6000	0.5325			0.1092	5154E-01	0.5021E-02
5.7000	0.5307			0.1092	5153E-01	0.5021E-02
5.8000	0.5290			0.1092	5152E-01	0.5021E-02
5.9000	0.5273			0.1092	5151E-01	0.5021E-02
6.0000	0.5256			0.1092	5150E-01	0.5021E-02
6.1000	0.5240			0.1092	5149E-01	0.5021E-02
6.2000	0.5224			0.1092	5148E-01	0.5021E-02
6.3000	0.5208			0.1092	5147E-01	0.5021E-02
6.4000	0.5192			0.1092	5146E-01	0.5021E-02
6.5000	0.5177			0.1092	5145E-01	0.5021E-02
6.6000	0.5161			0.1092	5144E-01	0.5021E-02
6.7000	0.5146			0.1092	5143E-01	0.5021E-02
6.8000	0.5131			0.1092	5142E-01	0.5021E-02
6.9000	0.5116			0.1092	5141E-01	0.5021E-02
7.0000	0.5101			0.1092	5140E-01	0.5021E-02
7.1000	0.5086			0.1092	5139E-01	0.5021E-02
7.2000	0.5071			0.1092	5138E-01	0.5021E-02
7.3000	0.5056			0.1092	5137E-01	0.5021E-02
7.4000	0.5041			0.1092	5136E-01	0.5021E-02
7.5000	0.5026			0.1092	5135E-01	0.5021E-02
7.6000	0.5011			0.1092	5134E-01	0.5021E-02
7.7000	0.5000			0.1092	5133E-01	0.5021E-02
7.8000	0.4989			0.1092	5132E-01	0.5021E-02
7.9000	0.4978			0.1092	5131E-01	0.5021E-02
8.0000	0.4967			0.1092	5130E-01	0.5021E-02
8.1000	0.4956			0.1092	5129E-01	0.5021E-02
8.2000	0.4945			0.1092	5128E-01	0.5021E-02
8.3000	0.4934			0.1092	5127E-01	0.5021E-02
8.4000	0.4923			0.1092	5126E-01	0.5021E-02
8.5000	0.4912			0.1092	5125E-01	0.5021E-02
8.6000	0.4901			0.1092	5124E-01	0.5021E-02
8.7000	0.4890			0.1092	5123E-01	0.5021E-02
8.8000	0.4879			0.1092	5122E-01	0.5021E-02
8.9000	0.4868			0.1092	5121E-01	0.5021E-02
9.0000	0.4857			0.1092	5120E-01	0.5021E-02
9.1000	0.4846			0.1092	5119E-01	0.5021E-02
9.2000	0.4835			0.1092	5118E-01	0.5021E-02
9.3000	0.4824			0.1092	5117E-01	0.5021E-02
9.4000	0.4813			0.1092	5116E-01	0.5021E-02
9.5000	0.4802			0.1092	5115E-01	0.5021E-02
9.6000	0.4791			0.1092	5114E-01	0.5021E-02
9.7000	0.4780			0.1092	5113E-01	0.5021E-02
9.8000	0.4769			0.1092	5112E-01	0.5021E-02
9.9000	0.4758			0.1092	5111E-01	0.5021E-02
10.0000	0.4747			0.1092	5110E-01	0.5021E-02

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 1.0 \quad \text{and} \quad \tilde{t}_s = 1.0$					
4.5	0.0	0.0	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	0.0	0.0	0.0
5.5	0.0	0.0	0.0	0.0	0.0	0.0
6.0	0.0	0.0	0.0	0.0	0.0	0.0
6.5	0.0	0.0	0.0	0.0	0.0	0.0
7.0	0.0	0.0	0.0	0.0	0.0	0.0
7.5	0.0	0.0	0.0	0.0	0.0	0.0
8.0	0.0	0.0	0.0	0.0	0.0	0.0
8.5	0.0	0.0	0.0	0.0	0.0	0.0
9.0	0.0	0.0	0.0	0.0	0.0	0.0
9.5	0.0	0.0	0.0	0.0	0.0	0.0
10.0	0.0	0.0	0.0	0.0	0.0	0.0
11.0	0.0	0.0	0.0	0.0	0.0	0.0
12.0	0.0	0.0	0.0	0.0	0.0	0.0
13.0	0.0	0.0	0.0	0.0	0.0	0.0
14.0	0.0	0.0	0.0	0.0	0.0	0.0
15.0	0.0	0.0	0.0	0.0	0.0	0.0
16.0	0.0	0.0	0.0	0.0	0.0	0.0
17.0	0.0	0.0	0.0	0.0	0.0	0.0
18.0	0.0	0.0	0.0	0.0	0.0	0.0
19.0	0.0	0.0	0.0	0.0	0.0	0.0
20.0	0.0	0.0	0.0	0.0	0.0	0.0
21.0	0.0	0.0	0.0	0.0	0.0	0.0
22.0	0.0	0.0	0.0	0.0	0.0	0.0
23.0	0.0	0.0	0.0	0.0	0.0	0.0
24.0	0.0	0.0	0.0	0.0	0.0	0.0
25.0	0.0	0.0	0.0	0.0	0.0	0.0
26.0	0.0	0.0	0.0	0.0	0.0	0.0
27.0	0.0	0.0	0.0	0.0	0.0	0.0
28.0	0.0	0.0	0.0	0.0	0.0	0.0
29.0	0.0	0.0	0.0	0.0	0.0	0.0
30.0	0.0	0.0	0.0	0.0	0.0	0.0
31.0	0.0	0.0	0.0	0.0	0.0	0.0
32.0	0.0	0.0	0.0	0.0	0.0	0.0
33.0	0.0	0.0	0.0	0.0	0.0	0.0
34.0	0.0	0.0	0.0	0.0	0.0	0.0
35.0	0.0	0.0	0.0	0.0	0.0	0.0
36.0	0.0	0.0	0.0	0.0	0.0	0.0
37.0	0.0	0.0	0.0	0.0	0.0	0.0
38.0	0.0	0.0	0.0	0.0	0.0	0.0
39.0	0.0	0.0	0.0	0.0	0.0	0.0
40.0	0.0	0.0	0.0	0.0	0.0	0.0
41.0	0.0	0.0	0.0	0.0	0.0	0.0
42.0	0.0	0.0	0.0	0.0	0.0	0.0
43.0	0.0	0.0	0.0	0.0	0.0	0.0
44.0	0.0	0.0	0.0	0.0	0.0	0.0
45.0	0.0	0.0	0.0	0.0	0.0	0.0
46.0	0.0	0.0	0.0	0.0	0.0	0.0
47.0	0.0	0.0	0.0	0.0	0.0	0.0
48.0	0.0	0.0	0.0	0.0	0.0	0.0
49.0	0.0	0.0	0.0	0.0	0.0	0.0
50.0	0.0	0.0	0.0	0.0	0.0	0.0
51.0	0.0	0.0	0.0	0.0	0.0	0.0
52.0	0.0	0.0	0.0	0.0	0.0	0.0
53.0	0.0	0.0	0.0	0.0	0.0	0.0
54.0	0.0	0.0	0.0	0.0	0.0	0.0
55.0	0.0	0.0	0.0	0.0	0.0	0.0
56.0	0.0	0.0	0.0	0.0	0.0	0.0
57.0	0.0	0.0	0.0	0.0	0.0	0.0
58.0	0.0	0.0	0.0	0.0	0.0	0.0
59.0	0.0	0.0	0.0	0.0	0.0	0.0
60.0	0.0	0.0	0.0	0.0	0.0	0.0
61.0	0.0	0.0	0.0	0.0	0.0	0.0
62.0	0.0	0.0	0.0	0.0	0.0	0.0
63.0	0.0	0.0	0.0	0.0	0.0	0.0
64.0	0.0	0.0	0.0	0.0	0.0	0.0
65.0	0.0	0.0	0.0	0.0	0.0	0.0
66.0	0.0	0.0	0.0	0.0	0.0	0.0
67.0	0.0	0.0	0.0	0.0	0.0	0.0
68.0	0.0	0.0	0.0	0.0	0.0	0.0
69.0	0.0	0.0	0.0	0.0	0.0	0.0
70.0	0.0	0.0	0.0	0.0	0.0	0.0
71.0	0.0	0.0	0.0	0.0	0.0	0.0
72.0	0.0	0.0	0.0	0.0	0.0	0.0
73.0	0.0	0.0	0.0	0.0	0.0	0.0
74.0	0.0	0.0	0.0	0.0	0.0	0.0
75.0	0.0	0.0	0.0	0.0	0.0	0.0
76.0	0.0	0.0	0.0	0.0	0.0	0.0
77.0	0.0	0.0	0.0	0.0	0.0	0.0
78.0	0.0	0.0	0.0	0.0	0.0	0.0
79.0	0.0	0.0	0.0	0.0	0.0	0.0
80.0	0.0	0.0	0.0	0.0	0.0	0.0
81.0	0.0	0.0	0.0	0.0	0.0	0.0
82.0	0.0	0.0	0.0	0.0	0.0	0.0
83.0	0.0	0.0	0.0	0.0	0.0	0.0
84.0	0.0	0.0	0.0	0.0	0.0	0.0
85.0	0.0	0.0	0.0	0.0	0.0	0.0
86.0	0.0	0.0	0.0	0.0	0.0	0.0
87.0	0.0	0.0	0.0	0.0	0.0	0.0
88.0	0.0	0.0	0.0	0.0	0.0	0.0
89.0	0.0	0.0	0.0	0.0	0.0	0.0
90.0	0.0	0.0	0.0	0.0	0.0	0.0
91.0	0.0	0.0	0.0	0.0	0.0	0.0
92.0	0.0	0.0	0.0	0.0	0.0	0.0
93.0	0.0	0.0	0.0	0.0	0.0	0.0
94.0	0.0	0.0	0.0	0.0	0.0	0.0
95.0	0.0	0.0	0.0	0.0	0.0	0.0
96.0	0.0	0.0	0.0	0.0	0.0	0.0
97.0	0.0	0.0	0.0	0.0	0.0	0.0
98.0	0.0	0.0	0.0	0.0	0.0	0.0
99.0	0.0	0.0	0.0	0.0	0.0	0.0
100.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 1.0 \text{ and } \tilde{t}_0 = 2.0$					
0.000E+00	2739	8	1912	01	01	00
0.1000	2739	2322	1911	01	01	00
0.2000	2738	2322	1911	01	01	00
0.3000	2737	2322	1911	01	01	00
0.4000	2736	2322	1910	01	01	00
0.5000	2734	2322	1909	01	01	00
0.6000	2732	2322	1908	01	01	00
0.7000	2729	2322	1907	01	01	00
0.8000	2725	2322	1905	01	01	00
0.9000	2723	2322	1904	01	01	00
1.0000	2721	2322	1903	01	01	00
1.1000	2718	2322	1902	01	01	00
1.2000	2715	2322	1899	01	01	00
1.3000	2713	2322	1897	01	01	00
1.4000	2710	2322	1893	01	01	00
1.5000	2707	2322	1890	01	01	00
1.6000	2702	2322	1889	01	01	00
1.7000	2699	2322	1887	01	01	00
1.8000	2697	2322	1886	01	01	00
1.9000	2695	2322	1885	01	01	00
2.0000	2692	2322	1883	01	01	00
2.1000	2689	2322	1882	01	01	00
2.2000	2686	2322	1881	01	01	00
2.3000	2684	2322	1880	01	01	00
2.4000	2682	2322	1879	01	01	00
2.5000	2680	2322	1878	01	01	00
2.6000	2678	2322	1877	01	01	00
2.7000	2676	2322	1876	01	01	00
2.8000	2674	2322	1875	01	01	00
2.9000	2672	2322	1874	01	01	00
3.0000	2670	2322	1873	01	01	00
3.1000	2668	2322	1872	01	01	00
3.2000	2666	2322	1871	01	01	00
3.3000	2664	2322	1870	01	01	00
3.4000	2662	2322	1869	01	01	00
3.5000	2660	2322	1868	01	01	00
3.6000	2658	2322	1867	01	01	00
3.7000	2656	2322	1866	01	01	00
3.8000	2654	2322	1865	01	01	00
3.9000	2652	2322	1864	01	01	00
4.0000	2650	2322	1863	01	01	00
4.1000	2648	2322	1862	01	01	00
4.2000	2646	2322	1861	01	01	00
4.3000	2644	2322	1860	01	01	00
4.4000	2642	2322	1859	01	01	00
4.5000	2640	2322	1858	01	01	00
4.6000	2638	2322	1857	01	01	00
4.7000	2636	2322	1856	01	01	00
4.8000	2634	2322	1855	01	01	00
4.9000	2632	2322	1854	01	01	00
5.0000	2630	2322	1853	01	01	00
5.1000	2628	2322	1852	01	01	00
5.2000	2626	2322	1851	01	01	00
5.3000	2624	2322	1850	01	01	00
5.4000	2622	2322	1849	01	01	00
5.5000	2620	2322	1848	01	01	00
5.6000	2618	2322	1847	01	01	00
5.7000	2616	2322	1846	01	01	00
5.8000	2614	2322	1845	01	01	00
5.9000	2612	2322	1844	01	01	00
6.0000	2610	2322	1843	01	01	00
6.1000	2608	2322	1842	01	01	00
6.2000	2606	2322	1841	01	01	00
6.3000	2604	2322	1840	01	01	00
6.4000	2602	2322	1839	01	01	00
6.5000	2600	2322	1838	01	01	00
6.6000	2598	2322	1837	01	01	00
6.7000	2596	2322	1836	01	01	00
6.8000	2594	2322	1835	01	01	00
6.9000	2592	2322	1834	01	01	00
7.0000	2590	2322	1833	01	01	00
7.1000	2588	2322	1832	01	01	00
7.2000	2586	2322	1831	01	01	00
7.3000	2584	2322	1830	01	01	00
7.4000	2582	2322	1829	01	01	00
7.5000	2580	2322	1828	01	01	00
7.6000	2578	2322	1827	01	01	00
7.7000	2576	2322	1826	01	01	00
7.8000	2574	2322	1825	01	01	00
7.9000	2572	2322	1824	01	01	00
8.0000	2570	2322	1823	01	01	00
8.1000	2568	2322	1822	01	01	00
8.2000	2566	2322	1821	01	01	00
8.3000	2564	2322	1820	01	01	00
8.4000	2562	2322	1819	01	01	00
8.5000	2560	2322	1818	01	01	00
8.6000	2558	2322	1817	01	01	00
8.7000	2556	2322	1816	01	01	00
8.8000	2554	2322	1815	01	01	00
8.9000	2552	2322	1814	01	01	00
9.0000	2550	2322	1813	01	01	00
9.1000	2548	2322	1812	01	01	00
9.2000	2546	2322	1811	01	01	00
9.3000	2544	2322	1810	01	01	00
9.4000	2542	2322	1809	01	01	00
9.5000	2540	2322	1808	01	01	00
9.6000	2538	2322	1807	01	01	00
9.7000	2536	2322	1806	01	01	00
9.8000	2534	2322	1805	01	01	00
9.9000	2532	2322	1804	01	01	00
10.0000	2530	2322	1803	01	01	00

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 1.0 \quad \text{and} \quad \tilde{t}_s = 2.0$					
4.500	0.2181	0.1959	0.1629	0.0900	0.0500	0.0222
5.500	0.2077	0.1832	0.1559	0.0875	0.0490	0.0222
6.500	0.1970	0.1722	0.1491	0.0833	0.0472	0.0222
7.500	0.1864	0.1650	0.1444	0.0797	0.0458	0.0222
8.500	0.1760	0.1592	0.1369	0.0763	0.0442	0.0222
9.500	0.1658	0.1490	0.1267	0.0731	0.0428	0.0222
10.500	0.1561	0.1384	0.1187	0.0699	0.0415	0.0222
11.500	0.1468	0.1274	0.1106	0.0668	0.0402	0.0222
12.000	0.1381	0.1167	0.1024	0.0638	0.0390	0.0222
	0.1293	0.1047	0.0933	0.0609	0.0379	0.0222
	0.1223	0.9330E-01	0.0866	0.0583	0.0368	0.0222
	0.1149	0.8299E-01	0.0785	0.0557	0.0357	0.0222
	0.4319E-01	0.6090E-01	0.6361E-01	0.5319E-01	0.3791E-01	0.4835E-01
	0.1620E-01	0.4244E-01	0.5011E-01	0.4787E-01	0.3410E-01	0.4808E-01

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 1.0 \text{ and } \tilde{t}_0 = 10.0$					
0.000E+00	5722	4480	2973	1071	0000	0000
0.1000	5719	4475	2971	1071	0000	0000
0.1500	5715	4470	2968	1070	0000	0000
0.2000	5710	4462	2959	1069	0000	0000
0.3000	5695	4453	2953	1069	0000	0000
0.3500	5687	4441	2946	1068	0000	0000
0.4000	5673	4427	2938	1065	0000	0000
0.4500	5666	4411	2929	1065	0000	0000
0.5000	5661	4395	2919	1064	0000	0000
0.5500	5653	4372	2906	1062	0000	0000
0.6000	5646	4350	2893	1059	0000	0000
0.6500	5631	4326	2883	1057	0000	0000
0.7000	5613	4295	2869	1055	0000	0000
0.7500	5595	4271	2853	1053	0000	0000
0.8000	5575	4240	2837	1050	0000	0000
0.8500	5553	4208	2820	1047	0000	0000
0.9000	5530	4174	2803	1045	0000	0000
0.9500	5485	4098	2777	1037	0000	0000
1.0000	5433	4056	2748	1031	0000	0000
1.1000	5365	3980	2677	1016	0000	0000
1.2000	5305	3880	2616	1000	0000	0000
1.3000	5243	3751	2546	982	0000	0000
1.4000	5166	3595	2469	963	0000	0000
1.5000	5085	3415	2380	941	0000	0000
1.6000	4995	3216	2283	917	0000	0000
1.7000	4895	2997	2188	891	0000	0000
1.8000	4785	2750	2093	863	0000	0000
1.9000	4665	2473	1993	834	0000	0000
2.0000	4535	2173	1883	800	0000	0000
2.5000	4129	1636	1520	698	0000	0000
3.0000	3626	1136	1203	600	0000	0000
3.5000	3206	0.720E-01	9087E-01	517E-01	0.420E	0.4917E
4.0000	0.	0.	0.	0.	0.	0.
4.5000	0.	0.	0.	0.	0.	0.
5.0000	0.	0.	0.	0.	0.	0.
5.5000	0.	0.	0.	0.	0.	0.
6.0000	0.	0.	0.	0.	0.	0.
6.5000	0.	0.	0.	0.	0.	0.
7.0000	0.	0.	0.	0.	0.	0.
7.5000	0.	0.	0.	0.	0.	0.
8.0000	0.	0.	0.	0.	0.	0.
8.5000	0.	0.	0.	0.	0.	0.
9.0000	0.	0.	0.	0.	0.	0.
9.5000	0.	0.	0.	0.	0.	0.
10.0000	0.	0.	0.	0.	0.	0.
11.0000	0.	0.	0.	0.	0.	0.
12.0000	0.	0.	0.	0.	0.	0.
13.0000	0.	0.	0.	0.	0.	0.
14.0000	0.	0.	0.	0.	0.	0.
15.0000	0.	0.	0.	0.	0.	0.
16.0000	0.	0.	0.	0.	0.	0.
17.0000	0.	0.	0.	0.	0.	0.
18.0000	0.	0.	0.	0.	0.	0.
19.0000	0.	0.	0.	0.	0.	0.
20.0000	0.	0.	0.	0.	0.	0.
21.0000	0.	0.	0.	0.	0.	0.
22.0000	0.	0.	0.	0.	0.	0.
23.0000	0.	0.	0.	0.	0.	0.
24.0000	0.	0.	0.	0.	0.	0.
25.0000	0.	0.	0.	0.	0.	0.
26.0000	0.	0.	0.	0.	0.	0.
27.0000	0.	0.	0.	0.	0.	0.
28.0000	0.	0.	0.	0.	0.	0.
29.0000	0.	0.	0.	0.	0.	0.
30.0000	0.	0.	0.	0.	0.	0.
31.0000	0.	0.	0.	0.	0.	0.
32.0000	0.	0.	0.	0.	0.	0.
33.0000	0.	0.	0.	0.	0.	0.
34.0000	0.	0.	0.	0.	0.	0.
35.0000	0.	0.	0.	0.	0.	0.
36.0000	0.	0.	0.	0.	0.	0.
37.0000	0.	0.	0.	0.	0.	0.
38.0000	0.	0.	0.	0.	0.	0.
39.0000	0.	0.	0.	0.	0.	0.
40.0000	0.	0.	0.	0.	0.	0.
41.0000	0.	0.	0.	0.	0.	0.
42.0000	0.	0.	0.	0.	0.	0.
43.0000	0.	0.	0.	0.	0.	0.
44.0000	0.	0.	0.	0.	0.	0.
45.0000	0.	0.	0.	0.	0.	0.
46.0000	0.	0.	0.	0.	0.	0.
47.0000	0.	0.	0.	0.	0.	0.
48.0000	0.	0.	0.	0.	0.	0.
49.0000	0.	0.	0.	0.	0.	0.
50.0000	0.	0.	0.	0.	0.	0.
51.0000	0.	0.	0.	0.	0.	0.
52.0000	0.	0.	0.	0.	0.	0.
53.0000	0.	0.	0.	0.	0.	0.
54.0000	0.	0.	0.	0.	0.	0.
55.0000	0.	0.	0.	0.	0.	0.
56.0000	0.	0.	0.	0.	0.	0.
57.0000	0.	0.	0.	0.	0.	0.
58.0000	0.	0.	0.	0.	0.	0.
59.0000	0.	0.	0.	0.	0.	0.
60.0000	0.	0.	0.	0.	0.	0.
61.0000	0.	0.	0.	0.	0.	0.
62.0000	0.	0.	0.	0.	0.	0.
63.0000	0.	0.	0.	0.	0.	0.
64.0000	0.	0.	0.	0.	0.	0.
65.0000	0.	0.	0.	0.	0.	0.
66.0000	0.	0.	0.	0.	0.	0.
67.0000	0.	0.	0.	0.	0.	0.
68.0000	0.	0.	0.	0.	0.	0.
69.0000	0.	0.	0.	0.	0.	0.
70.0000	0.	0.	0.	0.	0.	0.
71.0000	0.	0.	0.	0.	0.	0.
72.0000	0.	0.	0.	0.	0.	0.
73.0000	0.	0.	0.	0.	0.	0.
74.0000	0.	0.	0.	0.	0.	0.
75.0000	0.	0.	0.	0.	0.	0.
76.0000	0.	0.	0.	0.	0.	0.
77.0000	0.	0.	0.	0.	0.	0.
78.0000	0.	0.	0.	0.	0.	0.
79.0000	0.	0.	0.	0.	0.	0.
80.0000	0.	0.	0.	0.	0.	0.
81.0000	0.	0.	0.	0.	0.	0.
82.0000	0.	0.	0.	0.	0.	0.
83.0000	0.	0.	0.	0.	0.	0.
84.0000	0.	0.	0.	0.	0.	0.
85.0000	0.	0.	0.	0.	0.	0.
86.0000	0.	0.	0.	0.	0.	0.
87.0000	0.	0.	0.	0.	0.	0.
88.0000	0.	0.	0.	0.	0.	0.
89.0000	0.	0.	0.	0.	0.	0.
90.0000	0.	0.	0.	0.	0.	0.
91.0000	0.	0.	0.	0.	0.	0.
92.0000	0.	0.	0.	0.	0.	0.
93.0000	0.	0.	0.	0.	0.	0.
94.0000	0.	0.	0.	0.	0.	0.
95.0000	0.	0.	0.	0.	0.	0.
96.0000	0.	0.	0.	0.	0.	0.
97.0000	0.	0.	0.	0.	0.	0.
98.0000	0.	0.	0.	0.	0.	0.
99.0000	0.	0.	0.	0.	0.	0.
100.0000	0.	0.	0.	0.	0.	0.

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 1.0 \quad \text{and} \quad \tilde{t}_g = 10.0$					
4.500	0.1512E-01	0.4294E-01	0.6601E-01	0.6285E-01	0.3981E-01	0.491E-02
5.500	0.2951E-02	0.1241E-01	0.4612E-01	0.5376E-01	0.3744E-01	0.4862E-02
6.500	0.1215E-02	0.6585E-02	0.3100E-01	0.4080E-01	0.3498E-01	0.4795E-02
7.500	0.4756E-03	0.3222E-02	0.1294E-01	0.3456E-01	0.3247E-01	0.4718E-02
8.500	0.1765E-04	0.1522E-03	0.7508E-02	0.2883E-01	0.2745E-01	0.4675E-02
9.500	0.6237E-04	0.6913E-03	0.4350E-02	0.2375E-01	0.2261E-01	0.4630E-02
10.500	0.2650E-05	0.3033E-04	0.2431E-02	0.1937E-01	0.2032E-01	0.4582E-02
11.500	0.1571E-06	0.1221E-05	0.1369E-03	0.1252E-01	0.1619E-01	0.4480E-02
12.00	0.1487E-08	0.2645E-06	0.3501E-04	0.7356E-02	0.1419E-01	0.4425E-02
	0.8907E-09	0.9703E-06	0.1722E-05	0.4190E-02	0.1082E-01	0.4316E-02
	0.4225E-09	0.1042E-06	0.7559E-05	0.2262E-02	0.803E-02	0.4188E-02

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 2.0 \text{ and } \tilde{t}_s = 0.1$					
5.000	0.2529E-34	0.7471E-26	0.2707E-19	0.1919E-09	0.2110E-05	0.8946E-05
5.500	0.0000E+00	0.3582E-35	0.2251E-25	0.5677E-12	0.5112E-07	0.7638E-05
6.000	0.0000E+00	0.0000E+00	0.1043E-25	0.3773E-12	0.1086E-07	0.6781E-05
6.500	0.0000E+00	0.0000E+00	0.2680E-33	0.1144E-13	0.2015E-08	0.5793E-05
7.000	0.0000E+00	0.0000E+00	0.3776E+00	0.2505E-17	0.3288E-10	0.4887E-05
7.500	0.0000E+00	0.0000E+00	0.0000E+00	0.7424E-19	0.4683E-11	0.3350E-05
8.000	0.0000E+00	0.0000E+00	0.0000E+00	0.8608E-23	0.5840E-12	0.2721E-05
8.500	0.0000E+00	0.0000E+00	0.0000E+00	0.5705E-25	0.6407E-13	0.2183E-05
9.000	0.0000E+00	0.0000E+00	0.0000E+00	0.3258E-27	0.5180E-14	0.1729E-05
10.000	0.0000E+00	0.0000E+00	0.0000E+00	0.3519E-32	0.3833E-17	0.1353E-05
11.000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.1425E-20	0.7970E-06
12.000	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.3175E-20	0.4465E-06

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 2.0 \quad \text{and} \quad \tilde{t}_0 = 0.5$					
5.000	0.2673E-09	0.4226E-07	0.2514E-05	0.2813E-03	0.1166E-02	0.3701E-03
5.500	0.1190E-10	0.4122E-08	0.2514E-06	0.2813E-04	0.8741E-03	0.3604E-03
6.000	0.4226E-11	0.2435E-09	0.1144E-07	0.1493E-04	0.4559E-03	0.3327E-03
6.500	0.1222E-15	0.7744E-11	0.1459E-08	0.3155E-04	0.2193E-03	0.3327E-03
7.000	0.5144E-19	0.3441E-13	0.1722E-10	0.1552E-05	0.9110E-04	0.3327E-03
7.500	0.8640E-23	0.1301E-15	0.1596E-11	0.1212E-06	0.1422E-03	0.2917E-03
8.000	0.7897E-27	0.4183E-17	0.1322E-12	0.7711E-07	0.5683E-04	0.2791E-03
8.500	0.3259E-32	0.2634E-22	0.6476E-17	0.3653E-08	0.3451E-04	0.2664E-03
9.000	0.5184E+00	0.1413E-27	0.2395E-20	0.5661E-09	0.2040E-03	0.2537E-03
10.000	0.0000E+00	0.1413E-27	0.2395E-20	0.5661E-09	0.1906E-03	0.2282E-03
11.000	0.0000E+00	0.1413E-27	0.2395E-20	0.5661E-09	0.1906E-03	0.2282E-03
12.000	0.0000E+00	0.1413E-27	0.2395E-20	0.5661E-09	0.1906E-03	0.2282E-03

Table 5. (continued)

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 2.0 \quad \text{and} \quad \tilde{t}_s = 1.0$					
5.5	0.30157E-07	0.24957E-07	0.17504E-07	0.56741E-07	0.91338E-07	0.15552E-07
6.0	0.51800E-07	0.41667E-07	0.29144E-07	0.87416E-07	0.13387E-07	0.15552E-07
6.5	0.81145E-07	0.65728E-07	0.45144E-07	0.43386E-07	0.79307E-07	0.15552E-07
7.0	0.14574E-05	0.10572E-05	0.73873E-05	0.22959E-05	0.68106E-05	0.15552E-07
7.5	0.17206E-10	0.22728E-08	0.15052E-04	0.15174E-02	0.32222E-02	0.14836E-02
8.0	0.15266E-11	0.7934E-08	0.13877E-05	0.57249E-03	0.39632E-02	0.14836E-02
8.5	0.13215E-11	0.13312E-05	0.38077E-06	0.60599E-03	0.25844E-02	0.13989E-02
9.0	0.9776E-15	0.29592E-11	0.47002E-08	0.36609E-03	0.20466E-02	0.13989E-02
9.5	0.5476E-17	0.5636E-11	0.2029E-09	0.22355E-03	0.1558E-02	0.13047E-02
10.0	0.3958E-20	0.5778E-11	0.7125E-11	0.3712E-05	0.1231E-03	0.13047E-02
11.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.1237E-02
12.0	0.0000	0.0000	0.0000	0.0000	0.0000	0.1168E-02

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 2.0 \quad \text{and} \quad \tilde{t}_s = 2.0$					
0.00E+00	3359	3190	2746	1283	70E	00
0.1000	3349	3189	2743	1283	70E	00
0.2000	3349	3189	2743	1283	70E	00
0.3000	3347	3185	2739	1281	70E	00
0.4000	3345	3182	2735	1280	70E	00
0.5000	3341	3177	2724	1278	70E	00
0.6000	3339	3174	2724	1277	70E	00
0.7000	3337	3171	2719	1275	70E	00
0.8000	3335	3167	2714	1274	70E	00
0.9000	3332	3163	2708	1272	70E	00
1.0000	3332	3158	2701	1269	70E	00
1.2000	3331	3153	2697	1268	70E	00
1.4000	3331	3147	2679	1264	70E	00
1.6000	3331	3142	2670	1264	70E	00
1.8000	3331	3135	2657	1261	70E	00
2.0000	3331	3124	2643	1256	70E	00
2.2000	3331	3108	2630	1254	70E	00
2.4000	3330	3095	2622	1254	70E	00
2.6000	3330	3083	2612	1253	70E	00
2.8000	3330	3069	2604	1253	70E	00
3.0000	3330	3053	2597	1253	70E	00
3.2000	3330	3036	2587	1253	70E	00
3.4000	3330	3019	2579	1253	70E	00
3.6000	3330	2999	2571	1253	70E	00
3.8000	3330	2975	2563	1253	70E	00
4.0000	3330	2956	2559	1253	70E	00
4.2000	3330	2931	2551	1253	70E	00
4.4000	3330	2907	2541	1253	70E	00
4.6000	3330	2879	2536	1253	70E	00
4.8000	3330	2851	2537	1253	70E	00
5.0000	3330	2823	2537	1253	70E	00
5.2000	3330	2795	2537	1253	70E	00
5.4000	3330	2767	2537	1253	70E	00
5.6000	3330	2739	2537	1253	70E	00
5.8000	3330	2711	2537	1253	70E	00
6.0000	3330	2683	2537	1253	70E	00
6.2000	3330	2655	2537	1253	70E	00
6.4000	3330	2627	2537	1253	70E	00
6.6000	3330	2599	2537	1253	70E	00
6.8000	3330	2571	2537	1253	70E	00
7.0000	3330	2543	2537	1253	70E	00
7.2000	3330	2515	2537	1253	70E	00
7.4000	3330	2487	2537	1253	70E	00
7.6000	3330	2459	2537	1253	70E	00
7.8000	3330	2431	2537	1253	70E	00
8.0000	3330	2403	2537	1253	70E	00
8.2000	3330	2375	2537	1253	70E	00
8.4000	3330	2347	2537	1253	70E	00
8.6000	3330	2319	2537	1253	70E	00
8.8000	3330	2291	2537	1253	70E	00
9.0000	3330	2263	2537	1253	70E	00
9.2000	3330	2235	2537	1253	70E	00
9.4000	3330	2207	2537	1253	70E	00
9.6000	3330	2179	2537	1253	70E	00
9.8000	3330	2151	2537	1253	70E	00
10.0000	3330	2123	2537	1253	70E	00

Table 5. (continued)

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 2.0 \text{ and } \tilde{t}_0 = 10.0$					
0.0000E+00	0.2424	0.2233	0.2045	0.1629	0.1370	0.7333E-C1
0.1000	0.2424	0.2233	0.2045	0.1629	0.1370	0.7333E-C1
0.2000	0.2422	0.2231	0.2044	0.1628	0.1370	0.7333E-C1
0.3000	0.2421	0.2230	0.2043	0.1628	0.1370	0.7333E-C1
0.4000	0.2418	0.2228	0.2042	0.1627	0.1369	0.7333E-C1
0.5000	0.2417	0.2227	0.2041	0.1627	0.1369	0.7333E-C1
0.6000	0.2414	0.2224	0.2038	0.1626	0.1369	0.7333E-C1
0.7000	0.2411	0.2221	0.2031	0.1624	0.1368	0.7333E-C1
0.8000	0.2406	0.2219	0.2027	0.1621	0.1365	0.7332E-C1
0.9500	0.2391	0.2211	0.2020	0.1615	0.1362	0.7329E-C1
1.1000	0.2367	0.2195	0.2007	0.1611	0.1359	0.7325E-C1
1.5000	0.2336	0.2174	0.1990	0.1604	0.1356	0.7319E-C1
2.0000	0.2300	0.2149	0.1971	0.1597	0.1349	0.7316E-C1
3.0000	0.2260	0.2121	0.1950	0.1589	0.1345	0.7308E-C1
4.0000	0.2215	0.2085	0.1927	0.1580	0.1339	0.7299E-C1
5.0000	0.2167	0.2055	0.1901	0.1570	0.1330	0.7293E-C1
6.0000	0.2115	0.2018	0.1874	0.1559	0.1324	0.7288E-C1
7.0000	0.2057	0.1980	0.1846	0.1548	0.1318	0.7282E-C1
8.0000	0.1997	0.1900	0.1786	0.1536	0.1311	0.7276E-C1
9.0000	0.1935	0.1858	0.1753	0.1524	0.1305	0.7265E-C1
10.0000	0.1865	0.1776	0.1692	0.1511	0.1294	0.7248E-C1
11.0000	0.1789	0.1735	0.1660	0.1498	0.1275	0.7231E-C1
12.0000	0.1703	0.1653	0.1586	0.1483	0.1259	
	0.1634	0.1546	0.1477	0.1460		
	0.1544	0.1480		0.1433		
	0.1474			0.1392		
				0.1352		

Table 5. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 2.0 \text{ and } \tilde{t}_s = 10.0$					
5.5	0.6849E-02	0.590E-01	0.7938E-01	0.7053E-01	0.4532E-01	0.1412E-01
6.0	0.1416E-03	0.1345E-01	0.5801E-01	0.6253E-01	0.4223E-01	0.2317E-01
6.5	0.3307E-03	0.1940E-01	0.4055E-01	0.5447E-01	0.3911E-01	0.2206E-01
7.0	0.8337E-04	0.3633E-01	0.1720E-01	0.3981E-01	0.3599E-01	0.2148E-01
7.5	0.2177E-05	0.3221E-01	0.1041E-01	0.3339E-01	0.3293E-01	0.2085E-01
8.0	0.5714E-05	0.4317E-01	0.5991E-02	0.2765E-01	0.2703E-01	0.1959E-01
8.5	0.1479E-06	0.1276E-01	0.3275E-02	0.2225E-01	0.2427E-01	0.1601E-01
9.0	0.3725E-07	0.3462E-01	0.1700E-02	0.1753E-01	0.2166E-01	0.1595E-01
9.5	0.2112E-07	0.8812E-01	0.3373E-03	0.1433E-01	0.1920E-01	0.1482E-01
10.0	0.4713E-08	0.2168E-01	0.3512E-04	0.1143E-01	0.1482E-01	0.1115E-01
11.0	0.2030E-09	0.7375E-01	0.7291E-04	0.6783E-02	0.1115E-01	0.1115E-01
12.0	0.7126E-11	0.1102E-01	0.1102E-04	0.3816E-02	0.1115E-01	0.1115E-01

Table 6. The decay of the radial profile of tangential velocity of a vortex in post-cut off stage.

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.55 \text{ and } \tilde{t}_e = 0.1$					
0	294	15	475	15	078	437
0.1	279	815	527	117	445	910
0.2	412	330	226	177	653	143
0.3	487	317	284	150	798	270
0.4	561	426	362	130	900	422
0.5	609	450	406	119	000	477
0.6	658	463	453	101	080	511
0.7	704	532	502	86	165	557
0.8	742	558	532	79	275	584
0.9	777	579	560	73	330	593
1.0	820	616	600	67	381	606
1.1	882	661	650	61	429	613
1.2	961	714	701	55	474	615
1.3	1021	766	753	50	522	615
1.4	1082	821	803	48	567	615
1.5	1143	878	857	49	617	640
1.6	1206	937	912	49	669	650
1.7	1271	1000	970	42	700	620
1.8	1336	1068	1025	38	730	640
1.9	1403	1139	1089	36	767	691
2.0	1471	1214	1153	34	807	701
2.1	1540	1292	1220	32	847	719
2.2	1610	1373	1289	30	887	737
2.3	1681	1457	1359	28	927	758
2.4	1753	1543	1430	26	967	781
2.5	1826	1632	1503	25	1007	801
2.6	1900	1724	1577	24	1047	824
2.7	1975	1818	1652	22	1087	849
2.8	2051	1914	1728	21	1127	874
2.9	2128	2012	1805	20	1167	899
3.0	2206	2112	1883	19	1207	924
3.1	2285	2214	1962	18	1247	949
3.2	2365	2318	2042	17	1287	974
3.3	2446	2424	2123	16	1327	1000
3.4	2528	2532	2205	15	1367	1026
3.5	2611	2642	2288	14	1407	1052
3.6	2695	2754	2372	13	1447	1079
3.7	2780	2868	2457	12	1487	1106
3.8	2866	2984	2543	11	1527	1134
3.9	2953	3102	2630	10	1567	1162
4.0	3041	3222	2718	9	1607	1191
4.1	3130	3344	2807	8	1647	1220
4.2	3220	3468	2897	7	1687	1250
4.3	3311	3594	2988	6	1727	1280
4.4	3403	3722	3080	5	1767	1310
4.5	3496	3852	3173	4	1807	1340
4.6	3590	3984	3267	3	1847	1370
4.7	3685	4118	3362	2	1887	1400
4.8	3781	4254	3458	1	1927	1430
4.9	3878	4392	3555	0	1967	1460
5.0	3976	4532	3653	0	2007	1490
5.1	4075	4674	3752	0	2047	1520
5.2	4175	4818	3852	0	2087	1550
5.3	4276	4964	3953	0	2127	1580
5.4	4378	5112	4055	0	2167	1610
5.5	4481	5262	4158	0	2207	1640
5.6	4585	5414	4262	0	2247	1670
5.7	4690	5568	4367	0	2287	1700
5.8	4796	5724	4473	0	2327	1730
5.9	4903	5882	4580	0	2367	1760
6.0	5011	6042	4688	0	2407	1790
6.1	5120	6204	4797	0	2447	1820
6.2	5230	6368	4907	0	2487	1850
6.3	5341	6534	5018	0	2527	1880
6.4	5453	6702	5130	0	2567	1910
6.5	5566	6872	5243	0	2607	1940
6.6	5680	7044	5357	0	2647	1970
6.7	5795	7218	5472	0	2687	2000
6.8	5911	7394	5588	0	2727	2030
6.9	6028	7572	5705	0	2767	2060
7.0	6146	7752	5823	0	2807	2090
7.1	6265	7934	5942	0	2847	2120
7.2	6385	8118	6062	0	2887	2150
7.3	6506	8304	6183	0	2927	2180
7.4	6628	8492	6305	0	2967	2210
7.5	6751	8682	6428	0	3007	2240
7.6	6875	8874	6552	0	3047	2270
7.7	6999	9068	6677	0	3087	2300
7.8	7124	9264	6803	0	3127	2330
7.9	7250	9462	6930	0	3167	2360
8.0	7377	9662	7058	0	3207	2390
8.1	7505	9864	7187	0	3247	2420
8.2	7634	10068	7317	0	3287	2450
8.3	7764	10274	7448	0	3327	2480
8.4	7895	10482	7580	0	3367	2510
8.5	8026	10692	7713	0	3407	2540
8.6	8158	10904	7847	0	3447	2570
8.7	8291	11118	7982	0	3487	2600
8.8	8425	11334	8118	0	3527	2630
8.9	8560	11552	8255	0	3567	2660
9.0	8696	11772	8393	0	3607	2690
9.1	8833	11994	8532	0	3647	2720
9.2	8971	12218	8672	0	3687	2750
9.3	9110	12444	8813	0	3727	2780
9.4	9250	12672	8955	0	3767	2810
9.5	9391	12902	9098	0	3807	2840
9.6	9533	13134	9242	0	3847	2870
9.7	9676	13368	9387	0	3887	2900
9.8	9820	13604	9533	0	3927	2930
9.9	9965	13842	9680	0	3967	2960
10.0	10111	14082	9828	0	4007	2990

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 0.55 \quad \text{and} \quad \tilde{t}_0 = 0.5$					
0.1000E-35	0.0000E+00	0.0000E+C0	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	1.2209	1.147	1.119	1.179	1.293	1.879
0.1500	1.657	1.557	1.506	1.571	1.719	1.879
0.2000	1.964	1.817	1.735	1.776	1.933	2.501
0.2500	2.212	2.016	1.899	1.957	2.062	2.990
0.3000	2.428	2.183	2.030	2.066	2.146	3.109
0.3500	2.608	2.340	2.241	2.233	2.255	3.192
0.4000	2.799	2.488	2.410	2.423	2.294	3.233
0.4500	2.991	2.633	2.563	2.578	2.348	3.264
0.5000	3.134	2.770	2.713	2.710	2.386	3.401
0.5500	3.275	2.911	2.853	2.837	2.401	3.415
0.6000	3.415	3.052	2.996	3.037	2.414	3.423
0.6500	3.570	3.195	3.137	3.230	2.425	3.433
0.7000	3.723	3.337	3.281	3.420	2.434	3.443
0.7500	3.893	3.480	3.423	3.611	2.444	3.453
0.8000	4.084	3.627	3.567	3.809	2.452	3.459
0.8500	4.287	3.776	3.713	4.009	2.457	3.463
0.9000	4.494	3.925	3.860	4.214	2.463	3.467
0.9500	4.715	4.075	4.009	4.424	2.467	3.470
1.0000	4.950	4.225	4.159	4.639	2.470	3.471
1.1000	5.200	4.375	4.310	4.859	2.472	3.472
1.2000	5.463	4.525	4.463	5.084	2.473	3.472
1.3000	5.738	4.675	4.617	5.313	2.473	3.472
1.4000	6.025	4.825	4.773	5.546	2.473	3.472
1.5000	6.323	4.975	4.930	5.783	2.473	3.472
1.6000	6.632	5.125	5.087	6.024	2.473	3.472
1.7000	6.952	5.275	5.245	6.269	2.473	3.472
1.8000	7.282	5.425	5.404	6.517	2.473	3.472
1.9000	7.622	5.575	5.564	6.768	2.473	3.472
2.0000	7.972	5.725	5.724	7.022	2.473	3.472
2.1000	8.331	5.875	5.884	7.279	2.473	3.472
2.2000	8.699	6.025	6.044	7.538	2.473	3.472
2.3000	9.076	6.175	6.204	7.799	2.473	3.472
2.4000	9.462	6.325	6.364	8.062	2.473	3.472
2.5000	9.857	6.475	6.504	8.327	2.473	3.472
2.6000	10.261	6.625	6.644	8.594	2.473	3.472
2.7000	10.674	6.775	6.784	8.862	2.473	3.472
2.8000	11.096	6.925	6.924	9.132	2.473	3.472
2.9000	11.527	7.075	7.074	9.404	2.473	3.472
3.0000	11.967	7.225	7.224	9.677	2.473	3.472
3.1000	12.416	7.375	7.374	9.952	2.473	3.472
3.2000	12.874	7.525	7.524	10.228	2.473	3.472
3.3000	13.341	7.675	7.674	10.505	2.473	3.472
3.4000	13.817	7.825	7.824	10.783	2.473	3.472
3.5000	14.302	7.975	7.974	11.062	2.473	3.472
3.6000	14.795	8.125	8.124	11.342	2.473	3.472
3.7000	15.296	8.275	8.274	11.623	2.473	3.472
3.8000	15.805	8.425	8.424	11.905	2.473	3.472
3.9000	16.322	8.575	8.574	12.188	2.473	3.472
4.0000	16.846	8.725	8.724	12.472	2.473	3.472
4.1000	17.377	8.875	8.874	12.757	2.473	3.472
4.2000	17.915	9.025	9.024	13.043	2.473	3.472
4.3000	18.459	9.175	9.174	13.330	2.473	3.472
4.4000	19.009	9.325	9.324	13.618	2.473	3.472
4.5000	19.565	9.475	9.474	13.907	2.473	3.472
4.6000	20.127	9.625	9.624	14.197	2.473	3.472
4.7000	20.695	9.775	9.774	14.488	2.473	3.472
4.8000	21.268	9.925	9.924	14.780	2.473	3.472
4.9000	21.846	10.075	10.074	15.073	2.473	3.472
5.0000	22.429	10.225	10.224	15.367	2.473	3.472
5.1000	23.017	10.375	10.374	15.662	2.473	3.472
5.2000	23.610	10.525	10.524	15.958	2.473	3.472
5.3000	24.208	10.675	10.674	16.255	2.473	3.472
5.4000	24.811	10.825	10.824	16.553	2.473	3.472
5.5000	25.419	10.975	10.974	16.852	2.473	3.472
5.6000	26.032	11.125	11.124	17.152	2.473	3.472
5.7000	26.650	11.275	11.274	17.453	2.473	3.472
5.8000	27.273	11.425	11.424	17.755	2.473	3.472
5.9000	27.901	11.575	11.574	18.058	2.473	3.472
6.0000	28.534	11.725	11.724	18.362	2.473	3.472
6.1000	29.172	11.875	11.874	18.667	2.473	3.472
6.2000	29.815	12.025	12.024	18.973	2.473	3.472
6.3000	30.463	12.175	12.174	19.280	2.473	3.472
6.4000	31.116	12.325	12.324	19.588	2.473	3.472
6.5000	31.774	12.475	12.474	19.897	2.473	3.472
6.6000	32.437	12.625	12.624	20.207	2.473	3.472
6.7000	33.104	12.775	12.774	20.518	2.473	3.472
6.8000	33.776	12.925	12.924	20.830	2.473	3.472
6.9000	34.453	13.075	13.074	21.143	2.473	3.472
7.0000	35.135	13.225	13.224	21.457	2.473	3.472
7.1000	35.821	13.375	13.374	21.772	2.473	3.472
7.2000	36.512	13.525	13.524	22.088	2.473	3.472
7.3000	37.207	13.675	13.674	22.405	2.473	3.472
7.4000	37.906	13.825	13.824	22.723	2.473	3.472
7.5000	38.610	13.975	13.974	23.042	2.473	3.472
7.6000	39.318	14.125	14.124	23.362	2.473	3.472
7.7000	40.031	14.275	14.274	23.683	2.473	3.472
7.8000	40.748	14.425	14.424	24.005	2.473	3.472
7.9000	41.470	14.575	14.574	24.328	2.473	3.472
8.0000	42.196	14.725	14.724	24.652	2.473	3.472
8.1000	42.927	14.875	14.874	24.977	2.473	3.472
8.2000	43.662	15.025	15.024	25.303	2.473	3.472
8.3000	44.402	15.175	15.174	25.630	2.473	3.472
8.4000	45.146	15.325	15.324	25.958	2.473	3.472
8.5000	45.894	15.475	15.474	26.287	2.473	3.472
8.6000	46.646	15.625	15.624	26.617	2.473	3.472
8.7000	47.402	15.775	15.774	26.948	2.473	3.472
8.8000	48.162	15.925	15.924	27.280	2.473	3.472
8.9000	48.926	16.075	16.074	27.613	2.473	3.472
9.0000	49.694	16.225	16.224	27.947	2.473	3.472
9.1000	50.466	16.375	16.374	28.282	2.473	3.472
9.2000	51.242	16.525	16.524	28.618	2.473	3.472
9.3000	52.022	16.675	16.674	28.955	2.473	3.472
9.4000	52.806	16.825	16.824	29.293	2.473	3.472
9.5000	53.594	16.975	16.974	29.632	2.473	3.472
9.6000	54.386	17.125	17.124	29.972	2.473	3.472
9.7000	55.182	17.275	17.274	30.313	2.473	3.472
9.8000	55.982	17.425	17.424	30.655	2.473	3.472
9.9000	56.786	17.575	17.574	30.998	2.473	3.472
10.0000	57.594	17.725	17.724	31.342	2.473	3.472

Table 6. (continued)

$\tilde{R}$	$\frac{t}{r_0} = 1.0$	$\frac{t}{r_0} = 1.4$	$\frac{t}{r_0} = 2.0$	$\frac{t}{r_0} = 5.0$	$\frac{t}{r_0} = 10.$	$\frac{t}{r_0} = 100.$
	$m = 0.55 \quad \text{and} \quad \tilde{t}_0 = 0.5$					
5	0.00	1.569	1.761	1.765	1.570	1.190
6	0.00	1.543	1.603	1.645	1.513	1.128
7	0.00	1.522	1.477	1.552	1.453	1.076
8	0.00	1.503	1.357	1.423	1.333	1.035
9	0.00	1.485	1.260	1.333	1.261	0.993
10	0.00	1.467	1.172	1.247	1.195	0.953
11	0.00	1.450	1.102	1.171	1.140	0.910
12	0.00	1.433	1.037	1.103	1.084	0.868
		0.937	0.978	1.042	1.032	0.829
		0.885	0.928	0.979	0.983	0.795
		0.844	0.881	0.937	0.952	0.761
		0.803	0.840	0.892	0.927	0.727
		0.767	0.801	0.852	0.896	0.695
		0.734	0.773	0.816	0.862	0.664

Table 6. (continued)

$\bar{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 0.55 \quad \text{and} \quad \tilde{t}_0 = 1.0$					
0	000E-35	0	000E+00	0	000E+00	0
0	1000	1.142	1.153	1.296	1.442	1.505
0	1000	1.541	1.554	1.724	1.917	2.103
0	1500	1.781	1.765	1.940	2.153	2.384
0	2500	1.957	1.903	2.071	2.293	2.548
0	3500	2.100	2.005	2.159	2.386	2.683
0	4000	2.234	2.086	2.272	2.451	2.755
0	4500	2.346	2.122	2.342	2.494	2.803
0	5000	2.431	2.132	2.371	2.533	2.847
0	5500	2.522	2.164	2.393	2.568	2.887
0	6000	2.615	2.233	2.428	2.603	2.924
0	6500	2.706	2.311	2.460	2.634	2.956
0	7000	2.793	2.354	2.496	2.663	2.984
0	7500	2.873	2.392	2.526	2.691	3.007
0	8000	2.950	2.427	2.554	2.717	3.027
0	8500	3.023	2.455	2.579	2.741	3.044
0	9000	3.093	2.479	2.602	2.763	3.059
0	9500	3.159	2.502	2.623	2.783	3.072
1	1000	3.223	2.525	2.642	2.801	3.083
1	1200	3.343	2.569	2.666	2.827	3.103
1	1400	3.453	2.613	2.689	2.851	3.121
1	1600	3.553	2.657	2.711	2.873	3.137
1	1800	3.643	2.699	2.732	2.894	3.151
1	2000	3.723	2.741	2.752	2.913	3.163
1	2200	3.793	2.781	2.771	2.931	3.174
1	2400	3.853	2.821	2.789	2.948	3.184
1	2600	3.903	2.860	2.806	2.964	3.193
1	2800	3.943	2.898	2.822	2.979	3.201
1	3000	3.973	2.935	2.837	2.993	3.208
1	3200	4.003	2.971	2.851	3.006	3.214
1	3400	4.023	3.006	2.864	3.018	3.219
1	3600	4.043	3.040	2.876	3.029	3.223
1	3800	4.053	3.073	2.887	3.039	3.226
1	4000	4.063	3.106	2.897	3.048	3.229
1	4200	4.073	3.138	2.906	3.056	3.231
1	4400	4.083	3.170	2.915	3.064	3.233
1	4600	4.093	3.201	2.923	3.071	3.234
1	4800	4.103	3.232	2.931	3.078	3.235
1	5000	4.113	3.262	2.938	3.084	3.236
1	5200	4.123	3.292	2.945	3.090	3.237
1	5400	4.133	3.321	2.951	3.095	3.237
1	5600	4.143	3.350	2.957	3.100	3.238
1	5800	4.153	3.378	2.962	3.104	3.238
1	6000	4.163	3.406	2.967	3.108	3.238
1	6200	4.173	3.434	2.971	3.112	3.238
1	6400	4.183	3.461	2.975	3.115	3.238
1	6600	4.193	3.488	2.978	3.118	3.238
1	6800	4.203	3.515	2.981	3.121	3.238
1	7000	4.213	3.541	2.984	3.124	3.238
1	7200	4.223	3.567	2.986	3.126	3.238
1	7400	4.233	3.592	2.988	3.128	3.238
1	7600	4.243	3.617	2.990	3.130	3.238
1	7800	4.253	3.641	2.991	3.132	3.238
1	8000	4.263	3.665	2.992	3.134	3.238
1	8200	4.273	3.688	2.993	3.136	3.238
1	8400	4.283	3.711	2.994	3.138	3.238
1	8600	4.293	3.734	2.995	3.139	3.238
1	8800	4.303	3.756	2.995	3.140	3.238
1	9000	4.313	3.778	2.996	3.141	3.238
1	9200	4.323	3.800	2.996	3.142	3.238
1	9400	4.333	3.821	2.996	3.143	3.238
1	9600	4.343	3.842	2.996	3.144	3.238
1	9800	4.353	3.862	2.996	3.144	3.238
1	10000	4.363	3.882	2.996	3.144	3.238

Table 6. (continued)

$\bar{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.55 \text{ and } \tilde{t}_s = 1.0$					
5	1.677	1.909	1.922	1.669	1.367	1.205
5	1.708	1.744	1.762	1.609	1.366	1.205
5	1.596	1.601	1.629	1.545	1.333	1.146
6	1.446	1.479	1.510	1.479	1.305	1.093
6	1.343	1.374	1.404	1.411	1.272	1.047
7	1.253	1.282	1.320	1.337	1.202	1.008
7	1.175	1.132	1.158	1.214	1.165	0.972
8	1.104	1.103	1.109	1.159	1.128	0.942
8	1.041	1.012	1.035	1.107	1.090	0.915
9	0.989	0.961	0.985	1.047	1.053	0.853
9	0.935	0.874	0.950	1.047	1.053	0.853
10	0.854	0.801	0.820	0.976	0.980	0.822
11	0.763	0.715	0.734	0.876	0.911	0.763
12	0.677	0.630	0.650	0.760	0.803	0.677

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.55 \text{ and } \tilde{t}_s = 2.0$					
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	1.175	1.211	1.262	1.444	1.616	2.000
0.1500	1.15728	1.61595	1.6880	1.9220	2.150	3.353
0.2000	1.1783	1.6295	1.695	1.958	2.153	3.134
0.2500	1.193240	1.65653	1.7026	2.029	2.270	3.753
0.3000	1.2040	1.68038	1.728	2.091	2.353	3.905
0.3500	1.2120	1.70028	1.753	2.150	2.435	4.012
0.4000	1.2265	1.72338	1.782	2.213	2.517	4.092
0.4500	1.2376	1.7395	1.807	2.265	2.588	4.152
0.5000	1.2472	1.7537	1.827	2.310	2.655	4.199
0.5500	1.2557	1.7657	1.842	2.345	2.713	4.237
0.6000	1.2634	1.7757	1.853	2.373	2.763	4.263
0.6500	1.2705	1.7837	1.862	2.395	2.808	4.283
0.7000	1.2765	1.7897	1.869	2.413	2.848	4.303
0.7500	1.2815	1.7947	1.874	2.428	2.883	4.314
0.8000	1.2857	1.7987	1.878	2.440	2.913	4.326
0.8500	1.2893	1.8017	1.881	2.450	2.938	4.336
0.9000	1.2923	1.8037	1.883	2.458	2.958	4.345
0.9500	1.2949	1.8057	1.885	2.465	2.973	4.352
1.0000	1.2971	1.8077	1.887	2.471	2.983	4.357
1.1000	1.3000	1.8100	1.890	2.476	2.990	4.361
1.1500	1.3018	1.8118	1.892	2.480	2.995	4.364
1.2000	1.3034	1.8134	1.894	2.483	2.998	4.366
1.2500	1.3048	1.8148	1.895	2.485	2.999	4.367
1.3000	1.3061	1.8161	1.896	2.487	2.999	4.368
1.3500	1.3073	1.8173	1.897	2.488	2.999	4.368
1.4000	1.3084	1.8184	1.898	2.489	2.999	4.369
1.4500	1.3095	1.8195	1.899	2.490	2.999	4.369
1.5000	1.3105	1.8205	1.899	2.491	2.999	4.369
1.5500	1.3115	1.8215	1.900	2.491	2.999	4.369
1.6000	1.3125	1.8225	1.900	2.492	2.999	4.369
1.6500	1.3135	1.8235	1.900	2.492	2.999	4.369
1.7000	1.3145	1.8245	1.900	2.492	2.999	4.369
1.7500	1.3155	1.8255	1.900	2.492	2.999	4.369
1.8000	1.3165	1.8265	1.900	2.492	2.999	4.369
1.8500	1.3175	1.8275	1.900	2.492	2.999	4.369
1.9000	1.3185	1.8285	1.900	2.492	2.999	4.369
1.9500	1.3195	1.8295	1.900	2.492	2.999	4.369
2.0000	1.3205	1.8305	1.900	2.492	2.999	4.369

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 0.55 \quad \text{and} \quad \tilde{t}_0 = 2.0$					
5.000	2.034	1.567	1.855	1.457	1.236	1.422
5.500	1.876	1.740	1.787	1.438	1.206	1.332
6.000	1.733	1.622	1.697	1.409	1.180	1.258
6.500	1.605	1.520	1.608	1.379	1.156	1.195
7.000	1.494	1.433	1.523	1.345	1.134	1.142
7.500	1.395	1.336	1.436	1.310	1.109	1.105
8.000	1.308	1.251	1.354	1.273	1.093	1.081
8.500	1.231	1.173	1.264	1.235	1.072	1.054
9.000	1.162	1.107	1.195	1.197	1.052	1.030
9.500	1.104	1.047	1.154	1.157	1.030	1.008
10.000	1.051	1.000	1.098	1.119	1.009	0.985
11.000	0.951	0.915	0.988	1.041	0.941	0.923
12.000	0.872	0.853	0.915	0.968	0.864	0.823

Table 6. (continued)

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 0.55 \quad \text{and} \quad \tilde{t}_0 = 10.0$					
5.00	1.659	1.519	1.355	1.221	1.317	1.331
5.50	1.652	1.469	1.330	1.216	1.244	1.271
6.00	1.653	1.466	1.330	1.130	1.183	1.161
7.00	1.551	1.425	1.289	1.059	1.103	1.053
7.50	1.512	1.369	1.270	1.049	1.053	1.033
8.00	1.422	1.306	1.251	1.029	1.021	1.007
8.50	1.375	1.276	1.231	1.021	1.028	1.000
9.00	1.328	1.243	1.190	1.017	1.019	1.000
9.50	1.282	1.217	1.168	1.015	1.015	1.000
10.00	1.251	1.174	1.121	1.013	1.013	1.000
11.00	1.151	1.106	1.072	1.011	1.011	1.000
12.00	1.107	1.106	1.072	1.011	1.011	1.000

Table 6. (continued)

$\bar{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.6666 \text{ and } \bar{t}_s = 0.1$					
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	0.4563	0.3108	0.1988	0.7255E-01	0.3538E-01	0.3614E-C2
0.1500	0.7360	0.4591	0.2954	0.1085	0.5297E-01	0.5388E-C2
0.2000	0.9663	0.5994	0.3888	0.1440	0.7046E-C1	0.7130E-C2
0.2500	1.172	0.7296	0.4781	0.1789	0.8781E-C1	0.8858E-C2
0.3000	1.327	0.8476	0.5623	0.2131	0.1050	0.1058E-C1
0.3500	1.442	0.9524	0.6409	0.2465	0.1220	0.1229E-C1
0.4000	1.523	1.043	0.7131	0.2790	0.1387	0.1401E-C1
0.4500	1.577	1.119	0.7785	0.3104	0.1552	0.1571E-C1
0.5000	1.608	1.181	0.8368	0.3407	0.1714	0.1741E-C1
0.5500	1.621	1.229	0.8879	0.3697	0.1873	0.1911E-C1
0.6000	1.618	1.265	0.9317	0.3974	0.2028	0.2081E-C1
0.6500	1.602	1.288	0.9682	0.4238	0.2180	0.2250E-C1
0.7000	1.576	1.300	0.9978	0.4486	0.2328	0.2419E-C1
0.7500	1.542	1.303	1.021	0.4720	0.2471	0.2587E-C1
0.8000	1.503	1.298	1.037	0.4938	0.2611	0.2754E-C1
0.8500	1.459	1.285	1.048	0.5141	0.2746	0.2921E-C1
0.9000	1.414	1.267	1.053	0.5327	0.2876	0.3088E-C1
0.9500	1.366	1.245	1.054	0.5498	0.3001	0.3254E-C1
0.9900	1.328	1.224	1.051	0.5623	0.3098	0.3387E-C1
1.100	1.226	1.160	1.032	0.5915	0.3347	0.3747E-C1
1.200	1.138	1.097	1.003	0.6116	0.3551	0.4072E-C1
1.400	0.9865	0.9718	0.9258	0.6350	0.3894	0.4712E-C1
1.600	0.8657	0.8612	0.8412	0.6390	0.4152	0.5340E-C1
1.800	0.7700	0.7688	0.7609	0.6281	0.4327	0.5952E-C1
2.000	0.6931	0.6928	0.6899	0.6068	0.4427	0.6548E-C1

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.6666 \text{ and } \tilde{t}_s = 0.1$					
2.500	0.5545	0.5544	0.5541	0.5325	0.4410	0.7955E-01
3.000	0.4521	0.4620	0.4619	0.4571	0.4145	0.9228E-01
3.500	0.3961	0.3960	0.3959	0.3947	0.3776	0.1035
4.000	0.3466	0.3465	0.3464	0.3459	0.3397	0.1132
4.500	0.3080	0.3080	0.3079	0.3075	0.3053	0.1212
5.000	0.2772	0.2772	0.2771	0.2768	0.2759	0.1275
5.500	0.2520	0.2520	0.2519	0.2516	0.2511	0.1323
6.000	0.2310	0.2310	0.2309	0.2306	0.2303	0.1357
6.500	0.2133	0.2132	0.2132	0.2129	0.2126	0.1376
7.000	0.1980	0.1980	0.1979	0.1977	0.1974	0.1383
7.500	0.1848	0.1848	0.1847	0.1845	0.1842	0.1380
8.000	0.1733	0.1733	0.1732	0.1730	0.1727	0.1368
8.500	0.1631	0.1631	0.1630	0.1628	0.1626	0.1348
9.000	0.1540	0.1540	0.1540	0.1538	0.1535	0.1322
9.500	0.1459	0.1459	0.1459	0.1457	0.1454	0.1291
10.00	0.1386	0.1386	0.1386	0.1384	0.1382	0.1258
11.00	0.1260	0.1260	0.1260	0.1258	0.1256	0.1185
12.00	0.1155	0.1155	0.1155	0.1153	0.1151	0.1110

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
$m = 0.6666$ and $\tilde{t}_0 = 0.5$						
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	0.1530	0.1037	0.6737E-01	0.2484E-01	0.1220E-01	0.1542E-02
0.1500	0.2250	0.1551	0.1009	0.3721E-01	0.1827E-01	0.2250E-02
0.2000	0.3043	0.2060	0.1341	0.4955E-01	0.2431E-01	0.2896E-02
0.2500	0.3789	0.2562	0.1671	0.6184E-01	0.3033E-01	0.3517E-02
0.3000	0.4523	0.3055	0.1997	0.7407E-01	0.3634E-01	0.4125E-02
0.3500	0.5246	0.3539	0.2319	0.8625E-01	0.4233E-01	0.4726E-02
0.4000	0.5955	0.4009	0.2636	0.9836E-01	0.4831E-01	0.5323E-02
0.4500	0.6648	0.4468	0.2947	0.1104	0.5476E-01	0.5916E-02
0.5000	0.7324	0.4912	0.3252	0.1223	0.6020E-01	0.6507E-02
0.5500	0.7981	0.5340	0.3551	0.1342	0.6611E-01	0.7097E-02
0.6000	0.8619	0.5752	0.3842	0.1459	0.7199E-01	0.7685E-02
0.6500	0.9230	0.6146	0.4125	0.1576	0.7785E-01	0.8272E-02
0.7000	0.9773	0.6521	0.4400	0.1691	0.8368E-01	0.8858E-02
0.7500	1.024	0.6878	0.4666	0.1805	0.8947E-01	0.9443E-02
0.8000	1.065	0.7215	0.4923	0.1917	0.9523E-01	0.1003E-01
0.8500	1.100	0.7532	0.5171	0.2028	0.1010	0.1061E-01
0.9000	1.129	0.7827	0.5409	0.2138	0.1066	0.1119E-01
0.9500	1.154	0.8101	0.5637	0.2246	0.1123	0.1178E-01
0.9900	1.171	0.8305	0.5812	0.2331	0.1168	0.1225E-01
1.100	1.204	0.8798	0.6257	0.2559	0.1290	0.1349E-01
1.200	1.221	0.9159	0.6617	0.2759	0.1399	0.1463E-01
1.400	1.221	0.9649	0.7206	0.3134	0.1610	0.1688E-01
1.600	1.191	0.9861	0.7625	0.3475	0.1812	0.1914E-01
1.800	1.142	0.9846	0.7885	0.3780	0.2004	0.2139E-01
2.000	1.083	0.9661	0.8004	0.4046	0.2185	0.2364E-01

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 0.6666 \text{ and } \tilde{t}_0 = 0.5$					
2.500	0.9242	0.8769	0.7829	0.4542	0.2584	0.2921E-01
3.000	0.7855	0.7697	0.7251	0.4809	0.2904	0.3470E-01
3.500	0.6764	0.6721	0.6539	0.4881	0.3141	0.4008E-01
4.000	0.5924	0.5914	0.5849	0.4803	0.3299	0.4532E-01
4.500	0.5267	0.5264	0.5243	0.4623	0.3385	0.5040E-01
5.000	0.4740	0.4739	0.4732	0.4383	0.3408	0.5531E-01
5.500	0.4309	0.4309	0.4306	0.4118	0.3380	0.6004E-01
6.000	0.3950	0.3950	0.3948	0.3851	0.3312	0.6456E-01
6.500	0.3646	0.3646	0.3644	0.3595	0.3215	0.6886E-01
7.000	0.3386	0.3385	0.3384	0.3359	0.3099	0.7294E-01
7.500	0.3160	0.3160	0.3159	0.3145	0.2972	0.7679E-01
8.000	0.2962	0.2962	0.2961	0.2954	0.2841	0.8040E-01
8.500	0.2788	0.2788	0.2787	0.2782	0.2710	0.8376E-01
9.000	0.2633	0.2633	0.2632	0.2628	0.2583	0.8698E-01
9.500	0.2495	0.2495	0.2494	0.2490	0.2462	0.8974E-01
10.00	0.2370	0.2370	0.2369	0.2366	0.2348	0.9236E-01
11.00	0.2155	0.2154	0.2154	0.2151	0.2143	0.9684E-01
12.00	0.1975	0.1975	0.1974	0.1972	0.1967	0.1003

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 0.6666 \text{ and } \tilde{t}_0 = 1.0$					
6.000	0.4976	0.4971	0.4937	0.4207	0.2981	0.000
6.500	0.4593	0.4592	0.4577	0.4078	0.3021	0.000
7.000	0.4255	0.4255	0.4253	0.3926	0.3024	0.000
7.500	0.3981	0.3981	0.3977	0.3762	0.3024	0.000
8.000	0.3732	0.3732	0.3730	0.3592	0.2947	0.000
8.500	0.3513	0.3513	0.3511	0.3425	0.2888	0.000
9.000	0.3318	0.3317	0.3316	0.3326	0.2820	0.000
9.500	0.3143	0.3143	0.3141	0.3169	0.2744	0.000
10.000	0.2986	0.2985	0.2984	0.2964	0.2562	0.000
11.000	0.2714	0.2714	0.2713	0.2705	0.2417	0.000
12.000	0.2488	0.2488	0.2487	0.2482	0.2417	0.000
						0.4257
						0.4384
						0.4518
						0.4677
						0.4863
						0.5076
						0.5314
						0.5576
						0.5863
						0.6176
						0.6514
						0.6876
						0.7263
						0.7676
						0.8114
						0.8576
						0.9063
						0.9576
						1.0114
						1.0676
						1.1263
						1.1876
						1.2514
						1.3176
						1.3863
						1.4576
						1.5314
						1.6076
						1.6863
						1.7676
						1.8514
						1.9376
						2.0263
						2.1176
						2.2114
						2.3076
						2.4063
						2.5076
						2.6114
						2.7176
						2.8263
						2.9376
						3.0514
						3.1676
						3.2863
						3.4076
						3.5314
						3.6576
						3.7863
						3.9176
						4.0514
						4.1876
						4.3263
						4.4676
						4.6114
						4.7576
						4.9063
						5.0576
						5.2114
						5.3676
						5.5263
						5.6876
						5.8514
						6.0176
						6.1863
						6.3576
						6.5314
						6.7076
						6.8863
						7.0676
						7.2514
						7.4376
						7.6263
						7.8176
						8.0114
						8.2076
						8.4063
						8.6076
						8.8114
						9.0176
						9.2263
						9.4376
						9.6514
						9.8676
						10.0863
						10.3076
						10.5314
						10.7576
						10.9863
						11.2176
						11.4514
						11.6876
						11.9263
						12.1676
						12.4114
						12.6576
						12.9063
						13.1576
						13.4114
						13.6676
						13.9263
						14.1876
						14.4514
						14.7176
						14.9863
						15.2576
						15.5314
						15.8076
						16.0863
						16.3676
						16.6514
						16.9376
						17.2263
						17.5176
						17.8114
						18.1076
						18.4063
						18.7076
						19.0114
						19.3176
						19.6263
						19.9376
						20.2514
						20.5676
						20.8863
						21.2076
						21.5314
						21.8576
						22.1863
						22.5176
						22.8514
						23.1876
						23.5263
						23.8676
						24.2114
						24.5576
						24.9063
						25.2576
						25.6114
						25.9676
						26.3263
						26.6876
						27.0514
						27.4176
						27.7863
						28.1576
						28.5314
						28.9076
						29.2863
						29.6676
						30.0514
						30.4376
						30.8263
						31.2176
						31.6114
						32.0076
						32.4063
						32.8076
						33.2114
						33.6176
						34.0263
						34.4376
						34.8514
						35.2676
						35.6863
						36.1076
						36.5314
						36.9576
						37.3863
						37.8176
						38.2514
						38.6876
						39.1263
						39.5676
						40.0114
						40.4576
						40.9063
						41.3576
						41.8114
						42.2676
						42.7263
						43.1876
						43.6514
						44.1176
						44.5863
						45.0576
						45.5314
						46.0076
						46.4863
						46.9676
						47.4514
						47.9376
						48.4263
						48.9176
						49.4114
						49.9076
						50.4063
						50.9076
						51.4114
						51.9176
						52.4263
						52.9376
						53.4514
						53.9676
						54.4863
						55.0076
						55.5314
						56.0576
						56.5863
						57.1176
						57.6514
						58.1876
						58.7263
						59.2676
						59.8114
						60.3576
						60.9063
						61.4576
						62.0114
						62.5676
						63.1263
						63.6876
						64.2514
						64.8176
						65.3863
						65.9576
						66.5314
						67.1076
						67.6863
						68.2676
						68.8514
						69.4376
						70.0263
						70.6176
						71.2114
						71.8076
						72.4063
						73.0076
						73.6114
						74.2176
						74.8263
						75.4376
						76.0514
						76.6676
						77.2863
						77.9076
						78.5314
						79.1576
						79.7863
						80.4176
						81.0514
						81.6876
						82.3263
						82.9676
						83.6114
						84.2576
						84.9063
						85.5576
						86.2114
						86.8676
						87.5263
						88.1876
						88.8514
						89.5176
						90.1863
						90.8576
						91.5314
						92.2076</

Table 6. (continued)

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.6666$ and $\tilde{t}_s = 2.0$					
6.000	0.6104	0.5740	0.5466	0.3804	0.2300	0.2756E-01
6.500	0.5703	0.5466	0.5184	0.3851	0.2402	0.2970E-01
7.000	0.5333	0.5184	0.4906	0.3864	0.2488	0.3182E-01
7.500	0.4996	0.4906	0.4640	0.3846	0.2559	0.3392E-01
8.000	0.4653	0.4640	0.4391	0.3804	0.2614	0.3558E-01
8.500	0.4421	0.4391	0.4160	0.3742	0.2655	0.3801E-01
9.000	0.4178	0.4160	0.3949	0.3664	0.2682	0.4001E-01
9.500	0.3959	0.3949	0.3756	0.3574	0.2697	0.4198E-01
10.00	0.3761	0.3756	0.3547	0.3475	0.2701	0.4391E-01
11.00	0.3419	0.3417	0.3133	0.3266	0.2747	0.4755E-01
12.00	0.3134	0.3133	0.2665	0.3055	0.2626	0.5124E-01

Table 6. (continued)

Table 6. (continued)

$\tilde{R}$	$\frac{t}{r_s} = 1.0$	$\frac{t}{r_s} = 1.4$	$\frac{t}{r_s} = 2.0$	$\frac{t}{r_s} = 5.0$	$\frac{t}{r_s} = 10.$	$\frac{t}{r_s} = 100.$
	$m = 0.6666$ and $\tilde{t}_s = 10.0$					
6.000	0.7065	0.5473	0.4117	0.1812	0.9343E-01	0.9787E-02
6.500	0.7105	0.5524	0.4284	0.1932	0.1004	0.1055E-01
7.000	0.7070	0.5726	0.4434	0.2046	0.1072	0.1132E-01
7.500	0.6978	0.5783	0.4551	0.2153	0.1138	0.1209E-01
8.000	0.6843	0.5860	0.4641	0.2234	0.1202	0.1286E-01
8.500	0.6677	0.5781	0.4705	0.2343	0.1264	0.1366E-01
9.000	0.6490	0.5732	0.4744	0.2433	0.1324	0.1438E-01
9.500	0.6291	0.5651	0.4761	0.2512	0.1382	0.1515E-01
10.000	0.6084	0.5561	0.4758	0.2584	0.1437	0.1591E-01
11.000	0.5670	0.5325	0.4701	0.2706	0.1541	0.1742E-01
12.000	0.5273	0.5056	0.4588	0.2801	0.1635	0.1892E-01

Table 6. (continued)

[illegible]

Table 6. (continued)

$\tilde{R}$	$\frac{t}{r_s} = 1.0$	$\frac{t}{r_s} = 1.4$	$\frac{t}{r_s} = 2.0$	$\frac{t}{r_s} = 5.0$	$\frac{t}{r_s} = 10.$	$\frac{t}{r_s} = 100.$
	$m = 1.0 \text{ and } \tilde{t}_s = 0.1$					
6.000	0.000	0.000	0.000	0.000	0.000	0.000
6.500	0.000	0.000	0.000	0.000	0.000	0.000
7.000	0.000	0.000	0.000	0.000	0.000	0.000
7.500	0.000	0.000	0.000	0.000	0.000	0.000
8.000	0.000	0.000	0.000	0.000	0.000	0.000
8.500	0.000	0.000	0.000	0.000	0.000	0.000
9.000	0.000	0.000	0.000	0.000	0.000	0.000
9.500	0.000	0.000	0.000	0.000	0.000	0.000
10.000	0.000	0.000	0.000	0.000	0.000	0.000
11.000	0.000	0.000	0.000	0.000	0.000	0.000
12.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 6. (continued)

Table 6. (continued)

$\tilde{R}$	$\frac{t}{r_s} = 1.0$	$\frac{t}{r_s} = 1.4$	$\frac{t}{r_s} = 2.0$	$\frac{t}{r_s} = 5.0$	$\frac{t}{r_s} = 10.$	$\frac{t}{r_s} = 100.$
	$m = 1.0 \quad \text{and} \quad \tilde{t}_s = 0.5$					
6.000	0.334E-01	0.333E-01	0.333E-01	0.817E-01	0.707E-01	0.137E-01
6.500	0.769E-01	0.769E-01	0.769E-01	0.761E-01	0.685E-01	0.147E-01
7.000	0.714E-01	0.714E-01	0.714E-01	0.711E-01	0.659E-01	0.155E-01
7.500	0.667E-01	0.667E-01	0.667E-01	0.665E-01	0.631E-01	0.164E-01
8.000	0.625E-01	0.625E-01	0.625E-01	0.624E-01	0.603E-01	0.171E-01
8.500	0.588E-01	0.588E-01	0.588E-01	0.588E-01	0.574E-01	0.179E-01
9.000	0.556E-01	0.556E-01	0.556E-01	0.555E-01	0.547E-01	0.185E-01
9.500	0.526E-01	0.526E-01	0.526E-01	0.526E-01	0.521E-01	0.191E-01
10.000	0.500E-01	0.500E-01	0.500E-01	0.500E-01	0.497E-01	0.197E-01
11.000	0.454E-01	0.454E-01	0.454E-01	0.454E-01	0.453E-01	0.207E-01
12.000	0.416E-01	0.416E-01	0.416E-01	0.416E-01	0.416E-01	0.214E-01

Table 6. (continued)

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 1.0 \text{ and } \tilde{t}_s = 1.0$					
2.000	0.1667	0.1666	0.1660	0.1433	0.1015	0.1440E-01
3.500	0.1538	0.1538	0.1536	0.1385	0.1028	0.1548E-01
5.000	0.1429	0.1429	0.1428	0.1330	0.1031	0.1554E-01
7.500	0.1333	0.1333	0.1333	0.1271	0.1026	0.1756E-01
10.000	0.1250	0.1250	0.1250	0.1212	0.1015	0.1855E-01
15.000	0.1176	0.1176	0.1176	0.1153	0.9978E-01	0.2045E-01
20.000	0.1111	0.1111	0.1111	0.1093	0.9768E-01	0.2134E-01
30.000	0.1053	0.1053	0.1053	0.1045	0.9527E-01	0.2220E-01
50.000	0.1000	0.1000	0.1000	0.9955E-01	0.9263E-01	0.2382E-01
100.000	0.9090E-01	0.9091E-01	0.9091E-01	0.9078E-01	0.8704E-01	0.8138E-01
12.000	0.8333E-01	0.8333E-01	0.8333E-01	0.8333E-01	0.8138E-01	0.7528E-01

Table 6. (continued)

$\vec{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
$m = 1.0 \text{ and } \tilde{t}_0 = 2.0$						
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	0.2860E-01	0.2239E-01	0.1486E-01	0.5354E-02	0.2586E-02	0.2508E-03
0.1500	0.4289E-01	0.3356E-01	0.2228E-01	0.8030E-02	0.3879E-02	0.3762E-03
0.2000	0.5716E-01	0.4471E-01	0.2968E-01	0.1070E-01	0.5171E-02	0.5017E-03
0.2500	0.7141E-01	0.5583E-01	0.3708E-01	0.1338E-01	0.6463E-02	0.6271E-03
0.3000	0.8563E-01	0.6690E-01	0.4445E-01	0.1605E-01	0.7754E-02	0.7525E-03
0.3500	0.9981E-01	0.7793E-01	0.5179E-01	0.1871E-01	0.9044E-02	0.8779E-03
0.4000	0.1140	0.8290E-01	0.5911E-01	0.2137E-01	0.1033E-01	0.1003E-02
0.4500	0.1281	0.9921E-01	0.6640E-01	0.2403E-01	0.1162E-01	0.1129E-02
0.5000	0.1421	0.1106	0.7365E-01	0.2669E-01	0.1291E-01	0.1254E-02
0.5500	0.1561	0.1214	0.8086E-01	0.2933E-01	0.1420E-01	0.1379E-02
0.6000	0.1700	0.1321	0.8803E-01	0.3198E-01	0.1548E-01	0.1505E-02
0.6500	0.1839	0.1426	0.9515E-01	0.3461E-01	0.1676E-01	0.1630E-02
0.7000	0.1977	0.1531	0.1022	0.3724E-01	0.1805E-01	0.1755E-02
0.7500	0.2114	0.1635	0.1092	0.3986E-01	0.1933E-01	0.1861E-02
0.8000	0.2250	0.1737	0.1162	0.4242E-01	0.2060E-01	0.2000E-02
0.8500	0.2386	0.1838	0.1231	0.4508E-01	0.2182E-01	0.2131E-02
0.9000	0.2520	0.1933	0.1299	0.4768E-01	0.2315E-01	0.2256E-02
0.9500	0.2654	0.2037	0.1367	0.5026E-01	0.2442E-01	0.2382E-02
0.9900	0.2760	0.2114	0.1420	0.5232E-01	0.2544E-01	0.2492E-02
1.100	0.3048	0.2323	0.1565	0.5796E-01	0.2823E-01	0.2757E-02
1.200	0.3306	0.2506	0.1693	0.6304E-01	0.3075E-01	0.3007E-02
1.400	0.3806	0.2850	0.1939	0.7304E-01	0.3575E-01	0.3507E-02
1.600	0.4284	0.3163	0.2169	0.8281E-01	0.4070E-01	0.4007E-02
1.800	0.4739	0.3441	0.2383	0.9233E-01	0.4559E-01	0.4506E-02

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 1.0 \text{ and } \tilde{t}_s = 2.0$					
2.000	0.5170	0.3684	0.2578	0.1016	0.5041F-C1	0.5004E-C2
2.500	0.5676	0.4126	0.2983	0.1233	0.6211E-01	0.6246E-C2
3.000	0.5558	0.4343	0.3265	0.1428	0.7324F-01	0.7483E-C2
3.500	0.5196	0.4367	0.3431	0.1598	0.8371E-C1	0.8712E-C2
4.000	0.4764	0.4249	0.3494	0.1742	0.9344E-C1	0.9933E-C2
4.500	0.4341	0.4042	0.3473	0.1860	0.1024	0.1115E-C1
5.000	0.3956	0.3793	0.3389	0.1952	0.1105	0.1235E-C1
5.500	0.3619	0.3534	0.3263	0.2019	0.1177	0.1354E-C1
6.000	0.3327	0.3284	0.3111	0.2062	0.1241	0.1472E-C1
6.500	0.3074	0.3054	0.2949	0.2085	0.1295	0.1588E-C1
7.000	0.2856	0.2847	0.2735	0.2088	0.1341	0.1703E-C1
7.500	0.2666	0.2662	0.2628	0.2076	0.1378	0.1816E-C1
8.000	0.2500	0.2498	0.2479	0.2050	0.1407	0.1928E-C1
8.500	0.2353	0.2352	0.2342	0.2013	0.1429	0.2038E-01
9.000	0.2222	0.2222	0.2217	0.1968	0.1443	0.2147E-C1
9.500	0.2105	0.2105	0.2103	0.1918	0.1450	0.2253E-C1
10.00	0.2000	0.2000	0.1999	0.1863	0.1451	0.2357E-C1
11.00	0.1818	0.1818	0.1818	0.1747	0.1438	0.2560E-C1
12.00	0.1667	0.1667	0.1667	0.1631	0.1408	0.2754E-C1

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 1.0 \text{ and } \tilde{t}_0 = 10.0$					
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	0.1369E-01	0.1164E-01	0.9558E-02	0.4607E-02	0.2409E-02	0.2492E-03
0.1500	0.2054E-01	0.1746E-01	0.1434E-01	0.6910E-02	0.3614E-02	0.3737E-03
0.2000	0.2738E-01	0.2328E-01	0.1911E-01	0.5213E-02	0.4818E-02	0.4983E-03
0.2500	0.3423E-01	0.2910E-01	0.2389E-01	0.1152E-01	0.6023E-02	0.6229E-03
0.3000	0.4106E-01	0.3491E-01	0.2867E-01	0.1382E-01	0.7227E-02	0.7475E-03
0.3500	0.4790E-01	0.4073E-01	0.3344E-01	0.1612E-01	0.8431E-02	0.8720E-03
0.4000	0.5473E-01	0.4654E-01	0.3621E-01	0.1842E-01	0.9635E-02	0.9966E-03
0.4500	0.6155E-01	0.5234E-01	0.4298E-01	0.2072E-01	0.1084E-01	0.1121E-02
0.5000	0.6837E-01	0.5815E-01	0.4774E-01	0.2302E-01	0.1204E-01	0.1246E-02
0.5500	0.7519E-01	0.6395E-01	0.5251E-01	0.2532E-01	0.1325E-01	0.1370E-02
0.6000	0.8199E-01	0.6974E-01	0.5727E-01	0.2762E-01	0.1445E-01	0.1495E-02
0.6500	0.8879E-01	0.7553E-01	0.6203E-01	0.2992E-01	0.1565E-01	0.1619E-02
0.7000	0.9559E-01	0.8132E-01	0.6678E-01	0.3221E-01	0.1685E-01	0.1744E-02
0.7500	0.1024	0.8710E-01	0.7153E-01	0.3451E-01	0.1806E-01	0.1869E-02
0.8000	0.1091	0.9288E-01	0.7627E-01	0.3680E-01	0.1926E-01	0.1993E-02
0.8500	0.1159	0.9865E-01	0.8101E-01	0.3910E-01	0.2046E-01	0.2113E-02
0.9000	0.1227	0.1044	0.8575E-01	0.4139E-01	0.2166E-01	0.2242E-02
0.9500	0.1294	0.1102	0.9048E-01	0.4363E-01	0.2286E-01	0.2367E-02
0.9900	0.1348	0.1148	0.9426E-01	0.4551E-01	0.2382E-01	0.2466E-02
1.100	0.1496	0.1274	0.1046	0.5054E-01	0.2646E-01	0.2743E-02
1.200	0.1629	0.1388	0.1140	0.5510E-01	0.2886E-01	0.2989E-02
1.400	0.1895	0.1616	0.1328	0.6421E-01	0.3365E-01	0.3487E-02
1.600	0.2158	0.1842	0.1514	0.7329E-01	0.3843E-01	0.3985E-02
1.800	0.2418	0.2066	0.1699	0.8232E-01	0.4320E-01	0.4483E-02

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 1.0 \quad \text{and} \quad \tilde{t}_e = 10.0$					
2.000	0.2675	0.2288	0.1882	0.9131E-01	0.4795E-01	0.4981E-C2
2.500	0.3300	0.2832	0.2331	0.1136	0.5978E-01	0.6224E-C2
3.000	0.3899	0.3359	0.2767	0.1354	0.7150E-01	0.7466E-C2
3.500	0.4466	0.3864	0.3187	0.1569	0.8310E-01	0.8707E-C2
4.000	0.5000	0.4345	0.3588	0.1778	0.9454E-01	0.9947E-C2
4.500	0.5498	0.4801	0.3969	0.1981	0.1058	0.1118E-C1
5.000	0.5959	0.5228	0.4327	0.2178	0.1169	0.1242E-C1
5.500	0.6383	0.5623	0.4662	0.2363	0.1278	0.1365E-C1
6.000	0.6769	0.5987	0.4970	0.2551	0.1385	0.1488E-C1
6.500	0.7119	0.6315	0.5252	0.2726	0.1489	0.1611E-C1
7.000	0.7434	0.6607	0.5506	0.2893	0.1591	0.1734E-C1
7.500	0.7716	0.6861	0.5732	0.3051	0.1690	0.1856E-C1
8.000	0.7967	0.7075	0.5928	0.3200	0.1787	0.1977E-C1
8.500	0.8189	0.7250	0.6096	0.3341	0.1880	0.2099E-C1
9.000	0.8385	0.7383	0.6236	0.3472	0.1971	0.2220E-C1
9.500	0.8557	0.7476	0.6347	0.3593	0.2058	0.2341E-C1
10.00	0.8708	0.7530	0.6431	0.3705	0.2142	0.2461E-C1
11.00	0.8812	0.7524	0.6523	0.3901	0.2300	0.2700E-C1
12.00	0.8156	0.7388	0.6522	0.4060	0.2445	0.2937E-C1

Table 6. (continued)

$\tilde{R}$	$\frac{t}{r_s} = 1.0$	$\frac{t}{r_s} = 1.4$	$\frac{t}{r_s} = 2.0$	$\frac{t}{r_s} = 5.0$	$\frac{t}{r_s} = 10.$	$\frac{t}{r_s} = 100.$
	$m = 2.0 \text{ and } \tilde{t}_s = 0.1$					
0.100E-35	0.0802E+00	0.1358E+00	0.0743E+00	0.0599E+00	0.041E+00	0.0559E+00
0.1000	0.7557E-03	0.581E-03	0.35E-03	0.228E-03	0.1E-04	0.1259E-03
0.1500	0.7778E-03	0.543E-03	0.33E-03	0.22E-03	0.04E-04	0.1679E-03
0.2000	0.7698E-03	0.51E-03	0.33E-03	0.22E-03	0.04E-04	0.2516E-03
0.2500	0.7451E-03	0.485E-03	0.33E-03	0.22E-03	0.04E-04	0.4185E-03
0.3000	0.6735E-03	0.422E-03	0.33E-03	0.22E-03	0.04E-04	0.5015E-03
0.4000	0.5957E-03	0.404E-03	0.33E-03	0.22E-03	0.04E-04	0.6693E-03
0.5000	0.5242E-03	0.379E-03	0.33E-03	0.22E-03	0.04E-04	0.8211E-03
0.6000	0.4625E-03	0.332E-03	0.33E-03	0.22E-03	0.04E-04	0.9895E-03
0.7000	0.4106E-03	0.287E-03	0.33E-03	0.22E-03	0.04E-04	0.1147E-03
0.8000	0.3536E-03	0.237E-03	0.33E-03	0.22E-03	0.04E-04	0.1301E-03
0.9000	0.3077E-03	0.208E-03	0.33E-03	0.22E-03	0.04E-04	0.1451E-03
1.1000	0.2381E-03	0.166E-03	0.33E-03	0.22E-03	0.04E-04	0.1597E-03
1.2000	0.1852E-03	0.133E-03	0.33E-03	0.22E-03	0.04E-04	0.1942E-03
1.4000	0.1667E-03	0.111E-03	0.33E-03	0.22E-03	0.04E-04	0.2254E-03
1.6000	0.1333E-03	0.933E-03	0.33E-03	0.22E-03	0.04E-04	0.2529E-03
1.8000	0.1111E-03	0.833E-03	0.33E-03	0.22E-03	0.04E-04	0.2764E-03
2.0000	0.9333E-03	0.740E-03	0.33E-03	0.22E-03	0.04E-04	0.2960E-03
2.5000	0.7407E-03	0.666E-03	0.33E-03	0.22E-03	0.04E-04	0.3115E-03
3.0000	0.6667E-03	0.605E-03	0.33E-03	0.22E-03	0.04E-04	0.3232E-03
3.5000	0.6052E-03	0.555E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03
4.0000	0.5556E-03	0.516E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03
4.5000	0.5167E-03	0.476E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03
5.0000	0.4767E-03	0.441E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03
5.5000	0.4416E-03	0.416E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03
6.0000	0.4167E-03	0.370E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03
7.0000	0.3704E-03	0.333E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03
8.0000	0.3333E-03	0.303E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03
9.0000	0.3033E-03	0.277E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03
10.0000	0.2777E-03	0.277E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03
11.0000	0.2777E-03	0.277E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03
12.0000	0.2777E-03	0.277E-03	0.33E-03	0.22E-03	0.04E-04	0.3332E-03

Table 6. (continued)

Table 6. (continued)

Table 6. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 2.0 \text{ and } \tilde{t}_0 = 10.0$					
00E-35	00E+00	00E+00	00E+00	00E+00	00E+00	00E+00
1000	0012E-01	0016E-01	0023E-01	0043E-01	0089E-01	0022E-01
1000	0018E-01	0023E-01	0034E-01	0081E-01	0142E-01	0067E-01
1500	0024E-01	0033E-01	0056E-01	0142E-01	0270E-01	0070E-01
2000	0030E-01	0045E-01	0089E-01	0222E-01	0437E-01	0073E-01
2500	0036E-01	0055E-01	0113E-01	0303E-01	0615E-01	0076E-01
3000	0042E-01	0065E-01	0137E-01	0384E-01	0801E-01	0079E-01
3500	0048E-01	0075E-01	0161E-01	0465E-01	0987E-01	0082E-01
4000	0054E-01	0085E-01	0185E-01	0546E-01	0117E-00	0085E-01
4500	0060E-01	0095E-01	0209E-01	0627E-01	0146E-00	0088E-01
5000	0066E-01	0105E-01	0233E-01	0708E-01	0175E-00	0091E-01
5500	0072E-01	0115E-01	0257E-01	0789E-01	0204E-00	0094E-01
6000	0078E-01	0125E-01	0281E-01	0870E-01	0233E-00	0097E-01
6500	0084E-01	0135E-01	0305E-01	0951E-01	0262E-00	0100E-01
7000	0090E-01	0145E-01	0329E-01	0103E-00	0291E-00	0103E-01
7500	0096E-01	0155E-01	0353E-01	0124E-00	0320E-00	0106E-01
8000	0102E-01	0165E-01	0377E-01	0145E-00	0349E-00	0109E-01
8500	0108E-01	0175E-01	0401E-01	0166E-00	0378E-00	0112E-01
9000	0114E-01	0185E-01	0425E-01	0187E-00	0407E-00	0115E-01
9500	0120E-01	0195E-01	0449E-01	0208E-00	0436E-00	0118E-01
1000	0126E-01	0205E-01	0473E-01	0229E-00	0465E-00	0121E-01
1000	0132E-01	0215E-01	0497E-01	0250E-00	0494E-00	0124E-01
1000	0138E-01	0225E-01	0521E-01	0271E-00	0523E-00	0127E-01
1000	0144E-01	0235E-01	0545E-01	0292E-00	0552E-00	0130E-01
1000	0150E-01	0245E-01	0569E-01	0313E-00	0581E-00	0133E-01
1000	0156E-01	0255E-01	0593E-01	0334E-00	0610E-00	0136E-01
1000	0162E-01	0265E-01	0617E-01	0355E-00	0639E-00	0139E-01
1000	0168E-01	0275E-01	0641E-01	0376E-00	0668E-00	0142E-01
1000	0174E-01	0285E-01	0665E-01	0397E-00	0697E-00	0145E-01
1000	0180E-01	0295E-01	0689E-01	0418E-00	0726E-00	0148E-01
1000	0186E-01	0305E-01	0713E-01	0439E-00	0755E-00	0151E-01
1000	0192E-01	0315E-01	0737E-01	0460E-00	0784E-00	0154E-01
1000	0198E-01	0325E-01	0761E-01	0481E-00	0813E-00	0157E-01
1000	0204E-01	0335E-01	0785E-01	0502E-00	0842E-00	0160E-01
1000	0210E-01	0345E-01	0809E-01	0523E-00	0871E-00	0163E-01
1000	0216E-01	0355E-01	0833E-01	0544E-00	0900E-00	0166E-01
1000	0222E-01	0365E-01	0857E-01	0565E-00	0929E-00	0169E-01
1000	0228E-01	0375E-01	0881E-01	0586E-00	0958E-00	0172E-01
1000	0234E-01	0385E-01	0905E-01	0607E-00	0987E-00	0175E-01
1000	0240E-01	0395E-01	0929E-01	0628E-00	1016E-00	0178E-01
1000	0246E-01	0405E-01	0953E-01	0649E-00	1045E-00	0181E-01
1000	0252E-01	0415E-01	0977E-01	0670E-00	1074E-00	0184E-01
1000	0258E-01	0425E-01	1001E-01	0691E-00	1103E-00	0187E-01
1000	0264E-01	0435E-01	1025E-01	0712E-00	1132E-00	0190E-01
1000	0270E-01	0445E-01	1049E-01	0733E-00	1161E-00	0193E-01
1000	0276E-01	0455E-01	1073E-01	0754E-00	1190E-00	0196E-01
1000	0282E-01	0465E-01	1097E-01	0775E-00	1219E-00	0199E-01
1000	0288E-01	0475E-01	1121E-01	0796E-00	1248E-00	0202E-01
1000	0294E-01	0485E-01	1145E-01	0817E-00	1277E-00	0205E-01
1000	0300E-01	0495E-01	1169E-01	0838E-00	1306E-00	0208E-01
1000	0306E-01	0505E-01	1193E-01	0859E-00	1335E-00	0211E-01
1000	0312E-01	0515E-01	1217E-01	0880E-00	1364E-00	0214E-01
1000	0318E-01	0525E-01	1241E-01	0901E-00	1393E-00	0217E-01
1000	0324E-01	0535E-01	1265E-01	0922E-00	1422E-00	0220E-01
1000	0330E-01	0545E-01	1289E-01	0943E-00	1451E-00	0223E-01
1000	0336E-01	0555E-01	1313E-01	0964E-00	1480E-00	0226E-01
1000	0342E-01	0565E-01	1337E-01	0985E-00	1509E-00	0229E-01
1000	0348E-01	0575E-01	1361E-01	1006E-00	1538E-00	0232E-01
1000	0354E-01	0585E-01	1385E-01	1027E-00	1567E-00	0235E-01
1000	0360E-01	0595E-01	1409E-01	1048E-00	1596E-00	0238E-01
1000	0366E-01	0605E-01	1433E-01	1069E-00	1625E-00	0241E-01
1000	0372E-01	0615E-01	1457E-01	1090E-00	1654E-00	0244E-01
1000	0378E-01	0625E-01	1481E-01	1111E-00	1683E-00	0247E-01
1000	0384E-01	0635E-01	1505E-01	1132E-00	1712E-00	0250E-01
1000	0390E-01	0645E-01	1529E-01	1153E-00	1741E-00	0253E-01
1000	0396E-01	0655E-01	1553E-01	1174E-00	1770E-00	0256E-01
1000	0402E-01	0665E-01	1577E-01	1195E-00	1800E-00	0259E-01
1000	0408E-01	0675E-01	1601E-01	1216E-00	1829E-00	0262E-01
1000	0414E-01	0685E-01	1625E-01	1237E-00	1858E-00	0265E-01
1000	0420E-01	0695E-01	1649E-01	1258E-00	1887E-00	0268E-01
1000	0426E-01	0705E-01	1673E-01	1279E-00	1916E-00	0271E-01
1000	0432E-01	0715E-01	1697E-01	1300E-00	1945E-00	0274E-01
1000	0438E-01	0725E-01	1721E-01	1321E-00	1974E-00	0277E-01
1000	0444E-01	0735E-01	1745E-01	1342E-00	2003E-00	0280E-01
1000	0450E-01	0745E-01	1769E-01	1363E-00	2032E-00	0283E-01
1000	0456E-01	0755E-01	1793E-01	1384E-00	2061E-00	0286E-01
1000	0462E-01	0765E-01	1817E-01	1405E-00	2090E-00	0289E-01
1000	0468E-01	0775E-01	1841E-01	1426E-00	2119E-00	0292E-01
1000	0474E-01	0785E-01	1865E-01	1447E-00	2148E-00	0295E-01
1000	0480E-01	0795E-01	1889E-01	1468E-00	2177E-00	0298E-01
1000	0486E-01	0805E-01	1913E-01	1489E-00	2206E-00	0301E-01
1000	0492E-01	0815E-01	1937E-01	1510E-00	2235E-00	0304E-01
1000	0498E-01	0825E-01	1961E-01	1531E-00	2264E-00	0307E-01
1000	0504E-01	0835E-01	1985E-01	1552E-00	2293E-00	0310E-01
1000	0510E-01	0845E-01	2009E-01	1573E-00	2322E-00	0313E-01
1000	0516E-01	0855E-01	2033E-01	1594E-00	2351E-00	0316E-01
1000	0522E-01	0865E-01	2057E-01	1615E-00	2380E-00	0319E-01
1000	0528E-01	0875E-01	2081E-01	1636E-00	2409E-00	0322E-01
1000	0534E-01	0885E-01	2105E-01	1657E-00	2438E-00	0325E-01
1000	0540E-01	0895E-01	2129E-01	1678E-00	2467E-00	0328E-01
1000	0546E-01	0905E-01	2153E-01	1699E-00	2496E-00	0331E-01
1000	0552E-01	0915E-01	2177E-01	1720E-00	2525E-00	0334E-01
1000	0558E-01	0925E-01	2201E-01	1741E-00	2554E-00	0337E-01
1000	0564E-01	0935E-01	2225E-01	1762E-00	2583E-00	0340E-01
1000	0570E-01	0945E-01	2249E-01	1783E-00	2612E-00	0343E-01
1000	0576E-01	0955E-01	2273E-01	1804E-00	2641E-00	0346E-01
1000	0582E-01	0965E-01	2297E-01	1825E-00	2670E-00	0349E-01
1000	0588E-01	0975E-01	2321E-01	1846E-00	2699E-00	0352E-01
1000	0594E-01	0985E-01	2345E-01	1867E-00	2728E-00	0355E-01
1000	0600E-01	0995E-01	2369E-01	1888E-00	2757E-00	0358E-01
1000	0606E-01	1005E-01	2393E-01	1909E-00	2786E-00	0361E-01
1000	0612E-01	1015E-01	2417E-01	1930E-00	2815E-00	0364E-01
1000	0618E-01	1025E-01	2441E-01	1951E-00	2844E-00	0367E-01
1000	0624E-01	1035E-01	2465E-01	1972E-00	2873E-00	0370E-01
1000	0630E-01	1045E-01	2489E-01	1993E-00	2902E-00	0373E-01
1000	0636E-01	1055E-01	2513E-01	2014E-00	2931E-00	0376E-01
1000	0642E-01	1065E-01	2537E-01	2035E-00	2960E-00	0379E-01
1000	0648E-01	1075E-01	2561E-01	2056E-00	2989E-00	0382E-01
1000	0654E-01	1085E-01	2585E-01	2077E-00	3018E-00	0385E-01
1000	0660E-01	1095E-01	2609E-01	2098E-00	3047E-00	0388E-01
1000	0666E-01	1105E-01	2633E-01	2119E-00	3076E-00	0391E-01
1000	0672E-01	1115E-01	2657E-01	2140E-00	3105E-00	0394E-01
1000	0678E-01	1125E-01	2681E-01	2161E-00	3134E-00	0397E-01
1000	0684E-01	1135E-01	2705E-01	2182E-00	3163E-00	0400E-01
1000	0690E-01	1145E-01	2729E-01	2203E-00	3192E-00	0403E-01
1000	0696E-01	1155E-01	2753E-01	2224E-00	3221E-00	0406E-01
1000	0702E-01	1165E-01	2777E-01	2245E-00	3250E-00	0409E-01
1000	0708E-01	1175E-01	2801E-01	2266E-00	3279E-00	0412E-01
1000	0714E-01	1185E-01	2825E-01	2287E-00	3308E-00	0415E-01
1000	0720E-01	1195E-01	2849E-01	2308E-00	3337E-00	0418E-01
1000	0726E-01	1205E-01	2873E-01	2329E-00	3366E-00	0421E-01
1000	0732E-01	1215E-01	2897E-01	2350E-00	3395E-00	0424E-01
1000	0738E-01	1225E-01	2921E-01	2371E-00	3424E-00	0427E-01
1000	0744E-01	1235E-01	2945E-01	2392E-00	3453E-00	0430E-01
1000	0750E-01	1245E-01	2969E-01	2413E-00	3482E-00	0433E-01
1000	0756E-01	1255E-01	2993E-01	2434E-00	3511E-00	0436E-01
1000	0762E-01	1265E-01	3017E-01	2455E-00	3540E-00	0439E-01
1000	0768E-01	1275E-01	3041E-01	2476E-00	3569E-00	0442E-01
1000	0774E-01	1285E-01	3065E-01	2497E-00	3598E-00	0445E-01
1000	0780E-01	1295E-01	3089E-01	2518E-00	3627E-00	044

Table 7. The transformation of the radial profile into the Lamb-Oseen vortex one.

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
$m = 0.55 \quad \text{and} \quad \tilde{t}_0 = 0.1$						
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	0.0001E-01	0.0000E-01	0.0000E-01	0.0000E-01	0.0000E-01	0.0000E-01
0.1500	0.2908E-01	0.2994E-01	0.3022E-01	0.3428E-01	0.3738E-01	0.5059E-01
0.2000	0.5922E-01	0.6076E-01	0.6254E-01	0.6887E-01	0.7477E-01	0.9993E-01
0.2500	0.1284	0.1307	0.1334	0.1456	0.1539	0.1997
0.3000	0.1673	0.1694	0.1721	0.1842	0.1968	0.2497
0.4000	0.2375	0.2370	0.2385	0.2504	0.2633	0.3200
0.5000	0.3163	0.3118	0.3119	0.3222	0.3354	0.3935
0.6000	0.3975	0.3905	0.3890	0.3998	0.4105	0.4681
0.7000	0.4778	0.4662	0.4659	0.4741	0.4855	0.5417
0.8000	0.5543	0.5428	0.5426	0.5482	0.5593	0.6123
0.9000	0.6290	0.6161	0.6137	0.6211	0.6324	0.6857
1.0000	0.7007	0.6853	0.6814	0.6935	0.7114	0.7357
1.1000	0.7685	0.7536	0.7514	0.7635	0.7824	0.8298
1.2000	0.8307	0.8153	0.8133	0.8259	0.8544	0.8987
1.3000	0.8846	0.8685	0.8655	0.8797	0.9139	0.9440
1.4000	0.9307	0.9139	0.9113	0.9251	0.9587	0.9710
1.5000	0.9551	0.9389	0.9357	0.9513	0.9704	0.9857
1.6000	0.9566	0.9500	0.9517	0.9644	0.9717	0.9845
1.7000	0.9566	0.9590	0.9588	0.9645	0.9718	0.9885
1.8000	0.9566	0.9590	0.9588	0.9645	0.9718	0.9885
1.9000	0.9566	0.9590	0.9588	0.9645	0.9718	0.9885
2.0000	0.9566	0.9590	0.9588	0.9645	0.9718	0.9885
2.5000	0.9566	0.9590	0.9588	0.9645	0.9718	0.9885
3.0000	0.9566	0.9590	0.9588	0.9645	0.9718	0.9885
3.5000	0.9566	0.9590	0.9588	0.9645	0.9718	0.9885
4.0000	0.9566	0.9590	0.9588	0.9645	0.9718	0.9885
4.5000	0.9566	0.9590	0.9588	0.9645	0.9718	0.9885
5.0000	0.9566	0.9590	0.9588	0.9645	0.9718	0.9885

Table 7. (continued)

Table 7. (continued)

Table 7. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.55 \text{ and } \tilde{t}_s = 2.0$					
0.100E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.1000	0.3032E-01	0.3125E-01	0.3259E-01	0.3604E-01	0.3914E-01	0.5206E-01
0.1500	0.0138E-01	0.0133E-01	0.0150E-01	0.017208E-01	0.017796E-01	0.011024
0.2000	0.01523E-01	0.01347	0.01010	0.01100	0.01182	0.01527
0.2500	0.01317	0.0137	0.01385	0.014955	0.01598	0.02030
0.3000	0.01705	0.02406	0.02449	0.02569	0.02653	0.02530
0.4000	0.02393	0.03148	0.03185	0.03251	0.03414	0.03228
0.5000	0.03168	0.04248	0.04358	0.04497	0.04633	0.04994
0.6000	0.04796	0.06464	0.06737	0.06807	0.06915	0.07221
0.7000	0.07552	0.1054	0.10735	0.10777	0.10853	0.1144
0.8000	0.14165	0.2320	0.2396	0.2406	0.2472	0.2724
0.9000	0.27435	0.5733	0.5735	0.5740	0.5796	0.6282
1.100	0.79147	0.7837	0.7893	0.7901	0.7961	0.8282
1.200	0.86277	0.8563	0.8647	0.8651	0.8702	0.8970
1.400	0.9081	0.9033	0.9130	0.9140	0.9187	0.9423
1.600	0.93483	0.9347	0.9413	0.9430	0.9476	0.9693
1.800	0.9589	0.9556	0.9567	0.9570	0.9574	0.9841
2.000	0.9600	0.9566	0.9568	0.9571	0.9576	0.9856
2.500	0.9601	0.9566	0.9569	0.9572	0.9576	0.9859
3.000	0.9601	0.9566	0.9569	0.9572	0.9576	0.9859
3.500	0.9601	0.9566	0.9569	0.9572	0.9576	0.9859
4.000	0.9601	0.9566	0.9569	0.9572	0.9576	0.9859
4.500	0.9601	0.9566	0.9569	0.9572	0.9576	0.9859
5.000	0.9601	0.9566	0.9569	0.9572	0.9576	0.9859
5.500	0.9601	0.9566	0.9569	0.9572	0.9576	0.9859
6.000	0.9601	0.9566	0.9569	0.9572	0.9576	0.9859

Table 7. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.55 \text{ and } \tilde{t}_s = 10.0$					
0.00E-35	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.1000	0.3139E-01	0.3266E-01	0.3376E-01	0.3731E-01	0.4045E-01	0.5317E-01
0.1500	0.6334E-01	0.6566E-01	0.6775E-01	0.7440E-01	0.8032E-01	0.1043
0.2500	0.9785E-01	0.1011	0.1039	0.1131	0.1214	0.1552
0.3000	0.1348	0.1387	0.1429	0.1533	0.1637	0.2055
0.4000	0.1739	0.1783	0.1819	0.1947	0.2068	0.2557
0.5000	0.2423	0.2459	0.2486	0.2612	0.2737	0.3374
0.6000	0.3150	0.3204	0.3219	0.3333	0.3457	0.4705
0.7000	0.4009	0.3985	0.3987	0.4084	0.4204	0.5424
0.8000	0.5538	0.4772	0.4761	0.4841	0.4957	0.6116
0.9000	0.6862	0.5530	0.5514	0.5579	0.5679	0.7235
1.000	0.7488	0.5805	0.5768	0.5801	0.5883	0.7810
1.200	0.8687	0.7335	0.7402	0.7426	0.7499	0.8264
1.400	0.9144	0.8676	0.8647	0.8653	0.8720	0.9450
1.600	0.9410	0.9149	0.9129	0.9153	0.9209	0.9670
1.800	0.9557	0.9470	0.9411	0.9442	0.9497	0.9816
2.000	0.9657	0.9681	0.9675	0.9697	0.9735	0.9931
2.500	0.9668	0.9692	0.9687	0.9730	0.9788	0.9944
3.000	0.9668	0.9693	0.9688	0.9731	0.9789	0.9945
3.500	0.9668	0.9693	0.9688	0.9731	0.9789	0.9945
4.000	0.9668	0.9693	0.9688	0.9731	0.9789	0.9945
4.500	0.9668	0.9693	0.9688	0.9731	0.9789	0.9945
5.000	0.9668	0.9693	0.9688	0.9731	0.9789	0.9945
5.500	0.9668	0.9693	0.9688	0.9731	0.9789	0.9945
6.000	0.9668	0.9693	0.9688	0.9731	0.9789	0.9945

Table 7. (continued)

$\dot{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
$m = 0.6666$ and $\tilde{t}_s = 0.2$						
000E-35	0000E+00	0000E+00	0000E+00	0000E+00	0000E+00	0000E+00
0.1000	0.1264E-01	0.1215E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0626E-02
0.1500	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
0.2000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
0.2500	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
0.3000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
0.4000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
0.5000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
0.6000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
0.7000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
0.8000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
0.9000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
1.1000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
1.2000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
1.4000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
1.6000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
1.8000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
2.0000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
2.5000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
3.0000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
4.0000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
5.0000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
10.0000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01
100.0000	0.1267E-01	0.1213E-01	0.1127E-01	0.1035E-01	0.1010E-01	0.0219E-01

Table 7. (continued)

Table 7. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 0.6666$ and $\tilde{t}_s = 2.0$					
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	0.0000E-01	0.0000E-01	0.0000E-01	0.0000E-01	0.0000E-01	0.0000E-01
0.1500	0.1102E-01	0.1163E-01	0.1194E-01	0.1229E-01	0.1252E-01	0.1266E-01
0.2000	0.4602E-01	0.4593E-01	0.4566E-01	0.4521E-01	0.4469E-01	0.4413E-01
0.2500	0.4599E-01	0.4572E-01	0.4534E-01	0.4485E-01	0.4428E-01	0.4368E-01
0.3000	0.7122E-01	0.7055E-01	0.6999E-01	0.6952E-01	0.6901E-01	0.6847E-01
0.4000	0.1015	0.9989E-01	0.9901E-01	0.9825E-01	0.9754E-01	0.9689E-01
0.5000	0.1704	0.1707	0.1626	0.1525	0.1405	0.1283
0.6000	0.2504	0.2536	0.2419	0.2278	0.2135	0.1990
0.7000	0.3202	0.3350	0.3287	0.3100	0.2905	0.2714
0.8000	0.3851	0.4059	0.4009	0.3834	0.3656	0.3483
0.9000	0.4552	0.4793	0.4750	0.4581	0.4408	0.4241
1.100	0.7741	0.7530	0.7352	0.7118	0.6895	0.6683
1.200	0.8231	0.8022	0.7834	0.7597	0.7365	0.7137
1.400	0.9452	0.9270	0.9133	0.8947	0.8761	0.8576
1.600	0.9742	0.9570	0.9432	0.9248	0.9064	0.8880
1.800	0.9909	0.9752	0.9613	0.9430	0.9246	0.9062
2.000	0.9959	0.9814	0.9675	0.9492	0.9308	0.9124
3.000	0.9998	0.9956	0.9933	0.9945	0.9935	0.9923
4.000	0.9999	0.9995	0.9990	0.9993	0.9993	0.9993
5.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
6.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
7.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
8.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
9.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
10.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
15.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
20.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
30.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
40.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
50.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
60.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
70.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
80.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
90.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
100.000	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999

Table 7. (continued)

Table 7. (continued)

$\tilde{R}$	$\frac{t}{\tau_s} = 1.0$	$\frac{t}{\tau_s} = 1.4$	$\frac{t}{\tau_s} = 2.0$	$\frac{t}{\tau_s} = 5.0$	$\frac{t}{\tau_s} = 10.$	$\frac{t}{\tau_s} = 100.$
	$m = 1.0 \quad \text{and} \quad \tilde{t}_s = 1.0$					
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	0.15249E-01	0.1451E-01	0.1272E-01	0.1087E-01	0.1039E-01	0.0999E-01
0.2000	0.16049E-01	0.1568E-01	0.1499E-01	0.1427E-01	0.1409E-01	0.1393E-01
0.4000	0.2364	0.20687	0.1851	0.16042	0.15338	0.1484
0.6000	0.4925	0.4090	0.3686	0.32529	0.31333	0.3034
0.8000	0.6945	0.6050	0.5577	0.5022	0.48705	0.4741
0.9100	0.8750	0.7574	0.7123	0.65570	0.6405	0.6263
1.1000	0.9102	0.8242	0.7845	0.73313	0.71715	0.70333
1.2000	0.9560	0.8719	0.8384	0.79221	0.7765	0.7645
1.4000	0.9758	0.9363	0.9153	0.89221	0.8768	0.8603
1.6000	0.9914	0.9750	0.9594	0.93867	0.9308	0.9233
1.8000	0.9967	0.9950	0.9928	0.9871	0.9846	0.9814
2.0000	0.9990	0.9990	0.9995	0.9999	0.9999	0.9999
2.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	0.15249E-01	0.1451E-01	0.1272E-01	0.1087E-01	0.1039E-01	0.0999E-01
0.2000	0.16049E-01	0.1568E-01	0.1499E-01	0.1427E-01	0.1409E-01	0.1393E-01
0.4000	0.2364	0.20687	0.1851	0.16042	0.15338	0.1484
0.6000	0.4925	0.4090	0.3686	0.32529	0.31333	0.3034
0.8000	0.6945	0.6050	0.5577	0.5022	0.48705	0.4741
0.9100	0.8750	0.7574	0.7123	0.65570	0.6405	0.6263
1.1000	0.9102	0.8242	0.7845	0.73313	0.71715	0.70333
1.2000	0.9560	0.8719	0.8384	0.79221	0.7765	0.7645
1.4000	0.9758	0.9363	0.9153	0.89221	0.8768	0.8603
1.6000	0.9914	0.9750	0.9594	0.93867	0.9308	0.9233
1.8000	0.9967	0.9950	0.9928	0.9871	0.9846	0.9814
2.0000	0.9990	0.9990	0.9995	0.9999	0.9999	0.9999
2.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Table 7. (continued)

Table 7. (continued)

$\dot{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 1.0 \quad \text{and} \quad \dot{t}_0 = 10.0$					
0.1000E-35	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
0.1000	0.5465E-02	0.6504E-02	0.7622E-02	0.9172E-02	0.9591E-02	0.9917E-02
0.2000	0.2170E-01	0.2582E-01	0.3022E-01	0.3620E-01	0.3782E-01	0.3908E-01
0.4000	0.8442E-01	0.1003	0.1165	0.1373	0.1429	0.1474
0.6000	0.1816	0.2152	0.2455	0.2831	0.2933	0.3015
0.8000	0.3042	0.3578	0.3992	0.4475	0.4608	0.4716
0.9000	0.4356	0.5050	0.5498	0.5980	0.6119	0.6235
1.1000	0.5154	0.5895	0.6303	0.6761	0.6894	0.7006
1.2000	0.5892	0.6626	0.6983	0.7392	0.7514	0.7619
1.4000	0.7376	0.7905	0.8126	0.8407	0.8499	0.8582
1.6000	0.8838	0.8853	0.8946	0.9102	0.9163	0.9220
1.8000	0.9883	0.9774	0.9959	0.9977	0.9985	0.9980
2.0000	0.9955	0.9986	0.9999	0.9999	0.9999	0.9999
2.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Table 7. (continued)

$\tilde{R}$	$\frac{t}{\tau_0} = 1.0$	$\frac{t}{\tau_0} = 1.4$	$\frac{t}{\tau_0} = 2.0$	$\frac{t}{\tau_0} = 5.0$	$\frac{t}{\tau_0} = 10.$	$\frac{t}{\tau_0} = 100.$
	$m = 2.0 \quad \text{and} \quad \tilde{t}_0 = 0.2$					
00E-35	00E+00	00E+00	00E+00	00E+00	00E+00	00E+00
1000	0026	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
1500	01867	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
2000	0273597	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
3000	043597	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
4000	058203	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
5000	078427	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
6000	089572	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
7000	095244	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
8000	097011	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
9000	098116	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
10000	099273	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
12000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
14000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
16000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
18000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
20000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
25000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
30000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
35000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
40000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
45000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
50000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
55000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
60000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
65000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
70000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
75000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
80000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
85000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
90000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
95000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01
100000	09951	0099E-01	00219E-01	0072E-01	0076E-01	002E-01

Table 7. (continued)

VITA

Khanh Quang Dang was born on July 03, 1961 at Bentre, Viet Nam. He graduated from Bentre highschool and entered Northampton Community College, Bethlehem, Pennsylvania in the Spring of 1980. Then he transferred to University of Bridgeport, Bridgeport, Connecticut in the Fall 1981. With a major in Mechanical Engineering, he received a Bachelor of Science degree in January, 1983. He entered Columbia University, New York, New York in the Spring of 1983 and received a Master of Science in Mechanical Engineering in January, 1984.

He began studies at the University of Tennessee Space Institute in the Winter of 1985. He subsequently received a Master of Science degree with a major in Aerospace Engineering in August, 1986.