Virt&l-Comm.5.2014.12

QUASICLASSICAL AND QUANTUM RATE COEFFICIENTS FOR THE O + O_2 REACTION

A. Laganà
Dipartimento di Chimica, Università di Perugia
Perugia (Italy)

E. Garcia
Departamento de Quimica Fisica, Universidad del Pais Vasco
Vitoria (Spain)

T. Martínez
Departamento de Máquina y Motores Térmicos, Universidad del Pais Vasco
Bilbao (Spain)

ISSN: 2279-8773

Abstract

An electronic version (containing minor editorial changes) of the quasiclassical and reduced dimensionality quantum state-to-state rate coefficients calculated for the O + $O_2(v)$ → O + $O_2(v')$ reaction are given at different translational and rotational temperatures for a wide range of initial vibrational states. The original printed text was published as A. Laganà, E. Garcia, T. Martinez, 1998. Quasiclassical and quantum rate coefficients for the O + O_2 reaction by the Università di Perugia, PERUGIA.

ISSN: 2279-8773

1. Introduction

Accurate calculations of the detailed (from a given reactant vibrational state v to a given product vibrational state v') rate coefficients of the

$$O(^4S_u) + O_2(^1\Sigma_g^+, v) \rightarrow O(^4S_u) + O_2(^1\Sigma_g^+, v') \qquad (1)$$

elementary reaction were prompted by environmental studies [1].

Calculations are necessary to feed the right input values when modeling the kinetics of complex gas phase reactions. For example, many model treatments assume that multiquantum jumps can be treated as a cascade process using single quantum transition properties. Our dynamical studies of atom diatom collisions show, instead, that reactive processes lead to a dramatic conversion of internal vibrational energy into other modes and viceversa leading to jumps of several vibrational quanta especially when the Potential Energy Surface (PES) exhibit wells stabilizing intermediate complexes. This is also the case of the $O(^4S_u)+O_2(^1\Sigma_g^+, v)$ reaction[2] for which a realistic picture of the interaction was obtained using a Many Body Expansion (MBE) PES obtained by linearly combining three rotating bond order model potentials[3].

To compute the rate coefficient fortran codes based on both quasiclassical trajectories (QCT) and quantum Reactive Infinite Order Sudden (RIOS) techniques were used. QCT calculations were carried out by integrating batches of 100000 trajectories. For a given vibrational state of the reactants detailed rate coefficients were calculated by setting the rotational temperature

ISSN: 2279-8773

T_{rot} and the translational temperature T_{tr} at the same value T that was varied from 200 K to 4000 K

As already mentioned on the same PESs quantum calculations were also performed though, due to the fact that full three dimensional quantum calculation of O + O_2 rate coefficients is still out of reach even when using the most advanced computer technology presently available, the chosen quantum procedure is the reduced dimensionality RIOS ([4] one. The RIOS approach has the advantage of reducing the dynamical problem to the integration of a set of two dimensional second order differential equations by decoupling both orbital and rotational motions. Then, the three dimensional nature of the process is regained in an approximate way by averaging over the collision angle Θ. To the end of determining the value of the RIOS rate coefficients, the state to state reactive probabilities were computed as a function of energy on a sufficiently fine grid ranging from about zero up to 4 eV in steps of 0.01 (for total energies falling in the range 0 to 1 eV) and in steps of 0.02 eV for higher energies. This has allowed us to compute converged rate coefficients for v as high as 23.

2. The quasiclassical calculations

In a quasiclassical approach, the detailed (from a given reactant vibrational state v to a given product vibrational state v')

ISSN: 2279-8773

rate coefficients are formulated as

$$k_{v,v'}(T_{tr},T_{rot}) = \frac{\sum_j g(2j+1)e^{-\varepsilon_j/kT_{rot}}}{(k^3T_{tr}^3\pi\mu/8)^{1/2}Q_R}$$
$$\int_0^\infty dE_{tr}E_{tr}e^{-E_{tr}/kT_{tr}}\sigma_{vj,v'}(E_{tr}) \quad (2)$$

where g is 2 for even and 1 for odd rotational levels, μ is the reduced mass of N-N_2, k is the Boltzmann's constant, Q_R is the N_2 rotational partition function, E_{tr} is the translational energy, ε_j the energy of the jth rotational state, and $\sigma_{vj,v'}$ is the degeneracy averaged detailed reactive cross section $\sigma_{vj,v'j'}$ summed over the product rotational states j'. The quasiclassical detailed cross section is defined as a five dimensional integral. When using a Monte Carlo technique this is usually approximated as

$$\sigma_{vj,v'j'} = \frac{\pi b_{max}^2}{M}\sum_{i=1}^{M} f_{vj,v'j'}(\xi_1,\xi_2,\xi_3,\xi_4,\xi_5) \quad (3)$$

where M is the number of values of the $f_{vj,v'j'}(\xi_1,\xi_2,\xi_3,\xi_4,\xi_5)$ function considered for the Monte Carlo approximation and b_{max} is the maximum value of the impact parameter leading to reactive encounters. $f_{vj,v'j'}(\xi_1,\xi_2,\xi_3,\xi_4,\xi_5)$ is a Boolean function. Its value is 1 only when, after integrating the motion equations (trajectory) starting from a given initial values of the five ξ variables with a vibrational and a rotational energy corresponding to those of the quantum vj reactant state, the final outcome can be assigned to the $v'j'$ quantum state of the products. This assignment is made using the nearest integer method.[5]

To calculate state-to-state rate coefficients for M_v reactant vibrational states, $M_{T_{tr}}$ translational temperatures, $M_{T_{rot}}$ rotational temperatures using batches of M_{batch} (in our calculations not less than 10^5) trajectories, a total number of M =

ISSN: 2279–8773

$M_v M_{T_{tr}} M_{T_{rot}} M_{batch}$ trajectories was run. When the number of vibrational states M_v (the value of M_{batch} is also related to the value of M_v since when the number of internal states increases, the size of the trajectory batch has to be increased both to have a suitable statistics and to allow larger impact parameters) and/or the number of temperatures to be considered is fairly high, the cpu time needed for the calculations is so large that there is no alternative to the use of parallel[6] computers. In our case, quasiclassical trajectory calculations were carried out on parallel Cray and IBM machines as well as on a hypercube nCUBE 2.[7]

3. The RIOS calculations

In the adopted RIOS approach, the degeneracy averaged detailed reactive cross section $\sigma_{vj,v'}$ needed to evaluate rate coefficients of equation (2) is approximated in terms of the ground rotational state cross section $\sigma_{vj=0,v'}$ values using the relationship $\sigma_{vj,v'}(E_{tr}) = \sigma_{vj=0,v'}(E_{tr} - \varepsilon_{vj})$ where ε_{vj} is the energy of the vjth vibrotational state. The ground rotational state cross section is formulated as

$$\sigma_{vj=0,v'}(E_{tr}) = \frac{\pi}{k_v^2} \sum_l (2l+1) \int_{-1}^{1} |S_{vl,v'}(\Theta; E_{tr})|^2 \, d\cos\Theta \qquad (4)$$

where $k_v^2 = 2\mu(E - \varepsilon_v)$, E is the total energy, ε_v is the energy of the vibrational state v and $S_{vl,v'}$ is the proper element of the **S** matrix. The **S** matrix is evaluated by integrating the coupled

ISSN: 2279-8773

differential equations

$$\left[\frac{d^2}{dR^2} - D\right]\psi(R;\Theta) = 0 \tag{5}$$

obtained from the Infinite Order Sudden formulation of the Schrödinger equation

$$\left[-\frac{\hbar^2}{2\mu}\left(\frac{1}{R}\frac{\partial^2}{\partial R^2}R + \frac{1}{r}\frac{\partial^2}{\partial r^2}r - \frac{A_l}{R^2} - \frac{B_j}{r^2}\right) + V(R,r;\Theta)\right]\Xi^{RIOS}(R,r;\Theta)$$

$$= E\Xi^{RIOS}(R,r;\Theta) \tag{6}$$

by expanding the scattering RIOS wavefunction $\Xi^{RIOS}(R,r;\Theta)$ in terms of the functions $\zeta_v(r;R,\Theta)$ of the bound coordinate r eigensolutions of the equation

$$\left[-\frac{\hbar^2}{2\mu}\frac{d^2}{dr^2} + V(r;R,\Theta) - \varepsilon_v\right]\zeta_v(r;R,\Theta) = 0 \tag{7}$$

R and r are the usual mass scaled Jacobi coordinates belonging, where appropriate, to the reactant or to the product arrangement. In the intermediate strong interaction region for sake of computational convenience, use is made of related circular coordinates.

Equation (6) is obtained from the exact (electronically adiabatic) nuclear Schrödinger equation by applying at the same time both the centrifugal sudden and the energy sudden approximations. In equation (6), $A_l = \hbar^{-2}l(l+1)$ and $B_j = \hbar^{-2}j(j+1)$ are the coefficients of the decoupled orbital and rotational terms of the Hamiltonian with l and j being the related quantum numbers.

The calculation of the RIOS rate coefficients for the same range of temperatures considered for quasiclassical trajectories

ISSN: 2279-8773

is also a too heavy computational task for an ordinary sequential computer. In a quantum approach, in fact, one has first to solve the stationary Schrödinger equation for the whole range of energies relevant for the integration of equation (5). Therefore, to deal with both the large number of energy integration grid points and the increase of the basis dimension with energy, an efficient implementation of the code on parallel computers is again needed. The stability as well as the efficiency of our RIOS code when running on parallel computers have been recently investigated.[8]

4. Tables of results

Calculated rate coefficients are reported in the enclosed tables for a given translational and rotational temperature. Units are $10^x \mathrm{cm}^3\mathrm{molec}^{-1}\mathrm{s}^{-1}$ with x being given in the round brackets. Initial vibrational states v (first row) are given in steps of 5 units for QCT calculations. For RIOS calculations $v = 17$ and $v = 23$ were considered instead of $v = 25$ and $v = 30$ because at higher vibrational level the range of collision energy covered by our calculations does not guarantee converged results. On the contrary, all the relevant final states v' were considered (see first column).

Calculated rate constants are reported in the following order:

1. QCT non reactive (Tables 1-7);
2. QCT reactive (Tables 8-14);
3. RIOS reactive (Tables 15-63).

ISSN: 2279-8773

Quasiclassical non reactive results have to be taken with some caution. As is well known, elastic ($v = v'$) rates are by definition unconverged. Inelastic ones, have been calculated using the same value of maximum impact parameter as reactive data. This and the poorer performance of the NI method for non reactive transitions makes related computed rate constants less accurate. In addition, since the main checks for the reliability of the empirical PESs used for the calculations was carried out by comparing with measured thermal rate constants,[2] the non reactive portion of the surface does not guarantee a proper description of non reactive collisions.

Infinite order sudden values are reported only for reactive rates. In fact, the dynamical constraints introduced to apply the RIOS computational scheme confine the validity of the method to reactive events only.

5. Conclusions

A comparison of state to state reactive rate coefficients calculated using both quasiclassical and reduced dimensionality quantum means for the O + O_2 has confirmed the key importance for this system of the surface topology in enhancing reactive multiquantum vibrational deexcitations. This contrasts the fact that in the usual modeling of gas phase systems only single quantum jumps to the next lower vibrational state are included in the considered set of kinetic equations.

ISSN: 2279-8773

Acknowledgments

The authors wish to thank the Italian Space Agency (ASI), the Progetti Finalizzati of CNR (Italy) and the Spanish DGICYT (grant PS-92-0295) for financial support and computer time allocation.

References

[1] J.T. Herson, F.S. Klein, J. Chem. Phys. 40, 2731 (1964); W. Brennen, H. Niki, J. Chem. Phys. 42 3725 (1965); S. Jaffe, F.S. Klein Trans. Farad. Soc. 62 3135 (1966).

[2] A.J.C. Varandas, A. Laganà, A. Riganelli, G. Ochoa de Aspuru, E. Garcia and M.T. Martinez, Chem. Phys. Lett. 288, 616 (1998).

[3] A. Laganà, A. Riganelli, G. Ochoa de Aspuru, E. Garcia and M.T. Martinez, Chem. Phys. Lett. 288, 616 (1998).

[4] A. Laganà, E. Garcia, O. Gervasi, J. Chem. Phys. 89, 7238 (1988).

[5] J.N.L. Connor, A. Laganà, Comp. Phys. Comm. 17, 145 (1979)

[6] G. Fox, M. Johnson, G. Lyzenga, S. Otto, J. Salmon, D. Walker, Solving problems on concurrent processors (Prentice-Hall London, 1988).

[7] R. Baraglia, R. Ferrini, D. Laforenza, R. Perego, A. Laganà, O. Gervasi, J. Math. Chem. 11, 1(1992); A. Laganà, O. Ger-

ISSN: 2279–8773

vasi, R. Baraglia, D. Laforenza, R. Perego, Theor. Chim. Acta 84, 413 (1992).

[8] E. Garcia, O. Gervasi and A. Laganà, *Approximate Quantum Techniques for Atom Diatom Reactions*, in *Supercomputer Algorithms for Reactivity, Dynamics and Kinetics of Small Molecules*, A. Laganà Ed., Kluwer, Dordrecht, 1989, p. 271; R. Baraglia, D. Laforenza and A. Laganà, *Lecture Notes in Computer Science*, 919, 554-561 (1995); A. Laganà, Computer Physics Communications, 116, 1-6 (1999); R. Baraglia, R. Ferrini, D. Laforenza and A. Laganà, in High Performance Cluster Computing, B. Rajkumar Ed. 28, 580-603 (1999).

ISSN: 2279–8773

Table 1. QCT NON REACTIVE T_{tr}= 200. T_{rot}= 200.							
v'	v	5	10	15	20	25	30
0		.731(-12)	.292(-12)	.854(-13)	.129(-12)	.735(-13)	.796(-13)
1		.807(-12)	.198(-12)	.828(-13)	.113(-12)	.783(-13)	.667(-13)
2		.809(-12)	.318(-12)	.150(-12)	.102(-12)	.169(-12)	.663(-13)
3		.874(-12)	.265(-12)	.189(-12)	.110(-12)	.126(-12)	.137(-12)
4		.546(-12)	.358(-12)	.238(-12)	.164(-12)	.243(-12)	.104(-12)
5		.168(-10)	.428(-12)	.297(-12)	.200(-12)	.108(-12)	.877(-13)
6			.355(-12)	.376(-12)	.235(-12)	.161(-12)	.408(-12)
7			.384(-12)	.293(-12)	.208(-12)	.138(-12)	.121(-12)
8			.303(-12)	.282(-12)	.260(-12)	.161(-12)	.175(-12)
9			.371(-12)	.203(-12)	.255(-12)	.234(-12)	.245(-12)
10			.135(-10)	.274(-12)	.269(-12)	.312(-12)	.225(-12)
11				.408(-12)	.404(-12)	.284(-12)	.161(-12)
12				.359(-12)	.279(-12)	.385(-12)	.192(-12)
13				.385(-12)	.451(-12)	.241(-12)	.226(-12)
14				.354(-12)	.282(-12)	.291(-12)	.196(-12)
15				.122(-10)	.310(-12)	.238(-12)	.262(-12)
16				.194(-14)	.323(-12)	.241(-12)	.195(-12)
17					.402(-12)	.217(-12)	.224(-12)
18					.434(-12)	.218(-12)	.156(-12)
19					.287(-12)	.297(-12)	.206(-12)
20					.107(-10)	.268(-12)	.206(-12)
21						.336(-12)	.233(-12)
22						.238(-12)	.191(-12)
23						.217(-12)	.369(-12)
24						.293(-12)	.227(-12)
25						.102(-10)	.280(-12)
26						.182(-14)	.269(-12)
27							.223(-12)
28							.263(-12)
29							.245(-12)
30							.991(-11)
31							.487(-14)
32							.295(-15)

ISSN: 2279-8773

Table 2. QCT NON REACTIVE T_{tr}= 250. T_{rot}= 250.							
v'	v	5	10	15	20	25	30
0		.823(-12)	.190(-12)	.960(-13)	.174(-12)	.928(-13)	.694(-13)
1		.941(-12)	.238(-12)	.127(-12)	.104(-12)	.873(-13)	.876(-13)
2		.747(-12)	.276(-12)	.135(-12)	.109(-12)	.124(-12)	.120(-12)
3		.574(-12)	.283(-12)	.199(-12)	.179(-12)	.146(-12)	.106(-12)
4		.560(-12)	.399(-12)	.232(-12)	.179(-12)	.102(-12)	.534(-13)
5		.202(-10)	.321(-12)	.200(-12)	.215(-12)	.181(-12)	.982(-13)
6			.295(-12)	.283(-12)	.279(-12)	.162(-12)	.896(-13)
7			.313(-12)	.238(-12)	.223(-12)	.238(-12)	.167(-12)
8			.253(-12)	.347(-12)	.262(-12)	.180(-12)	.127(-12)
9			.278(-12)	.270(-12)	.218(-12)	.319(-12)	.197(-12)
10			.172(-10)	.261(-12)	.260(-12)	.276(-12)	.219(-12)
11			.130(-14)	.452(-12)	.283(-12)	.412(-12)	.291(-12)
12				.297(-12)	.933(-12)	.224(-12)	.180(-12)
13				.278(-12)	.422(-12)	.270(-12)	.184(-12)
14				.355(-12)	.512(-12)	.235(-12)	.231(-12)
15				.154(-10)	.394(-12)	.273(-12)	.582(-12)
16				.122(-14)	.289(-12)	.244(-12)	.153(-12)
17					.334(-12)	.255(-12)	.231(-12)
18					.228(-12)	.278(-12)	.270(-12)
19					.267(-12)	.247(-12)	.202(-12)
20					.135(-10)	.243(-12)	.350(-12)
21					.182(-14)	.242(-12)	.212(-12)
22						.321(-12)	.283(-12)
23						.239(-12)	.257(-12)
24						.319(-12)	.344(-12)
25						.127(-10)	.274(-12)
26						.368(-14)	.305(-12)
27							.266(-12)
28							.476(-12)
29							.343(-12)
30							.124(-10)
31							.651(-14)

ISSN: 2279-8773

Table 3. QCT NON REACTIVE T_{tr}= 300. T_{rot}= 300.							
v'	v	5	10	15	20	25	30
0		.667(-12)	.340(-12)	.144(-12)	.106(-12)	.973(-13)	.603(-13)
1		.858(-12)	.253(-12)	.166(-12)	.116(-12)	.114(-12)	.603(-13)
2		.798(-12)	.330(-12)	.156(-12)	.133(-12)	.151(-12)	.920(-13)
3		.583(-12)	.205(-12)	.220(-12)	.106(-12)	.144(-12)	.734(-13)
4		.537(-12)	.299(-12)	.281(-12)	.180(-12)	.141(-12)	.140(-12)
5		.239(-10)	.676(-12)	.212(-12)	.224(-12)	.144(-12)	.107(-12)
6		.598(-15)	.340(-12)	.340(-12)	.186(-12)	.179(-12)	.132(-12)
7			.361(-12)	.345(-12)	.310(-12)	.207(-12)	.140(-12)
8			.272(-12)	.259(-12)	.287(-12)	.301(-12)	.236(-12)
9			.350(-12)	.300(-12)	.421(-12)	.224(-12)	.156(-12)
10			.200(-10)	.389(-12)	.304(-12)	.348(-12)	.269(-12)
11			.204(-14)	.292(-12)	.304(-12)	.324(-12)	.213(-12)
12				.322(-12)	.447(-12)	.305(-12)	.220(-12)
13				.319(-12)	.512(-12)	.271(-12)	.199(-12)
14				.347(-12)	.358(-12)	.186(-12)	.224(-12)
15				.176(-10)	.357(-12)	.284(-12)	.172(-12)
16				.263(-14)	.254(-12)	.244(-12)	.141(-12)
17					.374(-12)	.287(-12)	.223(-12)
18					.269(-12)	.223(-12)	.252(-12)
19					.221(-12)	.328(-12)	.240(-12)
20					.161(-10)	.409(-12)	.257(-12)
21					.566(-14)	.241(-12)	.229(-12)
22					.706(-15)	.315(-12)	.261(-12)
23						.328(-12)	.307(-12)
24						.324(-12)	.238(-12)
25						.152(-10)	.358(-12)
26						.845(-14)	.324(-12)
27							.258(-12)
28							.282(-12)
29							.287(-12)
30							.146(-10)
31							.321(-13)

ISSN: 2279-8773

	Table 4.	QCT NON REACTIVE		T_{tr}= 500.		T_{rot}= 500.	
v'	v	5	10	15	20	25	30
0		.857(-12)	.262(-12)	.893(-13)	.929(-13)	.103(-12)	.918(-13)
1		.782(-12)	.733(-12)	.124(-12)	.165(-12)	.949(-13)	.898(-13)
2		.790(-12)	.397(-12)	.192(-12)	.293(-12)	.751(-13)	.727(-13)
3		.943(-12)	.442(-12)	.289(-12)	.194(-12)	.203(-12)	.907(-13)
4		.659(-12)	.327(-12)	.243(-12)	.224(-12)	.690(-13)	.989(-13)
5		.258(-10)	.406(-12)	.276(-12)	.210(-12)	.138(-12)	.703(-13)
6		.981(-14)	.401(-12)	.330(-12)	.277(-12)	.182(-12)	.160(-12)
7		.421(-15)	.254(-12)	.241(-12)	.299(-12)	.193(-12)	.175(-12)
8			.427(-12)	.294(-12)	.271(-12)	.261(-12)	.315(-12)
9			.316(-12)	.331(-12)	.349(-12)	.268(-12)	.255(-12)
10			.227(-10)	.329(-12)	.290(-12)	.296(-12)	.212(-12)
11			.110(-13)	.398(-12)	.313(-12)	.241(-12)	.195(-12)
12				.313(-12)	.299(-12)	.454(-12)	.269(-12)
13				.425(-12)	.434(-12)	.284(-12)	.360(-12)
14				.359(-12)	.700(-12)	.282(-12)	.283(-12)
15				.202(-10)	.319(-12)	.225(-12)	.221(-12)
16				.885(-14)	.329(-12)	.369(-12)	.215(-12)
17				.933(-15)	.308(-12)	.665(-12)	.226(-12)
18				.506(-15)	.234(-12)	.242(-12)	.336(-12)
19					.241(-12)	.452(-12)	.273(-12)
20					.181(-10)	.245(-12)	.178(-12)
21					.158(-13)	.236(-12)	.215(-12)
22					.168(-14)	.437(-12)	.373(-12)
23						.417(-12)	.260(-12)
24						.190(-12)	.288(-12)
25						.169(-10)	.291(-12)
26						.308(-13)	.275(-12)
27						.783(-15)	.262(-12)
28							.211(-12)
29							.224(-12)
30							.158(-10)
31							.357(-13)
32							.666(-14)

ISSN: 2279-8773

Table 5. QCT NON REACTIVE T_{tr}=1000. T_{rot}=1000.							
v'	v	5	10	15	20	25	30
0		.831(-12)	.250(-12)	.190(-12)	.169(-12)	.123(-12)	.961(-13)
1		.789(-12)	.306(-12)	.176(-12)	.179(-12)	.148(-12)	.113(-12)
2		.879(-12)	.340(-12)	.265(-12)	.185(-12)	.138(-12)	.789(-13)
3		.941(-12)	.469(-12)	.197(-12)	.196(-12)	.127(-12)	.140(-12)
4		.731(-12)	.515(-12)	.339(-12)	.234(-12)	.170(-12)	.191(-12)
5		.315(-10)	.410(-12)	.517(-12)	.205(-12)	.153(-12)	.165(-12)
6		.724(-13)	.429(-12)	.418(-12)	.362(-12)	.189(-12)	.258(-12)
7		.126(-13)	.391(-12)	.377(-12)	.260(-12)	.297(-12)	.144(-12)
8		.167(-14)	.384(-12)	.346(-12)	.344(-12)	.334(-12)	.185(-12)
9			.447(-12)	.347(-12)	.467(-12)	.368(-12)	.212(-12)
10			.278(-10)	.306(-12)	.250(-12)	.280(-12)	.283(-12)
11			.680(-13)	.421(-12)	.477(-12)	.268(-12)	.261(-12)
12			.104(-13)	.318(-12)	.517(-12)	.420(-12)	.243(-12)
13			.322(-14)	.360(-12)	.375(-12)	.291(-12)	.261(-12)
14				.475(-12)	.886(-12)	.290(-12)	.197(-12)
15				.244(-10)	.381(-12)	.257(-12)	.295(-12)
16				.884(-13)	.367(-12)	.356(-12)	.251(-12)
17				.364(-14)	.225(-12)	.378(-12)	.253(-12)
18				.222(-14)	.284(-12)	.282(-12)	.192(-12)
19				.487(-15)	.283(-12)	.340(-12)	.268(-12)
20					.222(-10)	.288(-12)	.311(-12)
21					.106(-12)	.244(-12)	.256(-12)
22					.132(-13)	.249(-12)	.328(-12)
23					.467(-14)	.720(-12)	.346(-12)
24						.399(-12)	.375(-12)
25						.202(-10)	.257(-12)
26						.108(-12)	.519(-12)
27						.280(-13)	.265(-12)
28						.955(-14)	.707(-12)
29						.896(-15)	.411(-12)
30						.205(-14)	.186(-10)
31							.199(-12)
32							.841(-13)
33							.282(-13)
34							.910(-14)
35							.724(-14)
36							.228(-14)
37							.915(-15)
38							.811(-15)

ISSN: 2279-8773

Table 6. QCT NON REACTIVE T_{tr}=2000. T_{rot}=2000.							
v'	v	5	10	15	20	25	30
0		.896(-12)	.444(-12)	.331(-12)	.181(-12)	.132(-12)	.136(-12)
1		.102(-11)	.443(-12)	.323(-12)	.165(-12)	.132(-12)	.139(-12)
2		.100(-11)	.452(-12)	.283(-12)	.200(-12)	.218(-12)	.218(-12)
3		.992(-12)	.490(-12)	.326(-12)	.252(-12)	.265(-12)	.887(-13)
4		.101(-11)	.539(-12)	.312(-12)	.316(-12)	.268(-12)	.210(-12)
5		.340(-10)	.649(-12)	.346(-12)	.331(-12)	.225(-12)	.176(-12)
6		.377(-12)	.660(-12)	.491(-12)	.258(-12)	.339(-12)	.287(-12)
7		.913(-13)	.600(-12)	.428(-12)	.404(-12)	.246(-12)	.280(-12)
8		.329(-13)	.527(-12)	.330(-12)	.316(-12)	.185(-12)	.207(-12)
9		.153(-13)	.640(-12)	.373(-12)	.489(-12)	.325(-12)	.317(-12)
10		.354(-14)	.308(-10)	.427(-12)	.395(-12)	.413(-12)	.328(-12)
11		.108(-14)	.296(-12)	.349(-12)	.459(-12)	.423(-12)	.246(-12)
12			.798(-13)	.456(-12)	.394(-12)	.291(-12)	.295(-12)
13			.162(-13)	.458(-12)	.396(-12)	.271(-12)	.290(-12)
14			.149(-13)	.660(-12)	.468(-12)	.393(-12)	.312(-12)
15			.416(-14)	.276(-10)	.435(-12)	.398(-12)	.287(-12)
16			.292(-14)	.358(-12)	.348(-12)	.361(-12)	.300(-12)
17			.713(-15)	.886(-13)	.470(-12)	.297(-12)	.485(-12)
18				.227(-13)	.548(-12)	.327(-12)	.234(-12)
19				.145(-13)	.794(-12)	.327(-12)	.251(-12)
20				.349(-14)	.250(-10)	.356(-12)	.380(-12)
21				.558(-14)	.356(-12)	.272(-12)	.292(-12)
22				.108(-14)	.800(-13)	.316(-12)	.222(-12)
23				.622(-15)	.407(-13)	.344(-12)	.254(-12)
24				.130(-14)	.276(-13)	.678(-12)	.368(-12)
25				.000(-00)	.458(-14)	.223(-10)	.300(-12)
26				.677(-15)	.765(-14)	.402(-12)	.305(-12)
27				.000(-00)	.672(-14)	.116(-12)	.393(-12)
28				.000(-00)	.373(-14)	.724(-13)	.546(-12)
29				.525(-15)	.000(-00)	.249(-13)	.964(-12)
30					.000(-00)	.203(-13)	.193(-10)
31					.110(-14)	.604(-14)	.572(-12)
32					.000(-00)	.115(-13)	.145(-12)
33					.677(-15)	.388(-14)	.992(-13)
34						.450(-14)	.722(-13)
35						.278(-14)	.205(-13)
36						.000(-00)	.177(-13)
37						.000(-00)	.120(-13)
38						.000(-00)	.159(-13)
39						.000(-00)	.137(-13)
40						.873(-15)	.969(-15)
41							.197(-14)

ISSN: 2279-8773

Table 7. QCT NON REACTIVE T_{tr}=4000. T_{rot}=4000.							
v'	v	5	10	15	20	25	30
0		.116(-11)	.580(-12)	.473(-12)	.248(-12)	.258(-12)	.199(-12)
1		.121(-11)	.618(-12)	.480(-12)	.489(-12)	.212(-12)	.141(-12)
2		.111(-11)	.684(-12)	.340(-12)	.423(-12)	.190(-12)	.269(-12)
3		.132(-11)	.665(-12)	.423(-12)	.264(-12)	.233(-12)	.179(-12)
4		.167(-11)	.594(-12)	.376(-12)	.430(-12)	.370(-12)	.401(-12)
5		.338(-10)	.700(-12)	.585(-12)	.412(-12)	.260(-12)	.301(-12)
6		.105(-11)	.729(-12)	.494(-12)	.421(-12)	.291(-12)	.285(-12)
7		.377(-12)	.662(-12)	.501(-12)	.468(-12)	.389(-12)	.318(-12)
8		.218(-12)	.761(-12)	.495(-12)	.498(-12)	.335(-12)	.461(-12)
9		.865(-13)	.148(-11)	.500(-12)	.342(-12)	.337(-12)	.313(-12)
10		.556(-13)	.295(-10)	.461(-12)	.343(-12)	.565(-12)	.379(-12)
11		.382(-13)	.112(-11)	.614(-12)	.513(-12)	.516(-12)	.442(-12)
12		.178(-13)	.308(-12)	.553(-12)	.474(-12)	.356(-12)	.307(-12)
13		.943(-14)	.138(-12)	.710(-12)	.521(-12)	.456(-12)	.477(-12)
14		.436(-14)	.935(-13)	.165(-11)	.442(-12)	.636(-12)	.393(-12)
15		.307(-14)	.498(-13)	.257(-10)	.300(-12)	.306(-12)	.340(-12)
16		.652(-14)	.214(-13)	.115(-11)	.481(-12)	.508(-12)	.355(-12)
17		.351(-14)	.205(-13)	.329(-12)	.554(-12)	.359(-12)	.241(-12)
18		.238(-14)	.128(-13)	.126(-12)	.689(-12)	.302(-12)	.248(-12)
19		.116(-14)	.184(-13)	.114(-12)	.186(-11)	.461(-12)	.255(-12)
20			.563(-14)	.540(-13)	.220(-10)	.317(-12)	.287(-12)
21			.544(-14)	.399(-13)	.108(-11)	.592(-12)	.393(-12)
22			.287(-14)	.385(-13)	.369(-12)	.552(-12)	.277(-12)
23			.518(-14)	.172(-13)	.167(-12)	.667(-12)	.239(-12)
24			.110(-14)	.946(-14)	.948(-13)	.168(-11)	.371(-12)
25			.550(-15)	.112(-13)	.627(-13)	.190(-10)	.262(-12)
26				.743(-14)	.456(-13)	.102(-11)	.565(-12)
27				.104(-13)	.547(-13)	.426(-12)	.530(-12)
28				.492(-14)	.247(-13)	.188(-12)	.759(-12)
29				.267(-14)	.175(-13)	.126(-12)	.145(-11)
30				.194(-14)	.146(-13)	.995(-13)	.160(-10)
31				.963(-15)	.225(-14)	.790(-13)	.135(-11)
32				.151(-14)	.700(-14)	.424(-13)	.509(-12)
33				.228(-14)	.763(-15)	.312(-13)	.277(-12)
34				.140(-14)	.272(-14)	.149(-13)	.201(-12)
35				.958(-15)	.382(-14)	.133(-13)	.882(-13)
36				.570(-15)	.307(-14)	.119(-13)	.597(-13)
37				.905(-15)	.957(-15)	.105(-13)	.418(-13)
38					.130(-14)	.112(-13)	.190(-13)
39					.000(-00)	.423(-14)	.246(-13)
40					.134(-14)	.147(-14)	.104(-13)
41						.000(-00)	.427(-14)
42						.104(-14)	.255(-14)
43							.127(-14)

ISSN: 2279-8773

Table 8. QCT REACTIVE T_{tr}= 200. T_{rot}= 200.							
v'	v	5	10	15	20	25	30
0		.109(-11)	.130(-11)	.334(-12)	.335(-12)	.306(-12)	.207(-12)
1		.132(-11)	.105(-11)	.279(-12)	.361(-12)	.316(-12)	.194(-12)
2		.174(-11)	.855(-12)	.392(-12)	.310(-12)	.265(-12)	.145(-12)
3		.123(-11)	.712(-12)	.473(-12)	.383(-12)	.225(-12)	.245(-12)
4		.858(-12)	.796(-12)	.698(-12)	.362(-12)	.313(-12)	.224(-12)
5		.191(-12)	.740(-12)	.613(-12)	.333(-12)	.338(-12)	.266(-12)
6		.389(-15)	.127(-11)	.649(-12)	.363(-12)	.348(-12)	.245(-12)
7			.766(-12)	.675(-12)	.469(-12)	.300(-12)	.303(-12)
8			.111(-11)	.943(-12)	.544(-12)	.466(-12)	.405(-12)
9			.108(-11)	.944(-12)	.764(-12)	.454(-12)	.379(-12)
10			.451(-12)	.124(-11)	.729(-12)	.406(-12)	.381(-12)
11				.100(-11)	.927(-12)	.537(-12)	.327(-12)
12				.972(-12)	.623(-12)	.388(-12)	.338(-12)
13				.688(-12)	.521(-12)	.585(-12)	.416(-12)
14				.540(-12)	.567(-12)	.382(-12)	.292(-12)
15				.316(-12)	.659(-12)	.473(-12)	.336(-12)
16				.156(-14)	.668(-12)	.515(-12)	.360(-12)
17					.659(-12)	.504(-12)	.300(-12)
18					.626(-12)	.378(-12)	.530(-12)
19					.538(-12)	.808(-12)	.315(-12)
20					.331(-12)	.412(-12)	.422(-12)
21					.210(-15)	.580(-12)	.323(-12)
22						.544(-12)	.511(-12)
23						.536(-12)	.438(-12)
24						.574(-12)	.431(-12)
25						.268(-12)	.420(-12)
26						.557(-14)	.433(-12)
27							.601(-12)
28							.523(-12)
29							.556(-12)
30							.170(-12)
31							.638(-14)

ISSN: 2279-8773

Table 9. QCT REACTIVE T_{tr}= 250. T_{rot}= 250.							
v'	v	5	10	15	20	25	30
0		.141(-11)	.147(-11)	.246(-12)	.329(-12)	.338(-12)	.217(-12)
1		.110(-11)	.786(-12)	.291(-12)	.283(-12)	.280(-12)	.170(-12)
2		.146(-11)	.672(-12)	.391(-12)	.301(-12)	.338(-12)	.237(-12)
3		.133(-11)	.766(-12)	.470(-12)	.381(-12)	.335(-12)	.255(-12)
4		.815(-12)	.837(-12)	.641(-12)	.492(-12)	.277(-12)	.252(-12)
5		.210(-12)	.103(-11)	.696(-12)	.460(-12)	.272(-12)	.252(-12)
6		.333(-15)	.898(-12)	.567(-12)	.386(-12)	.392(-12)	.229(-12)
7			.661(-12)	.101(-11)	.467(-12)	.609(-12)	.301(-12)
8			.119(-11)	.774(-12)	.509(-12)	.422(-12)	.299(-12)
9			.142(-11)	.110(-11)	.825(-12)	.518(-12)	.348(-12)
10			.335(-12)	.100(-11)	.604(-12)	.547(-12)	.283(-12)
11			.198(-14)	.977(-12)	.613(-12)	.430(-12)	.380(-12)
12				.842(-12)	.593(-12)	.523(-12)	.388(-12)
13				.857(-12)	.659(-12)	.428(-12)	.356(-12)
14				.812(-12)	.575(-12)	.471(-12)	.375(-12)
15				.308(-12)	.638(-12)	.510(-12)	.382(-12)
16				.367(-15)	.545(-12)	.640(-12)	.375(-12)
17					.628(-12)	.419(-12)	.306(-12)
18					.538(-12)	.642(-12)	.388(-12)
19					.731(-12)	.424(-12)	.359(-12)
20					.261(-12)	.563(-12)	.373(-12)
21					.169(-14)	.543(-12)	.387(-12)
22						.539(-12)	.366(-12)
23						.469(-12)	.421(-12)
24						.582(-12)	.482(-12)
25						.215(-12)	.482(-12)
26						.131(-13)	.469(-12)
27							.463(-12)
28							.564(-12)
29							.565(-12)
30							.234(-12)
31							.205(-13)
32							.765(-15)

ISSN: 2279-8773

Table 10. QCT REACTIVE T_{tr}= 300. T_{rot}= 300.							
v'	v	5	10	15	20	25	30
0		.106(-11)	.103(-11)	.307(-12)	.279(-12)	.300(-12)	.192(-12)
1		.136(-11)	.894(-12)	.380(-12)	.731(-12)	.337(-12)	.267(-12)
2		.119(-11)	.674(-12)	.582(-12)	.352(-12)	.236(-12)	.176(-12)
3		.104(-11)	.934(-12)	.549(-12)	.367(-12)	.254(-12)	.369(-12)
4		.865(-12)	.682(-12)	.779(-12)	.401(-12)	.395(-12)	.226(-12)
5		.202(-12)	.864(-12)	.670(-12)	.375(-12)	.470(-12)	.263(-12)
6			.101(-11)	.102(-11)	.313(-12)	.338(-12)	.296(-12)
7			.682(-12)	.719(-12)	.551(-12)	.324(-12)	.431(-12)
8			.119(-11)	.970(-12)	.521(-12)	.375(-12)	.353(-12)
9			.112(-11)	.807(-12)	.839(-12)	.946(-12)	.361(-12)
10			.507(-12)	.101(-11)	.836(-12)	.388(-12)	.355(-12)
11			.419(-14)	.102(-11)	.655(-12)	.357(-12)	.458(-12)
12				.934(-12)	.702(-12)	.511(-12)	.332(-12)
13				.595(-12)	.905(-12)	.496(-12)	.390(-12)
14				.700(-12)	.535(-12)	.534(-12)	.745(-12)
15				.252(-12)	.629(-12)	.605(-12)	.379(-12)
16				.647(-14)	.581(-12)	.482(-12)	.412(-12)
17					.512(-12)	.625(-12)	.344(-12)
18					.601(-12)	.453(-12)	.377(-12)
19					.485(-12)	.406(-12)	.378(-12)
20					.329(-12)	.497(-12)	.456(-12)
21					.732(-14)	.619(-12)	.514(-12)
22						.540(-12)	.549(-12)
23						.498(-12)	.371(-12)
24						.526(-12)	.418(-12)
25						.212(-12)	.423(-12)
26						.945(-14)	.524(-12)
27							.617(-12)
28							.541(-12)
29							.412(-12)
30							.255(-12)
31							.160(-13)
32							.188(-14)

ISSN: 2279-8773

Table 11. QCT REACTIVE T_{tr}= 500. T_{rot}= 500.							
v'	v	5	10	15	20	25	30
0		.138(-11)	.888(-12)	.849(-12)	.344(-12)	.281(-12)	.259(-12)
1		.110(-11)	.871(-12)	.411(-12)	.364(-12)	.369(-12)	.273(-12)
2		.123(-11)	.900(-12)	.428(-12)	.294(-12)	.400(-12)	.238(-12)
3		.110(-11)	.743(-12)	.507(-12)	.447(-12)	.354(-12)	.239(-12)
4		.822(-12)	.792(-12)	.501(-12)	.380(-12)	.306(-12)	.239(-12)
5		.325(-12)	.685(-12)	.697(-12)	.421(-12)	.378(-12)	.316(-12)
6		.210(-13)	.100(-11)	.793(-12)	.585(-12)	.400(-12)	.324(-12)
7		.789(-15)	.806(-12)	.709(-12)	.669(-12)	.528(-12)	.327(-12)
8			.977(-12)	.117(-11)	.661(-12)	.372(-12)	.500(-12)
9			.106(-11)	.999(-12)	.940(-12)	.700(-12)	.366(-12)
10			.394(-12)	.113(-11)	.727(-12)	.572(-12)	.433(-12)
11			.382(-13)	.750(-12)	.702(-12)	.526(-12)	.360(-12)
12			.370(-15)	.800(-12)	.688(-12)	.480(-12)	.461(-12)
13				.646(-12)	.647(-12)	.456(-12)	.404(-12)
14				.667(-12)	.704(-12)	.614(-12)	.377(-12)
15				.284(-12)	.652(-12)	.518(-12)	.501(-12)
16				.282(-13)	.614(-12)	.517(-12)	.365(-12)
17				.106(-14)	.545(-12)	.585(-12)	.394(-12)
18					.687(-12)	.522(-12)	.755(-12)
19					.461(-12)	.476(-12)	.519(-12)
20					.339(-12)	.517(-12)	.480(-12)
21					.264(-13)	.507(-12)	.447(-12)
22					.172(-14)	.623(-12)	.446(-12)
23						.512(-12)	.597(-12)
24						.390(-12)	.500(-12)
25						.313(-12)	.541(-12)
26						.484(-13)	.623(-12)
27						.575(-14)	.595(-12)
28							.628(-12)
29							.589(-12)
30							.280(-12)
31							.645(-13)
32							.121(-13)
33							.115(-14)
34							.104(-14)

ISSN: 2279-8773

Table 12. QCT REACTIVE T_{tr}=1000. T_{rot}=1000.							
v'	v	5	10	15	20	25	30
0		.113(-11)	.114(-11)	.431(-12)	.535(-12)	.388(-12)	.248(-12)
1		.105(-11)	.819(-12)	.468(-12)	.425(-12)	.409(-12)	.513(-12)
2		.117(-11)	.728(-12)	.726(-12)	.450(-12)	.383(-12)	.350(-12)
3		.120(-11)	.761(-12)	.721(-12)	.463(-12)	.529(-12)	.331(-12)
4		.962(-12)	.694(-12)	.685(-12)	.362(-12)	.433(-12)	.386(-12)
5		.451(-12)	.100(-11)	.113(-11)	.491(-12)	.440(-12)	.399(-12)
6		.142(-12)	.916(-12)	.764(-12)	.600(-12)	.446(-12)	.385(-12)
7		.150(-13)	.109(-11)	.745(-12)	.696(-12)	.484(-12)	.426(-12)
8		.295(-14)	.110(-11)	.823(-12)	.699(-12)	.605(-12)	.417(-12)
9			.107(-11)	.114(-11)	.770(-12)	.664(-12)	.510(-12)
10			.576(-12)	.963(-12)	.741(-12)	.597(-12)	.505(-12)
11			.139(-12)	.957(-12)	.782(-12)	.631(-12)	.510(-12)
12			.254(-13)	.906(-12)	.842(-12)	.617(-12)	.538(-12)
13			.264(-14)	.905(-12)	.805(-12)	.789(-12)	.530(-12)
14			.110(-14)	.424(-12)	.681(-12)	.692(-12)	.562(-12)
15				.380(-12)	.682(-12)	.639(-12)	.436(-12)
16				.129(-12)	.568(-12)	.601(-12)	.446(-12)
17				.319(-13)	.619(-12)	.758(-12)	.418(-12)
18				.301(-14)	.623(-12)	.612(-12)	.414(-12)
19				.786(-15)	.510(-12)	.546(-12)	.487(-12)
20				.404(-15)	.430(-12)	.519(-12)	.617(-12)
21					.169(-12)	.454(-12)	.472(-12)
22					.215(-13)	.681(-12)	.630(-12)
23					.732(-14)	.454(-12)	.416(-12)
24					.662(-14)	.508(-12)	.541(-12)
25					.704(-15)	.334(-12)	.575(-12)
26						.188(-12)	.615(-12)
27						.272(-13)	.481(-12)
28						.154(-13)	.594(-12)
29						.854(-14)	.629(-12)
30						.144(-14)	.361(-12)
31						.228(-14)	.225(-12)
32							.729(-13)
33							.557(-13)
34							.222(-13)
35							.703(-14)
36							.485(-14)
37							.917(-15)
38							.000(-00)
39							.000(-00)
40							.126(-14)

ISSN: 2279-8773

Table 13. QCT REACTIVE T_{tr}=2000. T_{rot}=2000.							
v'	v	5	10	15	20	25	30
0		.152(-11)	.842(-12)	.588(-12)	.542(-12)	.402(-12)	.368(-12)
1		.133(-11)	.904(-12)	.686(-12)	.598(-12)	.477(-12)	.367(-12)
2		.155(-11)	.838(-12)	.727(-12)	.553(-12)	.484(-12)	.393(-12)
3		.143(-11)	.969(-12)	.726(-12)	.563(-12)	.463(-12)	.490(-12)
4		.120(-11)	.102(-11)	.777(-12)	.543(-12)	.531(-12)	.437(-12)
5		.857(-12)	.863(-12)	.703(-12)	.609(-12)	.602(-12)	.471(-12)
6		.421(-12)	.133(-11)	.932(-12)	.567(-12)	.495(-12)	.487(-12)
7		.139(-12)	.100(-11)	.928(-12)	.722(-12)	.656(-12)	.559(-12)
8		.440(-13)	.118(-11)	.107(-11)	.662(-12)	.676(-12)	.539(-12)
9		.171(-13)	.963(-12)	.111(-11)	.954(-12)	.767(-12)	.722(-12)
10		.117(-13)	.767(-12)	.113(-11)	.867(-12)	.694(-12)	.636(-12)
11		.111(-14)	.366(-12)	.798(-12)	.939(-12)	.740(-12)	.652(-12)
12		.485(-15)	.160(-12)	.114(-11)	.890(-12)	.687(-12)	.577(-12)
13			.747(-13)	.938(-12)	.801(-12)	.964(-12)	.625(-12)
14			.369(-13)	.654(-12)	.746(-12)	.827(-12)	.556(-12)
15			.156(-13)	.565(-12)	.801(-12)	.707(-12)	.589(-12)
16			.694(-14)	.253(-12)	.694(-12)	.817(-12)	.683(-12)
17			.000(-00)	.162(-12)	.815(-12)	.673(-12)	.469(-12)
18			.174(-14)	.928(-13)	.607(-12)	.552(-12)	.559(-12)
19			.000(-00)	.222(-13)	.451(-12)	.563(-12)	.663(-12)
20			.000(-00)	.102(-13)	.332(-12)	.640(-12)	.517(-12)
21			.000(-00)	.879(-14)	.277(-12)	.855(-12)	.435(-12)
22			.000(-00)	.387(-14)	.140(-12)	.607(-12)	.459(-12)
23			.000(-00)	.170(-14)	.905(-13)	.704(-12)	.533(-12)
24			.000(-00)	.000(-00)	.378(-13)	.497(-12)	.795(-12)
25			.677(-15)	.146(-14)	.200(-13)	.362(-12)	.776(-12)
26					.881(-14)	.266(-12)	.667(-12)
27					.759(-14)	.225(-12)	.591(-12)
28					.473(-14)	.992(-13)	.765(-12)
29					.269(-14)	.546(-13)	.513(-12)
30					.000(-00)	.384(-13)	.499(-12)
31					.000(-00)	.469(-13)	.326(-12)
32					.000(-00)	.142(-13)	.245(-12)
33					.000(-00)	.160(-13)	.174(-12)
34					.463(-15)	.968(-14)	.119(-12)
35						.293(-14)	.483(-13)
36						.158(-14)	.205(-13)
37						.000(-00)	.281(-13)
38						.316(-14)	.165(-13)
39							.648(-14)
40							.453(-14)
41							.303(-14)
42							.432(-14)

ISSN: 2279-8773

Table 14. QCT REACTIVE T_{tr}=4000. T_{rot}=4000.							
v'	v	5	10	15	20	25	30
0		.174(-11)	.122(-11)	.803(-12)	.590(-12)	.646(-12)	.425(-12)
1		.157(-11)	.106(-11)	.981(-12)	.638(-12)	.476(-12)	.401(-12)
2		.160(-11)	.113(-11)	.800(-12)	.685(-12)	.675(-12)	.454(-12)
3		.145(-11)	.125(-11)	.984(-12)	.772(-12)	.510(-12)	.385(-12)
4		.155(-11)	.119(-11)	.836(-12)	.737(-12)	.749(-12)	.441(-12)
5		.151(-11)	.111(-11)	.951(-12)	.627(-12)	.686(-12)	.462(-12)
6		.907(-12)	.121(-11)	.119(-11)	.770(-12)	.625(-12)	.570(-12)
7		.472(-12)	.120(-11)	.116(-11)	.934(-12)	.105(-11)	.730(-12)
8		.253(-12)	.142(-11)	.106(-11)	.104(-11)	.681(-12)	.606(-12)
9		.174(-12)	.112(-11)	.124(-11)	.105(-11)	.788(-12)	.533(-12)
10		.887(-13)	.932(-12)	.125(-11)	.929(-12)	.914(-12)	.692(-12)
11		.578(-13)	.746(-12)	.110(-11)	.985(-12)	.101(-11)	.740(-12)
12		.372(-13)	.445(-12)	.884(-12)	.108(-11)	.867(-12)	.695(-12)
13		.288(-13)	.272(-12)	.839(-12)	.686(-12)	.725(-12)	.598(-12)
14		.179(-13)	.162(-12)	.831(-12)	.116(-11)	.961(-12)	.656(-12)
15		.136(-13)	.151(-12)	.620(-12)	.936(-12)	.684(-12)	.765(-12)
16		.359(-14)	.662(-13)	.527(-12)	.783(-12)	.935(-12)	.817(-12)
17		.171(-14)	.713(-13)	.403(-12)	.859(-12)	.619(-12)	.771(-12)
18		.322(-14)	.219(-13)	.204(-12)	.772(-12)	.668(-12)	.647(-12)
19		.135(-14)	.206(-13)	.201(-12)	.781(-12)	.703(-12)	.585(-12)
20		.315(-14)	.202(-13)	.143(-12)	.837(-12)	.565(-12)	.815(-12)
21		.000(-00)	.161(-13)	.136(-12)	.421(-12)	.796(-12)	.636(-12)
22		.000(-00)	.148(-13)	.492(-13)	.353(-12)	.790(-12)	.528(-12)
23		.000(-00)	.467(-14)	.323(-13)	.226(-12)	.573(-12)	.713(-12)
24		.000(-00)	.931(-15)	.187(-13)	.194(-12)	.491(-12)	.702(-12)
25		.000(-00)	.844(-15)	.164(-13)	.147(-12)	.493(-12)	.691(-12)
26		.000(-00)	.513(-15)	.911(-14)	.888(-13)	.359(-12)	.690(-12)
27		.000(-00)	.204(-14)	.119(-13)	.710(-13)	.341(-12)	.748(-12)
28		.000(-00)	.298(-14)	.853(-14)	.547(-13)	.395(-12)	.579(-12)
29		.000(-00)	.975(-15)	.287(-14)	.503(-13)	.214(-12)	.660(-12)
30		.000(-00)	.000(-00)	.341(-14)	.279(-13)	.162(-12)	.458(-12)
31		.000(-00)	.603(-15)	.464(-14)	.123(-13)	.698(-13)	.454(-12)
32		.000(-00)	.000(-00)	.326(-14)	.172(-13)	.103(-12)	.385(-12)
33		.000(-00)	.000(-00)	.393(-14)	.770(-14)	.522(-13)	.325(-12)
34		.000(-00)	.735(-15)	.000(-00)	.638(-14)	.326(-13)	.165(-12)
35		.877(-15)		.640(-15)	.348(-14)	.264(-13)	.118(-12)
36					.239(-14)	.228(-13)	.857(-13)
37					.437(-14)	.109(-13)	.423(-13)
38					.338(-14)	.210(-13)	.350(-13)
39					.229(-14)	.826(-14)	.249(-13)
40					.928(-15)	.314(-14)	.179(-13)
41					.000(-00)	.237(-14)	.286(-14)
42					.000(-00)	.205(-14)	.759(-14)
43					.871(-15)		

ISSN: 2279-8773

Table 15. RIOS REACTIVE T_{tr}= 200. T_{rot}= 200.							
v'	v	5	10	15	17	20	23
0		.531(-11)	.189(-11)	.155(-11)	.113(-11)	.856(-12)	.155(-11)
1		.877(-11)	.246(-11)	.249(-11)	.194(-11)	.183(-11)	.224(-11)
2		.694(-11)	.226(-11)	.152(-11)	.195(-11)	.257(-11)	.334(-11)
3		.604(-11)	.298(-11)	.235(-11)	.247(-11)	.290(-11)	.326(-11)
4		.748(-11)	.331(-11)	.210(-11)	.274(-11)	.309(-11)	.311(-11)
5		.889(-11)	.241(-11)	.200(-11)	.262(-11)	.243(-11)	.298(-11)
6		.130(-15)	.390(-11)	.149(-11)	.152(-11)	.219(-11)	.325(-11)
7		.461(-20)	.339(-11)	.206(-11)	.186(-11)	.189(-11)	.243(-11)
8		.124(-24)	.368(-11)	.169(-11)	.137(-11)	.161(-11)	.255(-11)
9			.343(-11)	.204(-11)	.169(-11)	.191(-11)	.270(-11)
10			.305(-11)	.249(-11)	.124(-11)	.172(-11)	.361(-11)
11			.145(-15)	.355(-11)	.202(-11)	.153(-11)	.228(-11)
12			.102(-19)	.302(-11)	.282(-11)	.185(-11)	.266(-11)
13			.902(-24)	.246(-11)	.226(-11)	.135(-11)	.220(-11)
14				.312(-11)	.305(-11)	.164(-11)	.263(-11)
15				.328(-11)	.257(-11)	.204(-11)	.255(-11)
16				.332(-15)	.260(-11)	.312(-11)	.274(-11)
17				.708(-19)	.287(-11)	.410(-11)	.341(-11)
18				.232(-22)	.550(-15)	.459(-11)	.314(-11)
19					.214(-18)	.568(-11)	.400(-11)
20					.994(-22)	.596(-11)	.610(-11)
21					.569(-25)	.219(-14)	.788(-11)
22						.172(-17)	.821(-11)
23						.109(-20)	.840(-11)

Table 16. RIOS REACTIVE T_{tr}= 200. T_{rot}= 250.							
v'	v	5	10	15	17	20	23
0		.492(-11)	.175(-11)	.144(-11)	.104(-11)	.791(-12)	.145(-11)
1		.813(-11)	.229(-11)	.232(-11)	.180(-11)	.169(-11)	.209(-11)
2		.642(-11)	.209(-11)	.140(-11)	.181(-11)	.238(-11)	.311(-11)
3		.560(-11)	.277(-11)	.217(-11)	.228(-11)	.269(-11)	.303(-11)
4		.695(-11)	.307(-11)	.195(-11)	.254(-11)	.287(-11)	.289(-11)
5		.826(-11)	.223(-11)	.184(-11)	.242(-11)	.225(-11)	.278(-11)
6		.116(-15)	.361(-11)	.137(-11)	.140(-11)	.203(-11)	.302(-11)
7		.411(-20)	.314(-11)	.191(-11)	.172(-11)	.175(-11)	.226(-11)
8		.111(-24)	.342(-11)	.156(-11)	.126(-11)	.148(-11)	.238(-11)
9			.318(-11)	.189(-11)	.157(-11)	.177(-11)	.252(-11)
10			.283(-11)	.230(-11)	.114(-11)	.159(-11)	.338(-11)
11			.130(-15)	.329(-11)	.187(-11)	.141(-11)	.213(-11)
12			.916(-20)	.279(-11)	.261(-11)	.171(-11)	.247(-11)
13			.803(-24)	.228(-11)	.208(-11)	.125(-11)	.205(-11)
14				.289(-11)	.282(-11)	.152(-11)	.245(-11)
15				.304(-11)	.236(-11)	.188(-11)	.237(-11)
16				.296(-15)	.240(-11)	.288(-11)	.254(-11)
17				.631(-19)	.263(-11)	.380(-11)	.317(-11)
18				.207(-22)	.492(-15)	.424(-11)	.292(-11)
19					.191(-18)	.526(-11)	.371(-11)
20					.885(-22)	.551(-11)	.568(-11)
21					.506(-25)	.195(-14)	.731(-11)
22						.154(-17)	.764(-11)
23						.970(-21)	.783(-11)

ISSN: 2279-8773

Table 17. RIOS REACTIVE T_{tr}= 200. T_{rot}= 300.							
v'	v	5	10	15	17	20	23
0		.457(-11)	.162(-11)	.135(-11)	.971(-12)	.733(-12)	.135(-11)
1		.756(-11)	.213(-11)	.216(-11)	.167(-11)	.157(-11)	.195(-11)
2		.596(-11)	.194(-11)	.130(-11)	.168(-11)	.221(-11)	.290(-11)
3		.520(-11)	.258(-11)	.202(-11)	.212(-11)	.250(-11)	.283(-11)
4		.647(-11)	.285(-11)	.181(-11)	.236(-11)	.267(-11)	.270(-11)
5		.769(-11)	.207(-11)	.170(-11)	.224(-11)	.209(-11)	.260(-11)
6		.105(-15)	.336(-11)	.127(-11)	.129(-11)	.188(-11)	.282(-11)
7		.371(-20)	.292(-11)	.177(-11)	.160(-11)	.162(-11)	.211(-11)
8		.100(-24)	.319(-11)	.144(-11)	.116(-11)	.137(-11)	.222(-11)
9			.296(-11)	.175(-11)	.145(-11)	.164(-11)	.235(-11)
10			.263(-11)	.214(-11)	.106(-11)	.148(-11)	.315(-11)
11			.117(-15)	.306(-11)	.173(-11)	.130(-11)	.198(-11)
12			.826(-20)	.259(-11)	.243(-11)	.158(-11)	.231(-11)
13			.724(-24)	.211(-11)	.193(-11)	.115(-11)	.191(-11)
14				.268(-11)	.262(-11)	.141(-11)	.229(-11)
15				.283(-11)	.219(-11)	.174(-11)	.221(-11)
16				.268(-15)	.222(-11)	.267(-11)	.237(-11)
17				.569(-19)	.243(-11)	.354(-11)	.296(-11)
18				.187(-22)	.444(-15)	.393(-11)	.273(-11)
19					.172(-18)	.489(-11)	.345(-11)
20					.798(-22)	.511(-11)	.529(-11)
21					.456(-25)	.177(-14)	.681(-11)
22						.139(-17)	.712(-11)
23						.875(-21)	.730(-11)

Table 18. RIOS REACTIVE T_{tr}= 200. T_{rot}= 500.							
v'	v	5	10	15	17	20	23
0		.353(-11)	.125(-11)	.105(-11)	.747(-12)	.562(-12)	.105(-11)
1		.585(-11)	.166(-11)	.168(-11)	.128(-11)	.120(-11)	.152(-11)
2		.459(-11)	.150(-11)	.100(-11)	.130(-11)	.171(-11)	.226(-11)
3		.401(-11)	.200(-11)	.155(-11)	.163(-11)	.194(-11)	.220(-11)
4		.501(-11)	.221(-11)	.140(-11)	.182(-11)	.207(-11)	.210(-11)
5		.597(-11)	.160(-11)	.131(-11)	.172(-11)	.161(-11)	.203(-11)
6		.759(-16)	.259(-11)	.980(-12)	.992(-12)	.145(-11)	.220(-11)
7		.266(-20)	.226(-11)	.136(-11)	.123(-11)	.125(-11)	.165(-11)
8		.718(-25)	.247(-11)	.111(-11)	.888(-12)	.105(-11)	.173(-11)
9			.228(-11)	.135(-11)	.112(-11)	.126(-11)	.183(-11)
10			.203(-11)	.165(-11)	.810(-12)	.114(-11)	.247(-11)
11			.847(-16)	.237(-11)	.133(-11)	.100(-11)	.155(-11)
12			.593(-20)	.199(-11)	.187(-11)	.122(-11)	.180(-11)
13			.519(-24)	.163(-11)	.148(-11)	.886(-12)	.148(-11)
14				.207(-11)	.202(-11)	.108(-11)	.178(-11)
15				.219(-11)	.167(-11)	.133(-11)	.172(-11)
16				.193(-15)	.170(-11)	.204(-11)	.184(-11)
17				.409(-19)	.184(-11)	.274(-11)	.230(-11)
18				.134(-22)	.321(-15)	.302(-11)	.212(-11)
19					.124(-18)	.378(-11)	.266(-11)
20					.572(-22)	.393(-11)	.411(-11)
21					.327(-25)	.128(-14)	.528(-11)
22						.100(-17)	.554(-11)
23						.628(-21)	.568(-11)

ISSN: 2279-8773

Table 19. RIOS REACTIVE T_{tr}= 200. T_{rot}=1000.							
v'	v	5	10	15	17	20	23
0		.222(-11)	.785(-12)	.669(-12)	.468(-12)	.352(-12)	.671(-12)
1		.368(-11)	.105(-11)	.106(-11)	.803(-12)	.757(-12)	.964(-12)
2		.288(-11)	.943(-12)	.630(-12)	.823(-12)	.107(-11)	.143(-11)
3		.252(-11)	.126(-11)	.979(-12)	.102(-11)	.122(-11)	.139(-11)
4		.316(-11)	.139(-11)	.880(-12)	.114(-11)	.130(-11)	.133(-11)
5		.377(-11)	.100(-11)	.817(-12)	.108(-11)	.101(-11)	.129(-11)
6		.447(-16)	.163(-11)	.612(-12)	.618(-12)	.915(-12)	.139(-11)
7		.156(-20)	.142(-11)	.853(-12)	.776(-12)	.782(-12)	.104(-11)
8		.420(-25)	.156(-11)	.695(-12)	.551(-12)	.662(-12)	.110(-11)
9			.143(-11)	.850(-12)	.703(-12)	.790(-12)	.116(-11)
10			.128(-11)	.103(-11)	.504(-12)	.716(-12)	.157(-11)
11			.499(-16)	.149(-11)	.837(-12)	.626(-12)	.984(-12)
12			.348(-20)	.125(-11)	.118(-11)	.766(-12)	.114(-11)
13			.304(-24)	.102(-11)	.930(-12)	.553(-12)	.940(-12)
14				.130(-11)	.127(-11)	.681(-12)	.113(-11)
15				.138(-11)	.104(-11)	.837(-12)	.109(-11)
16				.114(-15)	.106(-11)	.128(-11)	.116(-11)
17				.240(-19)	.114(-11)	.172(-11)	.146(-11)
18				.785(-23)	.189(-15)	.189(-11)	.134(-11)
19					.727(-19)	.238(-11)	.168(-11)
20					.335(-22)	.246(-11)	.260(-11)
21					.191(-25)	.755(-15)	.333(-11)
22						.587(-18)	.350(-11)
23						.368(-21)	.360(-11)

Table 20. RIOS REACTIVE T_{tr}= 200. T_{rot}=2000.							
v'	v	5	10	15	17	20	23
0		.126(-11)	.447(-12)	.384(-12)	.267(-12)	.200(-12)	.385(-12)
1		.210(-11)	.602(-12)	.608(-12)	.457(-12)	.431(-12)	.553(-12)
2		.164(-11)	.538(-12)	.359(-12)	.470(-12)	.613(-12)	.819(-12)
3		.144(-11)	.724(-12)	.558(-12)	.585(-12)	.700(-12)	.798(-12)
4		.181(-11)	.795(-12)	.502(-12)	.655(-12)	.746(-12)	.763(-12)
5		.216(-11)	.575(-12)	.464(-12)	.615(-12)	.577(-12)	.743(-12)
6		.245(-16)	.929(-12)	.348(-12)	.350(-12)	.521(-12)	.800(-12)
7		.854(-21)	.816(-12)	.485(-12)	.442(-12)	.445(-12)	.600(-12)
8		.229(-25)	.896(-12)	.395(-12)	.312(-12)	.376(-12)	.632(-12)
9			.820(-12)	.485(-12)	.401(-12)	.450(-12)	.666(-12)
10			.731(-12)	.590(-12)	.286(-12)	.408(-12)	.903(-12)
11			.274(-16)	.852(-12)	.476(-12)	.355(-12)	.564(-12)
12			.190(-20)	.712(-12)	.673(-12)	.436(-12)	.653(-12)
13			.166(-24)	.583(-12)	.529(-12)	.314(-12)	.538(-12)
14				.744(-12)	.727(-12)	.388(-12)	.647(-12)
15				.788(-12)	.593(-12)	.476(-12)	.626(-12)
16				.626(-16)	.604(-12)	.727(-12)	.665(-12)
17				.131(-19)	.648(-12)	.988(-12)	.838(-12)
18				.429(-23)	.104(-15)	.108(-11)	.772(-12)
19					.398(-19)	.135(-11)	.959(-12)
20					.183(-22)	.140(-11)	.149(-11)
21					.104(-25)	.415(-15)	.190(-11)
22						.322(-18)	.201(-11)
23						.201(-21)	.206(-11)

ISSN: 2279-8773

Table 21. RIOS REACTIVE T_{tr}= 200. T_{rot}=4000.							
v'	v	5	10	15	17	20	23
0		.680(-12)	.240(-12)	.206(-12)	.143(-12)	.107(-12)	.207(-12)
1		.113(-11)	.324(-12)	.327(-12)	.245(-12)	.231(-12)	.297(-12)
2		.883(-12)	.289(-12)	.192(-12)	.252(-12)	.329(-12)	.441(-12)
3		.773(-12)	.389(-12)	.299(-12)	.314(-12)	.376(-12)	.429(-12)
4		.973(-12)	.427(-12)	.269(-12)	.352(-12)	.401(-12)	.410(-12)
5		.116(-11)	.309(-12)	.249(-12)	.330(-12)	.309(-12)	.400(-12)
6		.129(-16)	.499(-12)	.186(-12)	.187(-12)	.280(-12)	.430(-12)
7		.448(-21)	.438(-12)	.260(-12)	.237(-12)	.238(-12)	.323(-12)
8		.120(-25)	.482(-12)	.212(-12)	.166(-12)	.201(-12)	.340(-12)
9			.440(-12)	.260(-12)	.215(-12)	.241(-12)	.358(-12)
10			.393(-12)	.316(-12)	.153(-12)	.219(-12)	.486(-12)
11			.144(-16)	.457(-12)	.255(-12)	.190(-12)	.303(-12)
12			.100(-20)	.382(-12)	.361(-12)	.234(-12)	.351(-12)
13			.872(-25)	.312(-12)	.283(-12)	.168(-12)	.289(-12)
14				.399(-12)	.390(-12)	.208(-12)	.348(-12)
15				.423(-12)	.317(-12)	.255(-12)	.336(-12)
16				.329(-16)	.323(-12)	.390(-12)	.357(-12)
17				.690(-20)	.346(-12)	.531(-12)	.451(-12)
18				.225(-23)	.547(-16)	.580(-12)	.415(-12)
19					.209(-19)	.730(-12)	.515(-12)
20					.963(-23)	.752(-12)	.801(-12)
21						.218(-15)	.102(-11)
22						.169(-18)	.108(-11)
23						.105(-21)	.111(-11)

Table 22. RIOS REACTIVE T_{tr}= 250. T_{rot}= 200.							
v'	v	5	10	15	17	20	23
0		.591(-11)	.217(-11)	.168(-11)	.128(-11)	.100(-11)	.166(-11)
1		.971(-11)	.272(-11)	.274(-11)	.224(-11)	.210(-11)	.242(-11)
2		.782(-11)	.259(-11)	.179(-11)	.220(-11)	.289(-11)	.363(-11)
3		.682(-11)	.332(-11)	.270(-11)	.283(-11)	.321(-11)	.355(-11)
4		.820(-11)	.371(-11)	.243(-11)	.307(-11)	.341(-11)	.339(-11)
5		.979(-11)	.277(-11)	.239(-11)	.301(-11)	.278(-11)	.319(-11)
6		.120(-14)	.451(-11)	.179(-11)	.185(-11)	.252(-11)	.350(-11)
7		.320(-18)	.385(-11)	.244(-11)	.216(-11)	.220(-11)	.263(-11)
8		.667(-22)	.415(-11)	.202(-11)	.172(-11)	.190(-11)	.274(-11)
9		.265(-25)	.396(-11)	.235(-11)	.194(-11)	.221(-11)	.293(-11)
10			.363(-11)	.288(-11)	.152(-11)	.198(-11)	.380(-11)
11			.119(-14)	.401(-11)	.236(-11)	.180(-11)	.248(-11)
12			.549(-18)	.350(-11)	.318(-11)	.213(-11)	.288(-11)
13			.308(-21)	.292(-11)	.265(-11)	.163(-11)	.244(-11)
14			.303(-24)	.358(-11)	.351(-11)	.192(-11)	.286(-11)
15				.379(-11)	.310(-11)	.241(-11)	.279(-11)
16				.230(-14)	.314(-11)	.369(-11)	.304(-11)
17				.268(-17)	.365(-11)	.460(-11)	.373(-11)
18				.443(-20)	.353(-14)	.528(-11)	.349(-11)
19				.574(-23)	.660(-17)	.641(-11)	.453(-11)
20					.140(-19)	.698(-11)	.676(-11)
21					.353(-22)	.114(-13)	.873(-11)
22					.764(-25)	.379(-16)	.896(-11)
23						.101(-18)	.910(-11)

ISSN: 2279-8773

Table 23. RIOS REACTIVE T_{tr}= 250. T_{rot}= 250.							
v'	v	5	10	15	17	20	23
0		.556(-11)	.203(-11)	.159(-11)	.120(-11)	.940(-12)	.157(-11)
1		.915(-11)	.257(-11)	.259(-11)	.210(-11)	.197(-11)	.229(-11)
2		.734(-11)	.243(-11)	.167(-11)	.207(-11)	.271(-11)	.343(-11)
3		.641(-11)	.313(-11)	.253(-11)	.266(-11)	.302(-11)	.335(-11)
4		.773(-11)	.349(-11)	.228(-11)	.289(-11)	.321(-11)	.321(-11)
5		.923(-11)	.260(-11)	.224(-11)	.282(-11)	.261(-11)	.302(-11)
6		.109(-14)	.423(-11)	.168(-11)	.173(-11)	.237(-11)	.331(-11)
7		.289(-18)	.363(-11)	.228(-11)	.203(-11)	.206(-11)	.249(-11)
8		.601(-22)	.392(-11)	.189(-11)	.160(-11)	.178(-11)	.259(-11)
9		.239(-25)	.372(-11)	.221(-11)	.182(-11)	.207(-11)	.277(-11)
10			.341(-11)	.270(-11)	.142(-11)	.186(-11)	.361(-11)
11			.107(-14)	.377(-11)	.221(-11)	.169(-11)	.235(-11)
12			.496(-18)	.328(-11)	.299(-11)	.200(-11)	.272(-11)
13			.278(-21)	.274(-11)	.249(-11)	.153(-11)	.230(-11)
14			.273(-24)	.336(-11)	.329(-11)	.180(-11)	.271(-11)
15				.357(-11)	.290(-11)	.226(-11)	.263(-11)
16				.208(-14)	.294(-11)	.345(-11)	.287(-11)
17				.242(-17)	.340(-11)	.433(-11)	.352(-11)
18				.400(-20)	.320(-14)	.495(-11)	.329(-11)
19				.517(-23)	.597(-17)	.602(-11)	.427(-11)
20					.127(-19)	.654(-11)	.638(-11)
21					.318(-22)	.104(-13)	.823(-11)
22					.689(-25)	.343(-16)	.846(-11)
23						.918(-19)	.861(-11)

Table 24. RIOS REACTIVE T_{tr}= 250. T_{rot}= 300.							
v'	v	5	10	15	17	20	23
0		.523(-11)	.191(-11)	.150(-11)	.113(-11)	.882(-12)	.149(-11)
1		.861(-11)	.242(-11)	.244(-11)	.197(-11)	.185(-11)	.217(-11)
2		.690(-11)	.229(-11)	.157(-11)	.195(-11)	.255(-11)	.324(-11)
3		.603(-11)	.295(-11)	.238(-11)	.250(-11)	.285(-11)	.317(-11)
4		.729(-11)	.329(-11)	.214(-11)	.272(-11)	.303(-11)	.303(-11)
5		.871(-11)	.245(-11)	.209(-11)	.265(-11)	.245(-11)	.286(-11)
6		.998(-15)	.398(-11)	.157(-11)	.162(-11)	.223(-11)	.313(-11)
7		.263(-18)	.341(-11)	.214(-11)	.191(-11)	.194(-11)	.236(-11)
8		.548(-22)	.369(-11)	.177(-11)	.149(-11)	.167(-11)	.245(-11)
9		.217(-25)	.350(-11)	.207(-11)	.171(-11)	.195(-11)	.262(-11)
10			.320(-11)	.253(-11)	.133(-11)	.175(-11)	.342(-11)
11			.983(-15)	.355(-11)	.207(-11)	.158(-11)	.222(-11)
12			.452(-18)	.308(-11)	.281(-11)	.188(-11)	.257(-11)
13			.253(-21)	.257(-11)	.233(-11)	.143(-11)	.217(-11)
14			.248(-24)	.316(-11)	.310(-11)	.169(-11)	.256(-11)
15				.336(-11)	.271(-11)	.212(-11)	.249(-11)
16				.190(-14)	.275(-11)	.323(-11)	.270(-11)
17				.221(-17)	.317(-11)	.408(-11)	.333(-11)
18				.364(-20)	.292(-14)	.465(-11)	.311(-11)
19				.471(-23)	.544(-17)	.567(-11)	.401(-11)
20					.115(-19)	.614(-11)	.602(-11)
21					.290(-22)	.952(-14)	.776(-11)
22					.627(-25)	.313(-16)	.799(-11)
23						.837(-19)	.814(-11)

ISSN: 2279-8773

Table 25. RIOS REACTIVE T_{tr}= 250. T_{rot}= 500.							
v'	v	5	10	15	17	20	23
0		.419(-11)	.152(-11)	.121(-11)	.903(-12)	.700(-12)	.120(-11)
1		.690(-11)	.195(-11)	.196(-11)	.157(-11)	.147(-11)	.175(-11)
2		.551(-11)	.182(-11)	.125(-11)	.156(-11)	.204(-11)	.261(-11)
3		.482(-11)	.237(-11)	.190(-11)	.199(-11)	.229(-11)	.255(-11)
4		.586(-11)	.263(-11)	.171(-11)	.217(-11)	.243(-11)	.244(-11)
5		.700(-11)	.195(-11)	.166(-11)	.211(-11)	.196(-11)	.232(-11)
6		.740(-15)	.317(-11)	.124(-11)	.127(-11)	.178(-11)	.253(-11)
7		.194(-18)	.273(-11)	.170(-11)	.152(-11)	.154(-11)	.190(-11)
8		.403(-22)	.297(-11)	.140(-11)	.117(-11)	.132(-11)	.199(-11)
9		.160(-25)	.279(-11)	.165(-11)	.136(-11)	.155(-11)	.212(-11)
10			.255(-11)	.202(-11)	.105(-11)	.139(-11)	.278(-11)
11			.729(-15)	.284(-11)	.165(-11)	.125(-11)	.179(-11)
12			.333(-18)	.245(-11)	.225(-11)	.149(-11)	.207(-11)
13			.186(-21)	.204(-11)	.185(-11)	.113(-11)	.175(-11)
14			.183(-24)	.252(-11)	.247(-11)	.134(-11)	.206(-11)
15				.268(-11)	.214(-11)	.168(-11)	.201(-11)
16				.141(-14)	.218(-11)	.256(-11)	.217(-11)
17				.163(-17)	.248(-11)	.327(-11)	.268(-11)
18				.268(-20)	.217(-14)	.370(-11)	.250(-11)
19				.347(-23)	.402(-17)	.453(-11)	.321(-11)
20					.853(-20)	.488(-11)	.485(-11)
21					.213(-22)	.708(-14)	.623(-11)
22					.462(-25)	.231(-16)	.644(-11)
23						.617(-19)	.657(-11)

Table 26. RIOS REACTIVE T_{tr}= 250. T_{rot}=1000.							
v'	v	5	10	15	17	20	23
0		.274(-11)	.996(-12)	.805(-12)	.589(-12)	.455(-12)	.800(-12)
1		.453(-11)	.128(-11)	.129(-11)	.102(-11)	.962(-12)	.116(-11)
2		.360(-11)	.119(-11)	.816(-12)	.102(-11)	.133(-11)	.172(-11)
3		.315(-11)	.156(-11)	.124(-11)	.130(-11)	.150(-11)	.168(-11)
4		.385(-11)	.173(-11)	.112(-11)	.142(-11)	.160(-11)	.161(-11)
5		.461(-11)	.128(-11)	.107(-11)	.137(-11)	.128(-11)	.154(-11)
6		.450(-15)	.207(-11)	.810(-12)	.826(-12)	.116(-11)	.167(-11)
7		.117(-18)	.179(-11)	.110(-11)	.993(-12)	.100(-11)	.126(-11)
8		.243(-22)	.195(-11)	.913(-12)	.757(-12)	.861(-12)	.131(-11)
9			.182(-11)	.108(-11)	.893(-12)	.101(-11)	.140(-11)
10			.166(-11)	.132(-11)	.678(-12)	.910(-12)	.184(-11)
11			.443(-15)	.186(-11)	.107(-11)	.815(-12)	.118(-11)
12			.201(-18)	.160(-11)	.147(-11)	.977(-12)	.137(-11)
13			.112(-21)	.133(-11)	.120(-11)	.734(-12)	.115(-11)
14			.110(-24)	.165(-11)	.161(-11)	.877(-12)	.136(-11)
15				.175(-11)	.138(-11)	.109(-11)	.132(-11)
16				.861(-15)	.141(-11)	.166(-11)	.143(-11)
17				.989(-18)	.159(-11)	.214(-11)	.177(-11)
18				.162(-20)	.132(-14)	.241(-11)	.165(-11)
19				.209(-23)	.243(-17)	.297(-11)	.210(-11)
20					.515(-20)	.317(-11)	.319(-11)
21					.128(-22)	.432(-14)	.409(-11)
22					.278(-25)	.140(-16)	.425(-11)
23						.373(-19)	.434(-11)

ISSN: 2279-8773

Table 27. RIOS REACTIVE T_{tr}= 250. T_{rot}=2000.							
v'	v	5	10	15	17	20	23
0		.161(-11)	.583(-12)	.475(-12)	.345(-12)	.265(-12)	.472(-12)
1		.266(-11)	.758(-12)	.764(-12)	.599(-12)	.563(-12)	.684(-12)
2		.211(-11)	.700(-12)	.477(-12)	.602(-12)	.784(-12)	.101(-11)
3		.184(-11)	.917(-12)	.728(-12)	.761(-12)	.884(-12)	.993(-12)
4		.226(-11)	.101(-11)	.656(-12)	.837(-12)	.940(-12)	.951(-12)
5		.271(-11)	.750(-12)	.628(-12)	.804(-12)	.750(-12)	.911(-12)
6		.252(-15)	.121(-11)	.473(-12)	.481(-12)	.681(-12)	.987(-12)
7		.656(-19)	.105(-11)	.648(-12)	.581(-12)	.587(-12)	.744(-12)
8		.135(-22)	.114(-11)	.533(-12)	.439(-12)	.503(-12)	.777(-12)
9			.107(-11)	.634(-12)	.522(-12)	.590(-12)	.826(-12)
10			.977(-12)	.773(-12)	.395(-12)	.533(-12)	.109(-11)
11			.248(-15)	.109(-11)	.629(-12)	.475(-12)	.700(-12)
12			.112(-18)	.937(-12)	.864(-12)	.572(-12)	.809(-12)
13			.628(-22)	.780(-12)	.704(-12)	.428(-12)	.679(-12)
14			.614(-25)	.968(-12)	.947(-12)	.513(-12)	.804(-12)
15				.103(-11)	.808(-12)	.637(-12)	.781(-12)
16				.483(-15)	.823(-12)	.973(-12)	.841(-12)
17				.552(-18)	.927(-12)	.126(-11)	.104(-11)
18				.904(-21)	.743(-15)	.141(-11)	.974(-12)
19				.116(-23)	.136(-17)	.174(-11)	.123(-11)
20					.287(-20)	.185(-11)	.188(-11)
21					.718(-23)	.242(-14)	.240(-11)
22					.155(-25)	.784(-17)	.250(-11)
23						.208(-19)	.256(-11)

Table 28. RIOS REACTIVE T_{tr}= 250. T_{rot}=4000.							
v'	v	5	10	15	17	20	23
0		.879(-12)	.318(-12)	.260(-12)	.188(-12)	.144(-12)	.259(-12)
1		.145(-11)	.415(-12)	.417(-12)	.326(-12)	.307(-12)	.374(-12)
2		.115(-11)	.381(-12)	.260(-12)	.328(-12)	.428(-12)	.557(-12)
3		.100(-11)	.501(-12)	.397(-12)	.415(-12)	.483(-12)	.543(-12)
4		.124(-11)	.554(-12)	.358(-12)	.457(-12)	.514(-12)	.520(-12)
5		.148(-11)	.409(-12)	.341(-12)	.438(-12)	.409(-12)	.499(-12)
6		.134(-15)	.663(-12)	.257(-12)	.261(-12)	.371(-12)	.540(-12)
7		.348(-19)	.575(-12)	.353(-12)	.317(-12)	.319(-12)	.407(-12)
8		.719(-23)	.627(-12)	.290(-12)	.238(-12)	.273(-12)	.426(-12)
9			.584(-12)	.345(-12)	.285(-12)	.321(-12)	.452(-12)
10			.533(-12)	.421(-12)	.214(-12)	.290(-12)	.599(-12)
11			.132(-15)	.597(-12)	.342(-12)	.258(-12)	.383(-12)
12			.598(-19)	.510(-12)	.472(-12)	.311(-12)	.443(-12)
13			.333(-22)	.425(-12)	.383(-12)	.233(-12)	.371(-12)
14			.325(-25)	.528(-12)	.517(-12)	.279(-12)	.440(-12)
15				.562(-12)	.439(-12)	.347(-12)	.427(-12)
16				.257(-15)	.448(-12)	.529(-12)	.460(-12)
17				.293(-18)	.503(-12)	.689(-12)	.572(-12)
18				.479(-21)	.395(-15)	.770(-12)	.533(-12)
19				.618(-24)	.722(-18)	.952(-12)	.674(-12)
20					.152(-20)	.101(-11)	.102(-11)
21					.381(-23)	.129(-14)	.131(-11)
22						.416(-17)	.137(-11)
23						.110(-19)	.140(-11)

ISSN: 2279-8773

Table 29. RIOS REACTIVE T_{tr}= 300. T_{rot}= 200.							
v'	v	5	10	15	17	20	23
0		.638(-11)	.240(-11)	.178(-11)	.141(-11)	.113(-11)	.174(-11)
1		.104(-10)	.295(-11)	.295(-11)	.250(-11)	.233(-11)	.256(-11)
2		.856(-11)	.289(-11)	.204(-11)	.241(-11)	.314(-11)	.384(-11)
3		.748(-11)	.361(-11)	.301(-11)	.314(-11)	.346(-11)	.377(-11)
4		.876(-11)	.405(-11)	.272(-11)	.335(-11)	.367(-11)	.362(-11)
5		.105(-10)	.311(-11)	.274(-11)	.334(-11)	.308(-11)	.336(-11)
6		.542(-14)	.504(-11)	.209(-11)	.216(-11)	.282(-11)	.369(-11)
7		.546(-17)	.429(-11)	.278(-11)	.244(-11)	.247(-11)	.280(-11)
8		.446(-20)	.459(-11)	.232(-11)	.204(-11)	.216(-11)	.289(-11)
9		.685(-23)	.445(-11)	.264(-11)	.216(-11)	.247(-11)	.311(-11)
10			.422(-11)	.323(-11)	.179(-11)	.221(-11)	.393(-11)
11			.499(-14)	.441(-11)	.265(-11)	.205(-11)	.265(-11)
12			.807(-17)	.393(-11)	.349(-11)	.239(-11)	.305(-11)
13			.156(-19)	.337(-11)	.302(-11)	.190(-11)	.264(-11)
14			.484(-22)	.401(-11)	.392(-11)	.217(-11)	.304(-11)
15			.103(-24)	.432(-11)	.360(-11)	.275(-11)	.298(-11)
16				.866(-14)	.366(-11)	.418(-11)	.330(-11)
17				.313(-16)	.440(-11)	.504(-11)	.400(-11)
18				.150(-18)	.125(-13)	.588(-11)	.380(-11)
19				.579(-21)	.666(-16)	.701(-11)	.499(-11)
20				.265(-23)	.391(-18)	.787(-11)	.732(-11)
21				.174(-25)	.261(-20)	.354(-13)	.941(-11)
22					.151(-22)	.303(-15)	.953(-11)
23					.130(-24)	.214(-17)	.967(-11)

Table 30. RIOS REACTIVE T_{tr}= 300. T_{rot}= 250.							
v'	v	5	10	15	17	20	23
0		.607(-11)	.228(-11)	.170(-11)	.134(-11)	.107(-11)	.167(-11)
1		.996(-11)	.281(-11)	.281(-11)	.237(-11)	.221(-11)	.245(-11)
2		.813(-11)	.274(-11)	.193(-11)	.230(-11)	.298(-11)	.367(-11)
3		.711(-11)	.344(-11)	.286(-11)	.298(-11)	.329(-11)	.361(-11)
4		.836(-11)	.385(-11)	.258(-11)	.319(-11)	.349(-11)	.346(-11)
5		.101(-10)	.295(-11)	.259(-11)	.317(-11)	.293(-11)	.322(-11)
6		.496(-14)	.479(-11)	.197(-11)	.203(-11)	.268(-11)	.353(-11)
7		.498(-17)	.408(-11)	.263(-11)	.231(-11)	.234(-11)	.268(-11)
8		.407(-20)	.437(-11)	.220(-11)	.192(-11)	.204(-11)	.276(-11)
9		.624(-23)	.422(-11)	.250(-11)	.205(-11)	.234(-11)	.298(-11)
10			.400(-11)	.306(-11)	.168(-11)	.209(-11)	.377(-11)
11			.457(-14)	.419(-11)	.251(-11)	.194(-11)	.253(-11)
12			.736(-17)	.373(-11)	.331(-11)	.226(-11)	.292(-11)
13			.142(-19)	.319(-11)	.286(-11)	.179(-11)	.252(-11)
14			.441(-22)	.380(-11)	.372(-11)	.206(-11)	.291(-11)
15			.946(-25)	.410(-11)	.340(-11)	.260(-11)	.285(-11)
16				.793(-14)	.345(-11)	.396(-11)	.314(-11)
17				.286(-16)	.414(-11)	.479(-11)	.382(-11)
18				.137(-18)	.115(-13)	.557(-11)	.362(-11)
19				.528(-21)	.608(-16)	.667(-11)	.475(-11)
20				.242(-23)	.357(-18)	.745(-11)	.699(-11)
21				.158(-25)	.238(-20)	.324(-13)	.897(-11)
22					.138(-22)	.277(-15)	.911(-11)
23					.119(-24)	.195(-17)	.924(-11)

ISSN: 2279-8773

Table 31. RIOS REACTIVE T_{tr}= 300. T_{rot}= 300.							
v'	v	5	10	15	17	20	23
0		.577(-11)	.216(-11)	.163(-11)	.127(-11)	.101(-11)	.160(-11)
1		.948(-11)	.268(-11)	.268(-11)	.224(-11)	.210(-11)	.234(-11)
2		.772(-11)	.260(-11)	.183(-11)	.218(-11)	.284(-11)	.351(-11)
3		.675(-11)	.327(-11)	.271(-11)	.283(-11)	.314(-11)	.344(-11)
4		.796(-11)	.366(-11)	.245(-11)	.303(-11)	.333(-11)	.330(-11)
5		.961(-11)	.280(-11)	.245(-11)	.300(-11)	.278(-11)	.308(-11)
6		.457(-14)	.454(-11)	.187(-11)	.192(-11)	.254(-11)	.337(-11)
7		.458(-17)	.387(-11)	.249(-11)	.219(-11)	.222(-11)	.256(-11)
8		.374(-20)	.416(-11)	.208(-11)	.181(-11)	.194(-11)	.264(-11)
9		.573(-23)	.401(-11)	.237(-11)	.195(-11)	.222(-11)	.284(-11)
10			.379(-11)	.290(-11)	.159(-11)	.199(-11)	.361(-11)
11			.421(-14)	.398(-11)	.238(-11)	.183(-11)	.242(-11)
12			.677(-17)	.353(-11)	.315(-11)	.215(-11)	.278(-11)
13			.130(-19)	.302(-11)	.270(-11)	.169(-11)	.240(-11)
14			.405(-22)	.361(-11)	.353(-11)	.195(-11)	.277(-11)
15			.868(-25)	.389(-11)	.321(-11)	.246(-11)	.272(-11)
16				.731(-14)	.326(-11)	.374(-11)	.299(-11)
17				.263(-16)	.389(-11)	.456(-11)	.364(-11)
18				.126(-18)	.106(-13)	.528(-11)	.345(-11)
19				.485(-21)	.559(-16)	.634(-11)	.451(-11)
20				.222(-23)	.328(-18)	.706(-11)	.665(-11)
21				.145(-25)	.218(-20)	.299(-13)	.854(-11)
22					.126(-22)	.254(-15)	.868(-11)
23					.109(-24)	.179(-17)	.882(-11)

Table 32. RIOS REACTIVE T_{tr}= 300. T_{rot}= 500.							
v'	v	5	10	15	17	20	23
0		.476(-11)	.177(-11)	.135(-11)	.104(-11)	.829(-12)	.133(-11)
1		.782(-11)	.222(-11)	.222(-11)	.183(-11)	.171(-11)	.195(-11)
2		.634(-11)	.213(-11)	.149(-11)	.180(-11)	.233(-11)	.291(-11)
3		.555(-11)	.270(-11)	.222(-11)	.232(-11)	.259(-11)	.286(-11)
4		.659(-11)	.302(-11)	.201(-11)	.249(-11)	.275(-11)	.274(-11)
5		.795(-11)	.230(-11)	.199(-11)	.246(-11)	.228(-11)	.257(-11)
6		.347(-14)	.372(-11)	.152(-11)	.155(-11)	.208(-11)	.281(-11)
7		.346(-17)	.318(-11)	.203(-11)	.179(-11)	.181(-11)	.213(-11)
8		.282(-20)	.343(-11)	.169(-11)	.146(-11)	.158(-11)	.220(-11)
9		.431(-23)	.328(-11)	.194(-11)	.159(-11)	.181(-11)	.236(-11)
10			.310(-11)	.237(-11)	.128(-11)	.163(-11)	.303(-11)
11			.320(-14)	.328(-11)	.195(-11)	.149(-11)	.201(-11)
12			.512(-17)	.289(-11)	.259(-11)	.175(-11)	.231(-11)
13			.985(-20)	.246(-11)	.220(-11)	.137(-11)	.199(-11)
14			.305(-22)	.296(-11)	.289(-11)	.159(-11)	.230(-11)
15			.654(-25)	.319(-11)	.260(-11)	.201(-11)	.226(-11)
16				.557(-14)	.265(-11)	.305(-11)	.247(-11)
17				.199(-16)	.313(-11)	.376(-11)	.302(-11)
18				.953(-19)	.809(-14)	.432(-11)	.286(-11)
19				.365(-21)	.423(-16)	.521(-11)	.371(-11)
20				.167(-23)	.247(-18)	.576(-11)	.551(-11)
21				.109(-25)	.165(-20)	.228(-13)	.706(-11)
22					.954(-23)	.193(-15)	.721(-11)
23					.822(-25)	.135(-17)	.734(-11)

ISSN: 2279-8773

Table 33. RIOS REACTIVE T_{tr}= 300. T_{rot}=1000.							
v'	v	5	10	15	17	20	23
0		.323(-11)	.119(-11)	.932(-12)	.705(-12)	.557(-12)	.918(-12)
1		.532(-11)	.151(-11)	.152(-11)	.124(-11)	.116(-11)	.133(-11)
2		.429(-11)	.144(-11)	.100(-11)	.122(-11)	.158(-11)	.199(-11)
3		.376(-11)	.184(-11)	.150(-11)	.156(-11)	.176(-11)	.195(-11)
4		.450(-11)	.205(-11)	.135(-11)	.169(-11)	.187(-11)	.187(-11)
5		.542(-11)	.155(-11)	.133(-11)	.166(-11)	.154(-11)	.177(-11)
6		.217(-14)	.251(-11)	.101(-11)	.104(-11)	.141(-11)	.192(-11)
7		.215(-17)	.216(-11)	.137(-11)	.121(-11)	.122(-11)	.146(-11)
8		.174(-20)	.233(-11)	.113(-11)	.972(-12)	.106(-11)	.151(-11)
9		.267(-23)	.222(-11)	.131(-11)	.107(-11)	.122(-11)	.162(-11)
10			.208(-11)	.160(-11)	.860(-12)	.110(-11)	.209(-11)
11			.200(-14)	.222(-11)	.131(-11)	.100(-11)	.138(-11)
12			.318(-17)	.195(-11)	.175(-11)	.118(-11)	.158(-11)
13			.610(-20)	.166(-11)	.148(-11)	.923(-12)	.135(-11)
14			.188(-22)	.200(-11)	.195(-11)	.107(-11)	.158(-11)
15			.404(-25)	.215(-11)	.174(-11)	.135(-11)	.154(-11)
16				.348(-14)	.177(-11)	.205(-11)	.168(-11)
17				.123(-16)	.208(-11)	.255(-11)	.207(-11)
18				.591(-19)	.507(-14)	.292(-11)	.195(-11)
19				.226(-21)	.263(-16)	.353(-11)	.252(-11)
20				.103(-23)	.153(-18)	.388(-11)	.376(-11)
21					.102(-20)	.143(-13)	.481(-11)
22					.590(-23)	.120(-15)	.493(-11)
23					.508(-25)	.842(-18)	.502(-11)

Table 34. RIOS REACTIVE T_{tr}= 300. T_{rot}=2000.							
v'	v	5	10	15	17	20	23
0		.194(-11)	.720(-12)	.564(-12)	.423(-12)	.333(-12)	.556(-12)
1		.320(-11)	.915(-12)	.918(-12)	.743(-12)	.695(-12)	.810(-12)
2		.258(-11)	.867(-12)	.603(-12)	.736(-12)	.953(-12)	.120(-11)
3		.226(-11)	.111(-11)	.902(-12)	.941(-12)	.106(-11)	.118(-11)
4		.271(-11)	.123(-11)	.816(-12)	.102(-11)	.113(-11)	.113(-11)
5		.327(-11)	.934(-12)	.799(-12)	.995(-12)	.926(-12)	.107(-11)
6		.124(-14)	.151(-11)	.608(-12)	.621(-12)	.846(-12)	.116(-11)
7		.122(-17)	.130(-11)	.820(-12)	.727(-12)	.732(-12)	.885(-12)
8		.991(-21)	.140(-11)	.680(-12)	.578(-12)	.635(-12)	.918(-12)
9		.151(-23)	.133(-11)	.789(-12)	.647(-12)	.733(-12)	.982(-12)
10			.125(-11)	.963(-12)	.512(-12)	.661(-12)	.127(-11)
11			.114(-14)	.133(-11)	.787(-12)	.600(-12)	.835(-12)
12			.181(-17)	.117(-11)	.105(-11)	.711(-12)	.961(-12)
13			.346(-20)	.993(-12)	.888(-12)	.551(-12)	.820(-12)
14			.107(-22)	.120(-11)	.117(-11)	.643(-12)	.956(-12)
15			.229(-25)	.129(-11)	.104(-11)	.807(-12)	.935(-12)
16				.199(-14)	.106(-11)	.122(-11)	.101(-11)
17				.704(-17)	.123(-11)	.153(-11)	.125(-11)
18				.335(-19)	.290(-14)	.175(-11)	.118(-11)
19				.128(-21)	.150(-16)	.212(-11)	.151(-11)
20				.587(-24)	.873(-19)	.232(-11)	.227(-11)
21					.579(-21)	.822(-14)	.290(-11)
22					.335(-23)	.685(-16)	.298(-11)
23					.288(-25)	.479(-18)	.304(-11)

ISSN: 2279-8773

Table 35. RIOS REACTIVE T_{tr}= 300. T_{rot}=4000.							
v'	v	5	10	15	17	20	23
0		.108(-11)	.398(-12)	.314(-12)	.234(-12)	.184(-12)	.310(-12)
1		.178(-11)	.508(-12)	.510(-12)	.411(-12)	.385(-12)	.451(-12)
2		.143(-11)	.480(-12)	.333(-12)	.408(-12)	.528(-12)	.672(-12)
3		.125(-11)	.617(-12)	.500(-12)	.521(-12)	.591(-12)	.658(-12)
4		.150(-11)	.685(-12)	.452(-12)	.565(-12)	.628(-12)	.631(-12)
5		.181(-11)	.517(-12)	.441(-12)	.551(-12)	.513(-12)	.598(-12)
6		.668(-15)	.836(-12)	.336(-12)	.342(-12)	.468(-12)	.650(-12)
7		.656(-18)	.721(-12)	.453(-12)	.402(-12)	.405(-12)	.492(-12)
8		.531(-21)	.781(-12)	.375(-12)	.318(-12)	.351(-12)	.511(-12)
9		.811(-24)	.739(-12)	.437(-12)	.358(-12)	.406(-12)	.546(-12)
10			.692(-12)	.533(-12)	.282(-12)	.366(-12)	.709(-12)
11			.617(-15)	.742(-12)	.435(-12)	.331(-12)	.464(-12)
12			.971(-18)	.647(-12)	.586(-12)	.394(-12)	.534(-12)
13			.186(-20)	.549(-12)	.491(-12)	.304(-12)	.455(-12)
14			.574(-23)	.666(-12)	.651(-12)	.356(-12)	.532(-12)
15			.122(-25)	.717(-12)	.574(-12)	.446(-12)	.520(-12)
16				.107(-14)	.585(-12)	.678(-12)	.564(-12)
17				.378(-17)	.679(-12)	.854(-12)	.696(-12)
18				.180(-19)	.156(-14)	.969(-12)	.656(-12)
19				.688(-22)	.806(-17)	.118(-11)	.840(-12)
20				.314(-24)	.468(-19)	.128(-11)	.126(-11)
21					.310(-21)	.443(-14)	.161(-11)
22					.179(-23)	.368(-16)	.165(-11)
23					.154(-25)	.257(-18)	.169(-11)

Table 36. RIOS REACTIVE T_{tr}= 500. T_{rot}= 200.							
v'	v	5	10	15	17	20	22
0		.759(-11)	.303(-11)	.208(-11)	.178(-11)	.155(-11)	.216(-11)
1		.125(-10)	.369(-11)	.356(-11)	.321(-11)	.294(-11)	.286(-11)
2		.108(-10)	.391(-11)	.293(-11)	.315(-11)	.381(-11)	.423(-11)
3		.964(-11)	.458(-11)	.403(-11)	.411(-11)	.416(-11)	.426(-11)
4		.104(-10)	.507(-11)	.367(-11)	.420(-11)	.438(-11)	.449(-11)
5		.135(-10)	.437(-11)	.384(-11)	.432(-11)	.402(-11)	.396(-11)
6		.120(-12)	.674(-11)	.314(-11)	.320(-11)	.379(-11)	.421(-11)
7		.172(-14)	.591(-11)	.396(-11)	.342(-11)	.333(-11)	.311(-11)
8		.221(-16)	.615(-11)	.340(-11)	.315(-11)	.303(-11)	.329(-11)
9		.489(-18)	.635(-11)	.365(-11)	.289(-11)	.325(-11)	.354(-11)
10		.555(-20)	.683(-11)	.443(-11)	.270(-11)	.294(-11)	.356(-11)
11		.120(-21)	.103(-12)	.568(-11)	.363(-11)	.286(-11)	.255(-11)
12		.228(-23)	.204(-14)	.537(-11)	.443(-11)	.323(-11)	.341(-11)
13		.532(-25)	.461(-16)	.505(-11)	.428(-11)	.285(-11)	.344(-11)
14			.136(-17)	.555(-11)	.528(-11)	.303(-11)	.351(-11)
15			.342(-19)	.646(-11)	.538(-11)	.389(-11)	.375(-11)
16			.853(-21)	.139(-12)	.546(-11)	.566(-11)	.520(-11)
17			.238(-22)	.481(-14)	.700(-11)	.647(-11)	.495(-11)
18			.842(-24)	.192(-15)	.178(-12)	.771(-11)	.616(-11)
19			.376(-25)	.654(-17)	.756(-14)	.878(-11)	.715(-11)
20				.231(-18)	.336(-15)	.105(-10)	.109(-10)
21				.108(-19)	.153(-16)	.361(-12)	.105(-10)
22				.550(-21)	.650(-18)	.206(-13)	.128(-10)

ISSN: 2279-8773

Table 37. RIOS REACTIVE T_{tr}= 500. T_{rot}= 250.							
v'	v	5	10	15	17	20	22
0		.741(-11)	.295(-11)	.204(-11)	.173(-11)	.150(-11)	.211(-11)
1		.122(-10)	.361(-11)	.348(-11)	.312(-11)	.286(-11)	.280(-11)
2		.106(-10)	.379(-11)	.284(-11)	.306(-11)	.372(-11)	.414(-11)
3		.938(-11)	.447(-11)	.391(-11)	.399(-11)	.406(-11)	.417(-11)
4		.102(-10)	.495(-11)	.357(-11)	.409(-11)	.428(-11)	.440(-11)
5		.132(-10)	.424(-11)	.372(-11)	.420(-11)	.391(-11)	.387(-11)
6		.113(-12)	.655(-11)	.304(-11)	.309(-11)	.368(-11)	.411(-11)
7		.161(-14)	.574(-11)	.384(-11)	.332(-11)	.323(-11)	.303(-11)
8		.207(-16)	.598(-11)	.329(-11)	.304(-11)	.293(-11)	.322(-11)
9		.458(-18)	.615(-11)	.354(-11)	.281(-11)	.316(-11)	.346(-11)
10		.519(-20)	.659(-11)	.429(-11)	.261(-11)	.286(-11)	.348(-11)
11		.112(-21)	.971(-13)	.553(-11)	.352(-11)	.277(-11)	.248(-11)
12		.213(-23)	.191(-14)	.521(-11)	.432(-11)	.314(-11)	.332(-11)
13		.497(-25)	.432(-16)	.488(-11)	.414(-11)	.276(-11)	.335(-11)
14			.127(-17)	.538(-11)	.513(-11)	.293(-11)	.343(-11)
15			.319(-19)	.626(-11)	.519(-11)	.376(-11)	.365(-11)
16			.798(-21)	.131(-12)	.527(-11)	.549(-11)	.509(-11)
17			.222(-22)	.452(-14)	.674(-11)	.630(-11)	.484(-11)
18			.787(-24)	.180(-15)	.168(-12)	.749(-11)	.601(-11)
19			.352(-25)	.612(-17)	.710(-14)	.856(-11)	.697(-11)
20				.216(-18)	.315(-15)	.102(-10)	.107(-10)
21				.101(-19)	.144(-16)	.340(-12)	.103(-10)
22				.514(-21)	.608(-18)	.194(-13)	.125(-10)

Table 38. RIOS REACTIVE T_{tr}= 500. T_{rot}= 300.							
v'	v	5	10	15	17	20	22
0		.722(-11)	.287(-11)	.200(-11)	.168(-11)	.145(-11)	.205(-11)
1		.119(-10)	.351(-11)	.339(-11)	.303(-11)	.278(-11)	.272(-11)
2		.103(-10)	.368(-11)	.275(-11)	.298(-11)	.362(-11)	.404(-11)
3		.911(-11)	.435(-11)	.379(-11)	.387(-11)	.396(-11)	.407(-11)
4		.996(-11)	.481(-11)	.346(-11)	.398(-11)	.417(-11)	.429(-11)
5		.128(-10)	.411(-11)	.360(-11)	.408(-11)	.379(-11)	.377(-11)
6		.107(-12)	.635(-11)	.293(-11)	.299(-11)	.357(-11)	.401(-11)
7		.152(-14)	.557(-11)	.371(-11)	.321(-11)	.313(-11)	.295(-11)
8		.194(-16)	.581(-11)	.318(-11)	.293(-11)	.284(-11)	.313(-11)
9		.430(-18)	.596(-11)	.343(-11)	.272(-11)	.306(-11)	.337(-11)
10		.488(-20)	.636(-11)	.416(-11)	.252(-11)	.277(-11)	.340(-11)
11		.105(-21)	.916(-13)	.538(-11)	.341(-11)	.268(-11)	.241(-11)
12		.200(-23)	.180(-14)	.505(-11)	.419(-11)	.304(-11)	.323(-11)
13		.467(-25)	.406(-16)	.472(-11)	.401(-11)	.266(-11)	.326(-11)
14			.119(-17)	.522(-11)	.497(-11)	.284(-11)	.333(-11)
15			.300(-19)	.605(-11)	.501(-11)	.364(-11)	.355(-11)
16			.749(-21)	.124(-12)	.509(-11)	.532(-11)	.497(-11)
17			.209(-22)	.425(-14)	.649(-11)	.612(-11)	.472(-11)
18			.738(-24)	.169(-15)	.159(-12)	.727(-11)	.584(-11)
19			.330(-25)	.575(-17)	.668(-14)	.832(-11)	.678(-11)
20				.203(-18)	.296(-15)	.993(-11)	.105(-10)
21				.952(-20)	.135(-16)	.322(-12)	.100(-10)
22				.483(-21)	.572(-18)	.182(-13)	.123(-10)

ISSN: 2279-8773

Table 39. RIOS REACTIVE T_{tr}= 500. T_{rot}= 500.							
v'	v	5	10	15	17	20	22
0		.642(-11)	.253(-11)	.179(-11)	.148(-11)	.127(-11)	.183(-11)
1		.106(-10)	.312(-11)	.302(-11)	.267(-11)	.245(-11)	.242(-11)
2		.910(-11)	.324(-11)	.240(-11)	.263(-11)	.321(-11)	.362(-11)
3		.805(-11)	.385(-11)	.334(-11)	.341(-11)	.352(-11)	.364(-11)
4		.889(-11)	.426(-11)	.304(-11)	.352(-11)	.371(-11)	.383(-11)
5		.113(-10)	.360(-11)	.314(-11)	.359(-11)	.334(-11)	.334(-11)
6		.873(-13)	.559(-11)	.255(-11)	.259(-11)	.314(-11)	.356(-11)
7		.123(-14)	.490(-11)	.324(-11)	.281(-11)	.275(-11)	.261(-11)
8		.157(-16)	.513(-11)	.277(-11)	.253(-11)	.248(-11)	.278(-11)
9		.346(-18)	.522(-11)	.301(-11)	.239(-11)	.269(-11)	.299(-11)
10		.392(-20)	.553(-11)	.365(-11)	.218(-11)	.244(-11)	.303(-11)
11		.847(-22)	.748(-13)	.475(-11)	.299(-11)	.234(-11)	.214(-11)
12		.161(-23)	.146(-14)	.443(-11)	.371(-11)	.267(-11)	.287(-11)
13		.375(-25)	.328(-16)	.411(-11)	.350(-11)	.231(-11)	.289(-11)
14			.966(-18)	.458(-11)	.438(-11)	.249(-11)	.296(-11)
15			.241(-19)	.529(-11)	.436(-11)	.318(-11)	.315(-11)
16			.602(-21)	.101(-12)	.443(-11)	.466(-11)	.444(-11)
17			.168(-22)	.345(-14)	.560(-11)	.542(-11)	.421(-11)
18			.593(-24)	.136(-15)	.130(-12)	.640(-11)	.517(-11)
19			.265(-25)	.464(-17)	.542(-14)	.737(-11)	.601(-11)
20				.163(-18)	.240(-15)	.871(-11)	.944(-11)
21				.766(-20)	.109(-16)	.264(-12)	.902(-11)
22				.388(-21)	.461(-18)	.148(-13)	.111(-10)

Table 40. RIOS REACTIVE T_{tr}= 500. T_{rot}=1000.							
v'	v	5	10	15	17	20	22
0		.485(-11)	.190(-11)	.136(-11)	.111(-11)	.949(-12)	.138(-11)
1		.804(-11)	.236(-11)	.229(-11)	.199(-11)	.184(-11)	.183(-11)
2		.683(-11)	.242(-11)	.178(-11)	.197(-11)	.242(-11)	.275(-11)
3		.604(-11)	.290(-11)	.249(-11)	.255(-11)	.267(-11)	.276(-11)
4		.674(-11)	.321(-11)	.227(-11)	.265(-11)	.281(-11)	.290(-11)
5		.859(-11)	.268(-11)	.233(-11)	.268(-11)	.250(-11)	.252(-11)
6		.598(-13)	.418(-11)	.188(-11)	.191(-11)	.234(-11)	.270(-11)
7		.834(-15)	.366(-11)	.241(-11)	.209(-11)	.205(-11)	.197(-11)
8		.106(-16)	.385(-11)	.205(-11)	.186(-11)	.184(-11)	.210(-11)
9		.233(-18)	.388(-11)	.224(-11)	.179(-11)	.201(-11)	.226(-11)
10		.263(-20)	.407(-11)	.272(-11)	.161(-11)	.182(-11)	.230(-11)
11		.568(-22)	.512(-13)	.357(-11)	.223(-11)	.174(-11)	.161(-11)
12		.108(-23)	.990(-15)	.330(-11)	.279(-11)	.199(-11)	.216(-11)
13		.251(-25)	.221(-16)	.304(-11)	.260(-11)	.170(-11)	.218(-11)
14			.650(-18)	.341(-11)	.327(-11)	.185(-11)	.223(-11)
15			.162(-19)	.392(-11)	.321(-11)	.236(-11)	.237(-11)
16			.404(-21)	.695(-13)	.326(-11)	.346(-11)	.337(-11)
17			.112(-22)	.234(-14)	.410(-11)	.407(-11)	.319(-11)
18			.397(-24)	.924(-16)	.893(-13)	.478(-11)	.390(-11)
19			.177(-25)	.312(-17)	.368(-14)	.555(-11)	.452(-11)
20				.110(-18)	.162(-15)	.650(-11)	.721(-11)
21				.515(-20)	.736(-17)	.182(-12)	.688(-11)
22				.260(-21)	.310(-18)	.101(-13)	.852(-11)

ISSN: 2279-8773

Table 41. RIOS REACTIVE T_{tr}= 500. T_{rot}=2000.							
v'	v	5	10	15	17	20	22
0		.319(-11)	.124(-11)	.903(-12)	.729(-12)	.616(-12)	.913(-12)
1		.528(-11)	.155(-11)	.151(-11)	.130(-11)	.120(-11)	.120(-11)
2		.446(-11)	.157(-11)	.115(-11)	.129(-11)	.159(-11)	.181(-11)
3		.394(-11)	.190(-11)	.162(-11)	.166(-11)	.175(-11)	.182(-11)
4		.443(-11)	.210(-11)	.148(-11)	.174(-11)	.185(-11)	.191(-11)
5		.563(-11)	.174(-11)	.151(-11)	.175(-11)	.163(-11)	.166(-11)
6		.366(-13)	.272(-11)	.121(-11)	.123(-11)	.153(-11)	.177(-11)
7		.507(-15)	.238(-11)	.156(-11)	.136(-11)	.133(-11)	.129(-11)
8		.641(-17)	.251(-11)	.133(-11)	.119(-11)	.119(-11)	.138(-11)
9		.141(-18)	.252(-11)	.146(-11)	.116(-11)	.131(-11)	.148(-11)
10		.159(-20)	.263(-11)	.177(-11)	.103(-11)	.118(-11)	.151(-11)
11		.342(-22)	.314(-13)	.233(-11)	.145(-11)	.113(-11)	.105(-11)
12		.651(-24)	.602(-15)	.214(-11)	.182(-11)	.129(-11)	.141(-11)
13		.151(-25)	.134(-16)	.197(-11)	.168(-11)	.110(-11)	.143(-11)
14			.393(-18)	.222(-11)	.213(-11)	.120(-11)	.146(-11)
15			.981(-20)	.254(-11)	.207(-11)	.153(-11)	.155(-11)
16			.244(-21)	.426(-13)	.211(-11)	.225(-11)	.222(-11)
17			.679(-23)	.142(-14)	.263(-11)	.267(-11)	.210(-11)
18			.239(-24)	.560(-16)	.548(-13)	.312(-11)	.255(-11)
19			.107(-25)	.189(-17)	.224(-14)	.363(-11)	.296(-11)
20				.664(-19)	.984(-16)	.423(-11)	.477(-11)
21				.310(-20)	.445(-17)	.112(-12)	.454(-11)
22				.157(-21)	.187(-18)	.616(-14)	.565(-11)

Table 42. RIOS REACTIVE T_{tr}= 500. T_{rot}=4000.							
v'	v	5	10	15	17	20	22
0		.187(-11)	.728(-12)	.532(-12)	.427(-12)	.360(-12)	.536(-12)
1		.310(-11)	.911(-12)	.889(-12)	.763(-12)	.704(-12)	.710(-12)
2		.261(-11)	.922(-12)	.675(-12)	.758(-12)	.933(-12)	.106(-11)
3		.231(-11)	.111(-11)	.952(-12)	.976(-12)	.103(-11)	.107(-11)
4		.261(-11)	.123(-11)	.867(-12)	.102(-11)	.109(-11)	.112(-11)
5		.330(-11)	.102(-11)	.881(-12)	.102(-11)	.958(-12)	.975(-12)
6		.206(-13)	.159(-11)	.709(-12)	.720(-12)	.894(-12)	.104(-11)
7		.284(-15)	.139(-11)	.912(-12)	.796(-12)	.779(-12)	.757(-12)
8		.358(-17)	.147(-11)	.775(-12)	.695(-12)	.698(-12)	.811(-12)
9		.786(-19)	.147(-11)	.854(-12)	.682(-12)	.767(-12)	.874(-12)
10		.887(-21)	.153(-11)	.103(-11)	.604(-12)	.695(-12)	.894(-12)
11		.191(-22)	.176(-13)	.136(-11)	.848(-12)	.659(-12)	.618(-12)
12		.362(-24)	.337(-15)	.125(-11)	.107(-11)	.759(-12)	.832(-12)
13			.749(-17)	.114(-11)	.985(-12)	.642(-12)	.840(-12)
14			.219(-18)	.130(-11)	.124(-11)	.702(-12)	.860(-12)
15			.547(-20)	.148(-11)	.120(-11)	.893(-12)	.914(-12)
16			.136(-21)	.240(-13)	.123(-11)	.131(-11)	.131(-11)
17			.378(-23)	.799(-15)	.152(-11)	.156(-11)	.123(-11)
18			.133(-24)	.313(-16)	.309(-13)	.182(-11)	.149(-11)
19				.105(-17)	.126(-14)	.213(-11)	.173(-11)
20				.370(-19)	.550(-16)	.247(-11)	.281(-11)
21				.173(-20)	.249(-17)	.633(-13)	.267(-11)
22				.877(-22)	.104(-18)	.346(-14)	.334(-11)

ISSN: 2279-8773

Table 43. RIOS REACTIVE T_{tr}=1000. T_{rot}= 200.							
v'	v	5	10	12	15	17	19
0		.913(-11)	.385(-11)	.341(-11)	.265(-11)	.236(-11)	.207(-11)
1		.157(-10)	.520(-11)	.524(-11)	.444(-11)	.409(-11)	.367(-11)
2		.153(-10)	.579(-11)	.489(-11)	.461(-11)	.447(-11)	.442(-11)
3		.143(-10)	.650(-11)	.625(-11)	.574(-11)	.562(-11)	.508(-11)
4		.141(-10)	.680(-11)	.578(-11)	.530(-11)	.561(-11)	.566(-11)
5		.205(-10)	.689(-11)	.562(-11)	.551(-11)	.580(-11)	.565(-11)
6		.154(-11)	.938(-11)	.721(-11)	.510(-11)	.507(-11)	.523(-11)
7		.170(-12)	.949(-11)	.774(-11)	.608(-11)	.527(-11)	.490(-11)
8		.166(-13)	.930(-11)	.966(-11)	.549(-11)	.516(-11)	.471(-11)
9		.238(-14)	.108(-10)	.801(-11)	.579(-11)	.444(-11)	.494(-11)
10		.243(-15)	.140(-10)	.894(-11)	.671(-11)	.459(-11)	.438(-11)
11		.333(-16)	.135(-11)	.100(-10)	.797(-11)	.547(-11)	.452(-11)
12		.427(-17)	.176(-12)	.125(-10)	.813(-11)	.615(-11)	.510(-11)
13		.641(-18)	.240(-13)	.135(-11)	.860(-11)	.664(-11)	.495(-11)
14		.106(-18)	.368(-14)	.213(-12)	.889(-11)	.784(-11)	.571(-11)
15		.191(-19)	.582(-15)	.317(-13)	.113(-10)	.880(-11)	.733(-11)
16		.351(-20)	.845(-16)	.479(-14)	.141(-11)	.895(-11)	.824(-11)
17		.656(-21)	.134(-16)	.775(-15)	.261(-12)	.117(-10)	.927(-11)
18		.126(-21)	.243(-17)	.130(-15)	.485(-13)	.161(-11)	.104(-10)
19		.250(-22)	.492(-18)	.255(-16)	.835(-14)	.321(-12)	.143(-10)

Table 44. RIOS REACTIVE T_{tr}=1000. T_{rot}= 250.							
v'	v	5	10	12	15	17	19
0		.909(-11)	.382(-11)	.342(-11)	.264(-11)	.234(-11)	.205(-11)
1		.156(-10)	.516(-11)	.524(-11)	.442(-11)	.406(-11)	.364(-11)
2		.152(-10)	.573(-11)	.482(-11)	.455(-11)	.442(-11)	.438(-11)
3		.141(-10)	.644(-11)	.619(-11)	.568(-11)	.557(-11)	.504(-11)
4		.140(-10)	.675(-11)	.572(-11)	.524(-11)	.556(-11)	.563(-11)
5		.203(-10)	.680(-11)	.558(-11)	.544(-11)	.575(-11)	.560(-11)
6		.149(-11)	.929(-11)	.713(-11)	.502(-11)	.500(-11)	.517(-11)
7		.164(-12)	.937(-11)	.765(-11)	.600(-11)	.520(-11)	.485(-11)
8		.160(-13)	.919(-11)	.958(-11)	.541(-11)	.508(-11)	.464(-11)
9		.229(-14)	.107(-10)	.792(-11)	.571(-11)	.439(-11)	.488(-11)
10		.234(-15)	.138(-10)	.883(-11)	.663(-11)	.452(-11)	.432(-11)
11		.320(-16)	.131(-11)	.992(-11)	.790(-11)	.540(-11)	.446(-11)
12		.411(-17)	.170(-12)	.123(-10)	.804(-11)	.610(-11)	.504(-11)
13		.617(-18)	.232(-13)	.131(-11)	.847(-11)	.655(-11)	.489(-11)
14		.102(-18)	.354(-14)	.206(-12)	.878(-11)	.775(-11)	.565(-11)
15		.184(-19)	.560(-15)	.306(-13)	.111(-10)	.867(-11)	.724(-11)
16		.337(-20)	.813(-16)	.462(-14)	.137(-11)	.881(-11)	.815(-11)
17		.631(-21)	.129(-16)	.746(-15)	.252(-12)	.115(-10)	.916(-11)
18		.121(-21)	.233(-17)	.125(-15)	.468(-13)	.156(-11)	.103(-10)
19		.240(-22)	.473(-18)	.246(-16)	.804(-14)	.310(-12)	.142(-10)

ISSN: 2279-8773

Table 45. RIOS REACTIVE T_{tr}=1000. T_{rot}= 300.							
v'	v	5	10	12	15	17	19
0		.903(-11)	.379(-11)	.341(-11)	.262(-11)	.232(-11)	.202(-11)
1		.155(-10)	.510(-11)	.523(-11)	.438(-11)	.402(-11)	.361(-11)
2		.150(-10)	.565(-11)	.474(-11)	.448(-11)	.437(-11)	.434(-11)
3		.139(-10)	.637(-11)	.612(-11)	.561(-11)	.551(-11)	.499(-11)
4		.138(-10)	.668(-11)	.566(-11)	.518(-11)	.551(-11)	.558(-11)
5		.201(-10)	.671(-11)	.553(-11)	.537(-11)	.569(-11)	.554(-11)
6		.145(-11)	.919(-11)	.704(-11)	.495(-11)	.492(-11)	.510(-11)
7		.158(-12)	.924(-11)	.755(-11)	.592(-11)	.513(-11)	.479(-11)
8		.154(-13)	.908(-11)	.948(-11)	.533(-11)	.500(-11)	.457(-11)
9		.221(-14)	.105(-10)	.782(-11)	.563(-11)	.433(-11)	.482(-11)
10		.225(-15)	.135(-10)	.871(-11)	.654(-11)	.445(-11)	.426(-11)
11		.309(-16)	.127(-11)	.981(-11)	.781(-11)	.533(-11)	.439(-11)
12		.396(-17)	.164(-12)	.121(-10)	.793(-11)	.603(-11)	.498(-11)
13		.594(-18)	.224(-13)	.127(-11)	.834(-11)	.646(-11)	.483(-11)
14		.989(-19)	.342(-14)	.199(-12)	.865(-11)	.765(-11)	.558(-11)
15		.177(-19)	.540(-15)	.295(-13)	.110(-10)	.853(-11)	.713(-11)
16		.325(-20)	.784(-16)	.445(-14)	.132(-11)	.868(-11)	.806(-11)
17		.607(-21)	.124(-16)	.720(-15)	.244(-12)	.113(-10)	.904(-11)
18		.117(-21)	.225(-17)	.121(-15)	.452(-13)	.152(-11)	.101(-10)
19		.231(-22)	.456(-18)	.237(-16)	.776(-14)	.300(-12)	.140(-10)

Table 46. RIOS REACTIVE T_{tr}=1000. T_{rot}= 500.							
v'	v	5	10	12	15	17	19
0		.866(-11)	.361(-11)	.331(-11)	.251(-11)	.220(-11)	.191(-11)
1		.148(-10)	.484(-11)	.508(-11)	.420(-11)	.383(-11)	.344(-11)
2		.142(-10)	.533(-11)	.444(-11)	.420(-11)	.414(-11)	.413(-11)
3		.131(-10)	.604(-11)	.579(-11)	.530(-11)	.522(-11)	.475(-11)
4		.132(-10)	.635(-11)	.534(-11)	.488(-11)	.524(-11)	.532(-11)
5		.189(-10)	.629(-11)	.527(-11)	.506(-11)	.539(-11)	.525(-11)
6		.129(-11)	.869(-11)	.663(-11)	.462(-11)	.460(-11)	.479(-11)
7		.139(-12)	.867(-11)	.711(-11)	.555(-11)	.482(-11)	.451(-11)
8		.135(-13)	.856(-11)	.899(-11)	.499(-11)	.466(-11)	.428(-11)
9		.193(-14)	.985(-11)	.735(-11)	.528(-11)	.407(-11)	.453(-11)
10		.197(-15)	.125(-10)	.818(-11)	.615(-11)	.414(-11)	.400(-11)
11		.269(-16)	.113(-11)	.927(-11)	.740(-11)	.501(-11)	.411(-11)
12		.345(-17)	.145(-12)	.112(-10)	.745(-11)	.572(-11)	.468(-11)
13		.518(-18)	.196(-13)	.113(-11)	.777(-11)	.605(-11)	.454(-11)
14		.862(-19)	.299(-14)	.175(-12)	.811(-11)	.721(-11)	.526(-11)
15		.154(-19)	.472(-15)	.259(-13)	.102(-10)	.796(-11)	.669(-11)
16		.283(-20)	.684(-16)	.390(-14)	.118(-11)	.810(-11)	.760(-11)
17		.528(-21)	.108(-16)	.629(-15)	.215(-12)	.105(-10)	.850(-11)
18		.102(-21)	.196(-17)	.105(-15)	.397(-13)	.135(-11)	.960(-11)
19		.201(-22)	.397(-18)	.206(-16)	.681(-14)	.265(-12)	.132(-10)

ISSN: 2279-8773

Table 47. RIOS REACTIVE T_{tr}=1000. T_{rot}=1000.							
v'	v	5	10	12	15	17	19
0		.751(-11)	.310(-11)	.292(-11)	.218(-11)	.189(-11)	.161(-11)
1		.128(-10)	.415(-11)	.448(-11)	.364(-11)	.328(-11)	.296(-11)
2		.121(-10)	.452(-11)	.372(-11)	.354(-11)	.353(-11)	.355(-11)
3		.112(-10)	.516(-11)	.494(-11)	.451(-11)	.445(-11)	.407(-11)
4		.113(-10)	.545(-11)	.454(-11)	.415(-11)	.449(-11)	.458(-11)
5		.161(-10)	.530(-11)	.454(-11)	.428(-11)	.461(-11)	.449(-11)
6		.100(-11)	.740(-11)	.562(-11)	.387(-11)	.386(-11)	.404(-11)
7		.107(-12)	.731(-11)	.602(-11)	.468(-11)	.407(-11)	.383(-11)
8		.103(-13)	.726(-11)	.769(-11)	.418(-11)	.389(-11)	.359(-11)
9		.147(-14)	.825(-11)	.622(-11)	.445(-11)	.344(-11)	.384(-11)
10		.149(-15)	.103(-10)	.691(-11)	.520(-11)	.345(-11)	.337(-11)
11		.204(-16)	.882(-12)	.789(-11)	.631(-11)	.423(-11)	.346(-11)
12		.261(-17)	.111(-12)	.939(-11)	.630(-11)	.488(-11)	.396(-11)
13		.392(-18)	.150(-13)	.886(-12)	.650(-11)	.510(-11)	.384(-11)
14		.652(-19)	.228(-14)	.135(-12)	.683(-11)	.611(-11)	.447(-11)
15		.116(-19)	.359(-15)	.199(-13)	.857(-11)	.667(-11)	.564(-11)
16		.213(-20)	.520(-16)	.298(-14)	.927(-12)	.678(-11)	.646(-11)
17		.399(-21)	.824(-17)	.479(-15)	.166(-12)	.880(-11)	.718(-11)
18		.770(-22)	.148(-17)	.804(-16)	.305(-13)	.106(-11)	.813(-11)
19		.152(-22)	.300(-18)	.157(-16)	.520(-14)	.205(-12)	.113(-10)

Table 48. RIOS REACTIVE T_{tr}=1000. T_{rot}=2000.							
v'	v	5	10	12	15	17	19
0		.568(-11)	.233(-11)	.224(-11)	.165(-11)	.141(-11)	.120(-11)
1		.971(-11)	.310(-11)	.344(-11)	.275(-11)	.246(-11)	.222(-11)
2		.907(-11)	.336(-11)	.275(-11)	.261(-11)	.264(-11)	.266(-11)
3		.834(-11)	.386(-11)	.369(-11)	.336(-11)	.333(-11)	.305(-11)
4		.855(-11)	.409(-11)	.338(-11)	.309(-11)	.337(-11)	.345(-11)
5		.120(-10)	.393(-11)	.341(-11)	.318(-11)	.345(-11)	.336(-11)
6		.699(-12)	.552(-11)	.418(-11)	.285(-11)	.285(-11)	.299(-11)
7		.736(-13)	.541(-11)	.447(-11)	.346(-11)	.301(-11)	.285(-11)
8		.706(-14)	.540(-11)	.576(-11)	.308(-11)	.286(-11)	.265(-11)
9		.100(-14)	.608(-11)	.462(-11)	.329(-11)	.255(-11)	.285(-11)
10		.101(-15)	.753(-11)	.512(-11)	.386(-11)	.253(-11)	.250(-11)
11		.138(-16)	.611(-12)	.588(-11)	.472(-11)	.314(-11)	.255(-11)
12		.176(-17)	.765(-13)	.688(-11)	.467(-11)	.365(-11)	.294(-11)
13		.263(-18)	.102(-13)	.614(-12)	.478(-11)	.377(-11)	.285(-11)
14		.438(-19)	.155(-14)	.929(-13)	.505(-11)	.454(-11)	.332(-11)
15		.784(-20)	.243(-15)	.135(-13)	.630(-11)	.491(-11)	.417(-11)
16		.143(-20)	.351(-16)	.202(-14)	.644(-12)	.499(-11)	.481(-11)
17		.267(-21)	.555(-17)	.324(-15)	.114(-12)	.645(-11)	.532(-11)
18		.516(-22)	.100(-17)	.543(-16)	.208(-13)	.740(-12)	.605(-11)
19		.102(-22)	.202(-18)	.105(-16)	.353(-14)	.141(-12)	.843(-11)

ISSN: 2279-8773

Table 49. RIOS REACTIVE T_{tr}=1000. T_{rot}=4000.							
v'	v	5	10	12	15	17	19
0		.373(-11)	.152(-11)	.148(-11)	.108(-11)	.925(-12)	.780(-12)
1		.637(-11)	.203(-11)	.228(-11)	.180(-11)	.161(-11)	.145(-11)
2		.591(-11)	.218(-11)	.177(-11)	.169(-11)	.172(-11)	.174(-11)
3		.542(-11)	.251(-11)	.241(-11)	.218(-11)	.217(-11)	.199(-11)
4		.559(-11)	.267(-11)	.220(-11)	.201(-11)	.220(-11)	.226(-11)
5		.782(-11)	.254(-11)	.223(-11)	.206(-11)	.225(-11)	.219(-11)
6		.432(-12)	.360(-11)	.272(-11)	.184(-11)	.184(-11)	.194(-11)
7		.450(-13)	.350(-11)	.290(-11)	.224(-11)	.195(-11)	.185(-11)
8		.430(-14)	.351(-11)	.376(-11)	.199(-11)	.184(-11)	.171(-11)
9		.607(-15)	.392(-11)	.299(-11)	.213(-11)	.165(-11)	.185(-11)
10		.613(-16)	.482(-11)	.332(-11)	.250(-11)	.163(-11)	.162(-11)
11		.835(-17)	.378(-12)	.383(-11)	.307(-11)	.204(-11)	.165(-11)
12		.106(-17)	.468(-13)	.442(-11)	.303(-11)	.238(-11)	.190(-11)
13		.159(-18)	.624(-14)	.380(-12)	.308(-11)	.244(-11)	.185(-11)
14		.264(-19)	.943(-15)	.569(-13)	.327(-11)	.295(-11)	.216(-11)
15		.473(-20)	.147(-15)	.827(-14)	.406(-11)	.317(-11)	.270(-11)
16		.866(-21)	.212(-16)	.123(-14)	.399(-12)	.322(-11)	.313(-11)
17		.161(-21)	.336(-17)	.197(-15)	.700(-13)	.415(-11)	.345(-11)
18		.311(-22)	.605(-18)	.329(-16)	.127(-13)	.459(-12)	.393(-11)
19		.615(-23)	.122(-18)	.641(-17)	.215(-14)	.867(-13)	.549(-11)

Table 50. RIOS REACTIVE T_{tr}=2000. T_{rot}= 200.							
v'	v	2	5	7	10	12	15
0		.280(-10)	.119(-10)	.682(-11)	.509(-11)	.445(-11)	.369(-11)
1		.322(-10)	.199(-10)	.119(-10)	.719(-11)	.649(-11)	.546(-11)
2		.485(-10)	.214(-10)	.126(-10)	.820(-11)	.727(-11)	.649(-11)
3		.854(-11)	.220(-10)	.147(-10)	.894(-11)	.856(-11)	.760(-11)
4		.275(-11)	.209(-10)	.150(-10)	.920(-11)	.823(-11)	.733(-11)
5		.788(-12)	.315(-10)	.195(-10)	.101(-10)	.817(-11)	.753(-11)
6		.228(-12)	.690(-11)	.183(-10)	.123(-10)	.100(-10)	.757(-11)
7		.573(-13)	.228(-11)	.351(-10)	.145(-10)	.111(-10)	.865(-11)
8		.174(-13)	.588(-12)	.602(-11)	.139(-10)	.139(-10)	.834(-11)
9		.578(-14)	.189(-12)	.186(-11)	.185(-10)	.122(-10)	.909(-11)
10		.190(-14)	.602(-13)	.692(-12)	.282(-10)	.154(-10)	.102(-10)
11		.696(-15)	.211(-13)	.243(-12)	.654(-11)	.169(-10)	.114(-10)
12		.254(-15)	.715(-14)	.783(-13)	.219(-11)	.225(-10)	.125(-10)
13		.945(-16)	.268(-14)	.282(-13)	.699(-12)	.609(-11)	.138(-10)
14		.379(-16)	.105(-14)	.104(-13)	.239(-12)	.224(-11)	.144(-10)
15		.150(-16)	.440(-15)	.405(-14)	.952(-13)	.787(-12)	.189(-10)

ISSN: 2279-8773

Table 51. RIOS REACTIVE T_{tr}=2000. T_{rot}= 250.							
v'	v	2	5	7	10	12	15
0		.280(-10)	.119(-10)	.682(-11)	.508(-11)	.445(-11)	.368(-11)
1		.321(-10)	.199(-10)	.118(-10)	.717(-11)	.651(-11)	.547(-11)
2		.484(-10)	.214(-10)	.126(-10)	.818(-11)	.723(-11)	.646(-11)
3		.842(-11)	.219(-10)	.147(-10)	.892(-11)	.854(-11)	.758(-11)
4		.270(-11)	.208(-10)	.149(-10)	.919(-11)	.820(-11)	.730(-11)
5		.774(-12)	.314(-10)	.194(-10)	.101(-10)	.815(-11)	.751(-11)
6		.223(-12)	.679(-11)	.182(-10)	.123(-10)	.998(-11)	.753(-11)
7		.562(-13)	.224(-11)	.349(-10)	.145(-10)	.111(-10)	.861(-11)
8		.170(-13)	.577(-12)	.593(-11)	.139(-10)	.138(-10)	.830(-11)
9		.566(-14)	.186(-12)	.183(-11)	.184(-10)	.122(-10)	.905(-11)
10		.187(-14)	.590(-13)	.680(-12)	.280(-10)	.153(-10)	.101(-10)
11		.682(-15)	.207(-13)	.238(-12)	.644(-11)	.168(-10)	.113(-10)
12		.248(-15)	.701(-14)	.768(-13)	.215(-11)	.224(-10)	.125(-10)
13		.926(-16)	.262(-14)	.276(-13)	.687(-12)	.600(-11)	.138(-10)
14		.371(-16)	.103(-14)	.102(-13)	.234(-12)	.220(-11)	.143(-10)
15		.147(-16)	.431(-15)	.396(-14)	.934(-13)	.773(-12)	.188(-10)

Table 52. RIOS REACTIVE T_{tr}=2000. T_{rot}= 300.							
v'	v	2	5	7	10	12	15
0		.280(-10)	.119(-10)	.681(-11)	.507(-11)	.446(-11)	.368(-11)
1		.321(-10)	.199(-10)	.118(-10)	.715(-11)	.652(-11)	.547(-11)
2		.483(-10)	.213(-10)	.126(-10)	.814(-11)	.719(-11)	.643(-11)
3		.829(-11)	.218(-10)	.147(-10)	.889(-11)	.852(-11)	.756(-11)
4		.266(-11)	.207(-10)	.149(-10)	.916(-11)	.817(-11)	.728(-11)
5		.760(-12)	.313(-10)	.194(-10)	.100(-10)	.812(-11)	.748(-11)
6		.219(-12)	.669(-11)	.181(-10)	.123(-10)	.995(-11)	.749(-11)
7		.551(-13)	.220(-11)	.346(-10)	.144(-10)	.110(-10)	.858(-11)
8		.167(-13)	.567(-12)	.584(-11)	.138(-10)	.138(-10)	.825(-11)
9		.555(-14)	.182(-12)	.180(-11)	.182(-10)	.121(-10)	.899(-11)
10		.183(-14)	.579(-13)	.667(-12)	.277(-10)	.152(-10)	.101(-10)
11		.668(-15)	.203(-13)	.234(-12)	.634(-11)	.167(-10)	.113(-10)
12		.243(-15)	.687(-14)	.753(-13)	.211(-11)	.222(-10)	.124(-10)
13		.907(-16)	.257(-14)	.271(-13)	.674(-12)	.592(-11)	.137(-10)
14		.363(-16)	.101(-14)	.100(-13)	.230(-12)	.217(-11)	.142(-10)
15		.144(-16)	.423(-15)	.389(-14)	.916(-13)	.759(-12)	.186(-10)

ISSN: 2279-8773

Table 53. RIOS REACTIVE T_{tr}=2000. T_{rot}= 500.							
v'	v	2	5	7	10	12	15
0		.277(-10)	.117(-10)	.674(-11)	.499(-11)	.443(-11)	.362(-11)
1		.317(-10)	.196(-10)	.116(-10)	.702(-11)	.650(-11)	.542(-11)
2		.476(-10)	.209(-10)	.125(-10)	.797(-11)	.701(-11)	.629(-11)
3		.783(-11)	.213(-10)	.144(-10)	.873(-11)	.836(-11)	.742(-11)
4		.249(-11)	.203(-10)	.145(-10)	.901(-11)	.800(-11)	.713(-11)
5		.709(-12)	.305(-10)	.190(-10)	.983(-11)	.797(-11)	.733(-11)
6		.204(-12)	.632(-11)	.177(-10)	.121(-10)	.974(-11)	.730(-11)
7		.512(-13)	.206(-11)	.335(-10)	.140(-10)	.108(-10)	.838(-11)
8		.155(-13)	.529(-12)	.551(-11)	.135(-10)	.135(-10)	.803(-11)
9		.515(-14)	.170(-12)	.168(-11)	.177(-10)	.118(-10)	.875(-11)
10		.169(-14)	.538(-13)	.623(-12)	.267(-10)	.147(-10)	.987(-11)
11		.618(-15)	.188(-13)	.218(-12)	.598(-11)	.162(-10)	.111(-10)
12		.225(-15)	.637(-14)	.700(-13)	.198(-11)	.214(-10)	.121(-10)
13		.839(-16)	.238(-14)	.251(-13)	.629(-12)	.558(-11)	.133(-10)
14		.336(-16)	.937(-15)	.928(-14)	.214(-12)	.203(-11)	.138(-10)
15		.133(-16)	.391(-15)	.360(-14)	.852(-13)	.709(-12)	.181(-10)

Table 54. RIOS REACTIVE T_{tr}=2000. T_{rot}=1000.							
v'	v	2	5	7	10	12	15
0		.263(-10)	.111(-10)	.637(-11)	.469(-11)	.421(-11)	.340(-11)
1		.298(-10)	.186(-10)	.109(-10)	.656(-11)	.622(-11)	.514(-11)
2		.447(-10)	.195(-10)	.118(-10)	.740(-11)	.646(-11)	.583(-11)
3		.685(-11)	.197(-10)	.135(-10)	.816(-11)	.781(-11)	.694(-11)
4		.214(-11)	.189(-10)	.134(-10)	.844(-11)	.744(-11)	.664(-11)
5		.606(-12)	.282(-10)	.177(-10)	.909(-11)	.744(-11)	.682(-11)
6		.174(-12)	.552(-11)	.165(-10)	.113(-10)	.906(-11)	.673(-11)
7		.434(-13)	.178(-11)	.306(-10)	.129(-10)	.100(-10)	.776(-11)
8		.131(-13)	.452(-12)	.481(-11)	.125(-10)	.126(-10)	.740(-11)
9		.435(-14)	.145(-12)	.145(-11)	.162(-10)	.109(-10)	.806(-11)
10		.143(-14)	.457(-13)	.533(-12)	.241(-10)	.135(-10)	.911(-11)
11		.521(-15)	.159(-13)	.186(-12)	.522(-11)	.149(-10)	.103(-10)
12		.190(-15)	.538(-14)	.595(-13)	.170(-11)	.195(-10)	.111(-10)
13		.706(-16)	.201(-14)	.213(-13)	.539(-12)	.488(-11)	.122(-10)
14		.282(-16)	.791(-15)	.786(-14)	.183(-12)	.175(-11)	.127(-10)
15		.112(-16)	.330(-15)	.304(-14)	.724(-13)	.608(-12)	.165(-10)

ISSN: 2279-8773

Table 55. RIOS REACTIVE T_{tr}=2000. T_{rot}=2000.							
v'	v	2	5	7	10	12	15
0		.227(-10)	.954(-11)	.548(-11)	.401(-11)	.365(-11)	.291(-11)
1		.256(-10)	.160(-10)	.929(-11)	.559(-11)	.541(-11)	.443(-11)
2		.383(-10)	.165(-10)	.101(-10)	.627(-11)	.543(-11)	.492(-11)
3		.544(-11)	.166(-10)	.116(-10)	.694(-11)	.664(-11)	.591(-11)
4		.167(-11)	.161(-10)	.113(-10)	.720(-11)	.630(-11)	.564(-11)
5		.469(-12)	.238(-10)	.151(-10)	.766(-11)	.633(-11)	.578(-11)
6		.134(-12)	.438(-11)	.139(-10)	.966(-11)	.769(-11)	.565(-11)
7		.333(-13)	.138(-11)	.255(-10)	.108(-10)	.847(-11)	.656(-11)
8		.100(-13)	.350(-12)	.381(-11)	.105(-10)	.107(-10)	.621(-11)
9		.332(-14)	.111(-12)	.113(-11)	.135(-10)	.921(-11)	.676(-11)
10		.109(-14)	.351(-13)	.413(-12)	.198(-10)	.113(-10)	.767(-11)
11		.397(-15)	.122(-13)	.143(-12)	.413(-11)	.125(-10)	.876(-11)
12		.144(-15)	.411(-14)	.457(-13)	.133(-11)	.162(-10)	.939(-11)
13		.536(-16)	.153(-14)	.163(-13)	.418(-12)	.387(-11)	.101(-10)
14		.214(-16)	.602(-15)	.600(-14)	.141(-12)	.137(-11)	.106(-10)
15		.851(-17)	.251(-15)	.232(-14)	.556(-13)	.471(-12)	.138(-10)

Table 56. RIOS REACTIVE T_{tr}=2000. T_{rot}=4000.							
v'	v	2	5	7	10	12	15
0		.171(-10)	.717(-11)	.412(-11)	.300(-11)	.276(-11)	.218(-11)
1		.192(-10)	.120(-10)	.694(-11)	.417(-11)	.411(-11)	.334(-11)
2		.287(-10)	.123(-10)	.765(-11)	.465(-11)	.401(-11)	.365(-11)
3		.382(-11)	.122(-10)	.867(-11)	.518(-11)	.495(-11)	.441(-11)
4		.116(-11)	.119(-10)	.842(-11)	.538(-11)	.468(-11)	.419(-11)
5		.322(-12)	.176(-10)	.112(-10)	.566(-11)	.471(-11)	.430(-11)
6		.917(-13)	.308(-11)	.103(-10)	.721(-11)	.571(-11)	.417(-11)
7		.227(-13)	.962(-12)	.186(-10)	.804(-11)	.629(-11)	.486(-11)
8		.684(-14)	.241(-12)	.268(-11)	.782(-11)	.797(-11)	.458(-11)
9		.225(-14)	.765(-13)	.787(-12)	.990(-11)	.681(-11)	.498(-11)
10		.739(-15)	.239(-13)	.284(-12)	.143(-10)	.830(-11)	.567(-11)
11		.268(-15)	.832(-14)	.983(-13)	.290(-11)	.924(-11)	.652(-11)
12		.976(-16)	.279(-14)	.311(-13)	.924(-12)	.118(-10)	.694(-11)
13		.362(-16)	.104(-14)	.111(-13)	.287(-12)	.272(-11)	.748(-11)
14		.144(-16)	.407(-15)	.407(-14)	.967(-13)	.954(-12)	.785(-11)
15		.574(-17)	.169(-15)	.157(-14)	.380(-13)	.325(-12)	.101(-10)

Table 57. RIOS REACTIVE T_{tr}=4000. T_{rot}= 200.							
v'	v	2	3	4	5	6	7
0		.370(-10)	.295(-10)	.230(-10)	.170(-10)	.126(-10)	.102(-10)
1		.404(-10)	.354(-10)	.298(-10)	.245(-10)	.185(-10)	.147(-10)
2		.615(-10)	.349(-10)	.337(-10)	.276(-10)	.224(-10)	.162(-10)
3		.196(-10)	.524(-10)	.316(-10)	.311(-10)	.255(-10)	.194(-10)
4		.110(-10)	.179(-10)	.476(-10)	.298(-10)	.292(-10)	.218(-10)
5		.531(-11)	.104(-10)	.171(-10)	.455(-10)	.292(-10)	.282(-10)
6		.253(-11)	.502(-11)	.994(-11)	.169(-10)	.473(-10)	.273(-10)
7		.109(-11)	.228(-11)	.442(-11)	.973(-11)	.159(-10)	.530(-10)

ISSN: 2279-8773

	Table 58.	RIOS REACTIVE	T_{tr}=4000.	T_{rot}= 250.			
v'	v	2	3	4	5	6	7
0		.370(-10)	.295(-10)	.230(-10)	.170(-10)	.126(-10)	.102(-10)
1		.404(-10)	.354(-10)	.299(-10)	.245(-10)	.185(-10)	.147(-10)
2		.616(-10)	.350(-10)	.337(-10)	.276(-10)	.224(-10)	.162(-10)
3		.195(-10)	.524(-10)	.316(-10)	.311(-10)	.254(-10)	.195(-10)
4		.109(-10)	.178(-10)	.476(-10)	.297(-10)	.292(-10)	.218(-10)
5		.526(-11)	.103(-10)	.170(-10)	.454(-10)	.291(-10)	.282(-10)
6		.251(-11)	.498(-11)	.986(-11)	.168(-10)	.472(-10)	.272(-10)
7		.108(-11)	.226(-11)	.438(-11)	.966(-11)	.158(-10)	.529(-10)

	Table 59.	RIOS REACTIVE	T_{tr}=4000.	T_{rot}= 300.			
v'	v	2	3	4	5	6	7
0		.370(-10)	.295(-10)	.230(-10)	.170(-10)	.126(-10)	.102(-10)
1		.404(-10)	.354(-10)	.299(-10)	.245(-10)	.185(-10)	.147(-10)
2		.616(-10)	.350(-10)	.337(-10)	.276(-10)	.225(-10)	.162(-10)
3		.194(-10)	.524(-10)	.316(-10)	.310(-10)	.254(-10)	.194(-10)
4		.108(-10)	.177(-10)	.475(-10)	.297(-10)	.291(-10)	.218(-10)
5		.522(-11)	.102(-10)	.169(-10)	.453(-10)	.291(-10)	.282(-10)
6		.248(-11)	.493(-11)	.979(-11)	.167(-10)	.471(-10)	.272(-10)
7		.107(-11)	.224(-11)	.435(-11)	.958(-11)	.157(-10)	.527(-10)

	Table 60.	RIOS REACTIVE	T_{tr}=4000.	T_{rot}= 500.			
v'	v	2	3	4	5	6	7
0		.370(-10)	.295(-10)	.229(-10)	.170(-10)	.125(-10)	.102(-10)
1		.404(-10)	.354(-10)	.299(-10)	.245(-10)	.185(-10)	.147(-10)
2		.615(-10)	.350(-10)	.336(-10)	.275(-10)	.225(-10)	.162(-10)
3		.189(-10)	.522(-10)	.315(-10)	.308(-10)	.253(-10)	.194(-10)
4		.105(-10)	.173(-10)	.472(-10)	.295(-10)	.288(-10)	.216(-10)
5		.505(-11)	.995(-11)	.165(-10)	.450(-10)	.290(-10)	.280(-10)
6		.240(-11)	.478(-11)	.950(-11)	.163(-10)	.467(-10)	.270(-10)
7		.103(-11)	.216(-11)	.421(-11)	.930(-11)	.153(-10)	.521(-10)

	Table 61.	RIOS REACTIVE	T_{tr}=4000.	T_{rot}=1000.			
v'	v	2	3	4	5	6	7
0		.364(-10)	.290(-10)	.224(-10)	.166(-10)	.121(-10)	.996(-11)
1		.398(-10)	.349(-10)	.295(-10)	.242(-10)	.182(-10)	.145(-10)
2		.605(-10)	.346(-10)	.330(-10)	.270(-10)	.223(-10)	.160(-10)
3		.178(-10)	.513(-10)	.308(-10)	.299(-10)	.247(-10)	.190(-10)
4		.982(-11)	.163(-10)	.460(-10)	.288(-10)	.280(-10)	.210(-10)
5		.468(-11)	.925(-11)	.155(-10)	.437(-10)	.282(-10)	.273(-10)
6		.221(-11)	.442(-11)	.883(-11)	.153(-10)	.452(-10)	.262(-10)
7		.952(-12)	.199(-11)	.389(-11)	.866(-11)	.144(-10)	.503(-10)

ISSN: 2279-8773

Table 62. RIOS REACTIVE T_{tr}=4000. T_{rot}=2000.							
v'	v	2	3	4	5	6	7
0		.343(-10)	.273(-10)	.210(-10)	.155(-10)	.112(-10)	.927(-11)
1		.375(-10)	.328(-10)	.277(-10)	.229(-10)	.171(-10)	.136(-10)
2		.569(-10)	.326(-10)	.309(-10)	.252(-10)	.211(-10)	.150(-10)
3		.158(-10)	.480(-10)	.288(-10)	.277(-10)	.229(-10)	.178(-10)
4		.859(-11)	.144(-10)	.427(-10)	.267(-10)	.258(-10)	.194(-10)
5		.406(-11)	.809(-11)	.137(-10)	.404(-10)	.262(-10)	.253(-10)
6		.191(-11)	.383(-11)	.771(-11)	.136(-10)	.417(-10)	.242(-10)
7		.818(-12)	.172(-11)	.337(-11)	.756(-11)	.128(-10)	.462(-10)

Table 63. RIOS REACTIVE T_{tr}=4000. T_{rot}=4000.							
v'	v	2	3	4	5	6	7
0		.294(-10)	.234(-10)	.178(-10)	.132(-10)	.952(-11)	.787(-11)
1		.322(-10)	.281(-10)	.238(-10)	.197(-10)	.146(-10)	.116(-10)
2		.487(-10)	.281(-10)	.264(-10)	.215(-10)	.181(-10)	.129(-10)
3		.128(-10)	.410(-10)	.245(-10)	.234(-10)	.194(-10)	.152(-10)
4		.683(-11)	.116(-10)	.362(-10)	.226(-10)	.217(-10)	.164(-10)
5		.319(-11)	.642(-11)	.110(-10)	.341(-10)	.222(-10)	.214(-10)
6		.149(-11)	.301(-11)	.612(-11)	.109(-10)	.350(-10)	.204(-10)
7		.636(-12)	.134(-11)	.265(-11)	.600(-11)	.103(-10)	.386(-10)

ISSN: 2279-8773