

LIST OF RESEARCH PUBLICATIONS
BY
L. M. SAHA

Dynamical Systems & Chaos:

- [1]. **L. M. Saha**, (1993) : On instability leading to chaos, Proceedings of I A U Colloquium 132, Delhi (1990) :**Instability, Chaos and Predictability in Celestial Mechanics and Stellar Dynamics**, ed. K.B.Bhatnagar, Nova Publishers, New York, (1993), P. 47-60.
- [2]. **L. M. Saha**, (1995): On chaos in nonlinear dynamical systems, Presented at the IUCAA **Workshop on Celestial Mechancis and Space Dynamics**, Muzaffarpur, India, September 18-22, (1995), and appeared in its Proceedings in (1998), eds. K.B.Bhatnagar & B. Iswar, P. 154-167.
- [3]. **L. M. Saha**, (1996) : Order and chaos in nature **Jigyansa**, J. Soc. Sci. **1**, 69-75.
- [4]. **L. M. Saha**, (2000) : Order and chaos in social life To be published in **the Zakir Husain Centenary Volume** published by Zakir Husain Memorial Trust, Delhi.
- [5]. Ila Sahay and **L. M. Saha** (2002): Bifurcation in the expansion of a gas bubble in the rayleigh model, **News Bull. Cal. Math. Soc.**, **25**, 17 – 22.
- [6]. Purnima Dixit and **L. M. Saha** (2003): On sensitivity to initial conditions and chaos, **The Journal of Math. Sci.**, **2**, 1 – 9.
- [7]. **L. M. Saha** and Purnima Dixit (2003): On controlling chaos in oscillators. **News Bull. Cal. Math. Soc.**, **26**, 19 - 24.
- [8]. G. H. Erjaee, M. H. Atabakzade and **L. M. Saha** (2004): Interesting synchronization-like behavior, **Int. Jour. Bifur.. Chaos**, **14**,1147-1453.
- [9]. Ila Sahay and **L. M. Saha** (2004): Controlling chaos by periodic parametric excitation in Froude pendulum, **Nat. Acad.Science Lett.**, **27**, 65 – 68.
- [10]. **L. M. Saha**, G. H. Erjaee and Mridula Budhraj (2004): Controlling chaos in 2-dimensional systems, **Iranian Jour. Sci. Tech.**, Trans. A, **28**, No.A2, 219 – 226.
- [11]. M. Ali, **L. M. Saha**, Yasuo Tanaka and H. Soga (2005): Non parametric periodic orbit as a singularity of the OGY stabilization technique, **Bull. Fac. Edu., Ibaraki Univ. (Nat. Sci.)**, **54**, 121 - 128.
- [12]. M. Ali, **L. M. Saha**, Yasuo Tanaka and H. Soga (2005): Bifurcation Scenario in Gumowski-Mira map: Chaos doubling phenomena, **Bull. Fac. Edu., Ibaraki Univ. (Nat. Sci.)**, **54**, 129 - 139.

- [13]. Z. A. Taqvi, Khursheed Alam and **L. M. Saha** (2005): Regular and chaotic motion in oscillators, **News Bull. Cal. Math. Soc.**, **28**, 7 – 12.
- [14]. M. Ali and **L. M. Saha** (2005): Local Lyapunov exponents and characteristics of fixed/ periodic points embedded within a chaotic attractor, **J. Zhejiang Univ. Sci.**, **6A(4)**, 296 - 304.
- [15] Roopesh Tehri and **L. M. Saha** (2006): Controlling chaotic oscillations in a buckled elastic beam by periodic parametric perturbation, Vol. **XL**, **No. 2**, 81 – 87.
- [16]. **L. M. Saha** (2006): Realization of chaos and fractals using Mathematica. Presented and Printed in the Proceedings of 2nd National Workshop on “Techniques in Applied Mathematics”, June 20 – 28, 2006, University of Calcutta, p 198 – 208.
- [17]. **L. M. Saha**, M. K. Das and Mridula Budhraj (2007): Characterization of attractors in Gumowski – Mira map using fast Lyapunov indicators. Accepted for publication in **FORMA**, **21**, 151 – 158.
- [18]. G. Litak, M. Borowiec, M. Ali, **L. M. Saha** and M. I. Friswell (2007): Pulsive feedback control of a quarter car forced by a road profile. **Chaos Soliton and Fractals**, **33**, 1672-1676.
- [19]. **L. M. Saha** and Mridula Budhraj (2007): Complete synchronization of chaotic systems. **Proc. Nat. Acad. Sci. INDIA**, **77(A)**, **11**. 161 – 168.
- [20]. G. Litak, M. Ali, **L. M. Saha** (2007): Pulsating feedback control for stabilizing unstable periodic orbits in a nonlinear oscillator with a nonsymmetric potential. **Int. J. Bifur. Chaos**, **17**, 2797 – 2803.
- [21]. **L. M. Saha** and Mridula Budhraj (2007): The largest eigenvalue: An indicator of chaos? **Int. J. of Appl. Math. And Mech.**, **3(1)**, 61 - 71.
- [22]. G. Litak, M. Ali, **L. M. Saha** and A Syta (2007): Pulsive feedback control for stabilizing unstable periodic orbits in a nonlinear oscillators. Materialy **konferencyjne PHYSCON2007**, The 3rd International IEEE Scientific Conference on Physics and Control, Postdam, Niemcy, Germany, p. 590 – 602.
- [23]. Manabu Yuasa and **L. M. Saha** (2008): Indicators of chaos. **Science and Technology**, Kinki University, **Japan**. **No. 20, 2008**, February, 1 – 12
- [24]. Monika Saxena and **L. M. Saha** (2008): Controlling chaotic oscillation in a biological model by FLI, SALI and DLI. Presented in Thirteenth Conference and First International Conference of Gwalior Academy of Mathematical Sciences (GAMS) with Symposium on Mathematical Modelling in Engineering and Biosciences (13+ 1 GAMS and SMMEB 2008), 10-13 January, 2008, Anand Engineering College, Agra. To appear in its Proceedings.

- [25]. A. Syta, G. Litak, Mridula Budhraj and **L. M. Saha** (2008): Detection of the chaotic behaviour of a bouncing ball by 0 – 1 test. Accepted for publication in **Int. J. Chaos and Bifur.**
- [26]. A. Syta, G. Litak, Mridula Budhraj and L. M. Saha (2008): Dynamics of bouncing ball and use of various indicators. Accepted for publication in **Zeitschrift fur Naturforschung A.**
- [27]. Mridula Budhraj, A. Arkadiusz, L. M. Saha and Grzegorz Litak (2008): Bouncing ball dynamics by novel chaos indicators. Accepted for publication in **Chaos, Solitons & Fractals.**
- [28]. Mridula Budhraj and **L. M. Saha** (2008): Synchronization and anti-Synchronization in chaotic systems. **Proc. Nat. Acad. Sci. India.**
- [29]. Mridula Budhraj and **L. M. Saha** (2008): Analysis of the dynamics of the uncontrolled and controlled Henon map. In Press, **News Bull. Cal. Math. Soc.**
- [30]. M. Ali and **L. M. Saha** (2007): Proxy map technique (PMT) for stabilizing non parametric periodic orbit, in **Press, Ind. J. Pure & Appl. Math.**
- [31]. **L. M. Saha** and Ila Sahay (2007): Filtering data and effect of noise on evolution in dynamical systems. (**Comm. To The Journal of Math. Sci.**).
- [32]. L. M. Saha, M. K. Das and Manabu Yuasa (2008): Pulsive feedback technique applied to discrete systems. To be communicated.
- [33]. **L. M. Saha** and Monika Saxena (2008): Indicators of chaos and regularity. (In Press)
- [34]. L. M. Saha, R. K. Mohanty and Bharti. (2008): Hyperbolicity and chaos in discrete systems. (Accepted for Publication) **Int. J. of Appl. Math and Mech.**
- [35]. G. Litak, L. M. Saha and M. Ali (2008): Feedback Control of Chaos, Chapter 1, Book, **Chaos Control**, Edited by Prof. Miguel A. F. Sanjuan, Madrid University, P. 1 – 34.
- [36]. **L. M. Saha** and Bharti (2008): On hyperbolicity and chaos in discrete systems. To appear in the Proceedings of the Workshop on Operator Theory and Applications, University of Delhi, January 9 – 12, 2008. It will appear in its proceedings.
- [37]. M. Ali, **L. M. Saha** and G. H. Erjaee (2008): Periodic breaking of a chaotic attractor in Gumowski – Mira map. (**communicated**).
- [38]. **L. M. Saha**, R. K. Mohanty and Bharti (2008): On hyperbolicity in discrete systems. Communicated.

- [39]. Z. A Taqvi, Khursheed Alam and **L. M. Saha** (2007): Stabilizing chaotic motion in Duffing oscillator. Communicated, **Proc. Nat. Acad. Sci. Ind.**

Celestial Mechanics & Astronomy:

- [40]. K. B. Bhatnagar and **L. M. Saha**, (1993) : N-body problem, **Bull. Astro. Soc. Ind.**, **21**, 1-15.
- [41]. K. B. Bhatnagar and **L. M. Saha**, (1994) : General motion of N-rigid bodies, **Bull. Astro. Soc. Ind.** **22**, 1-19.
- [42]. K.B.Bhatnagar, Ayub Khan and **L. M. Saha** (1994): Non-linear planar oscillation of a satellite in elliptic orbit under the influence of solar radiation pressure (I), **Bull. Astro. Soc. Ind.**, **22**, 47-58.
- [43]. K.B.Bhatnagar, Ayub Khan and **L. M. Saha** (1994): Non-linear planar oscillation of a satellite in elliptic orbit under the influence of solar radiation pressure (II), **Bull. Astro. Soc. Ind.**, **22**, 275-290.
- [44]. Yasuo Tanaka, **L. M. Saha** and M. K. Das (1997): Spatiotemporal analysis of stellar pulsation and convection; **Pulsating Stars**, Proceedings of the Joint Discussion of the 23rd General Assembly of the **IAU, Kyoto, Japan**, Ed. M. Takeuti & D. D. Sasselov, Universal Academy Press, Tokyo, Japan, p. 241 – 244.
- [45]. **L. M. Saha**, (1997): Chaos, chaos in solar system and chaos in stellar pulsation : **Presented** in a Special Lecture, on 6th June, (1997), at **National Astronomical Observatory (NAO), Tokyo, Japan**.
- [46]. Ayub Khan, Renu Sharma & **L. M. Saha**, (1998) : Chaotic motion of an ellipsoidal satellite I, **The Astronomical Journal** , **116**, 2058-2066.
- [47]. Ayub Khan, **L. M. Saha** and Til Prasad Sarma (1999): Hori's method to non-linear coupled oscillators and applications to restricted problem; **Bull. Astron. Soc. India**, **27**, 81 –84.
- [48]. **L. M. Saha**, Ayub Khan & Til Prasad Sarma, (2000): Effects of solar radiation pressure and tidal forces on the rotational motion of a satellite, **Bull. Astron. Soc. India**, **28**, 147-152.
- [49]. **L. M. Saha**, M. K. Das and Yasuo Tanaka (2003): Effect of radiation from primaries on nonlinear stability of motion around L₄, **Bull. Fac. Edu., Ibaraki Univ. (Nat. Sci.)**, **52**, 21 – 25.
- [50]. M. K. Das, P. Narang, Manabu Yuasa, **L. M. Saha**, Reza Tavakol and Yasuo Tanaka (2003): On the motion of a mass element moving in the gravitational field of a radiating binary system, **Bull. Fac. Edu., Ibaraki Univ. (Nat. Sci.)**, **52**, 27–30.

- [51]. **L. M. Saha**, M. K. Das and Yasuo Tanaka (2003): On the motion of an infinitesimal mass in the gravitational potential of a binary star system, **Mass-Losing Pulsating Stars and their Circumstellar Matter**, (eds.) N. Nakada et al., **Kluwer Academic Publishers, Netherlands**, 121-122.
- [52]. M. K. Das, Manabu Yuasa, **L. M. Saha** and Reza K. Tavakol (2003): Numerical investigation of the stability of motion of a mass element ejected from a component of a binary star system, **Mass-Losing Pulsating Stars and their Circumstellar Matter**, (eds.) N. Nakada et al., **Kluwer Academic Publishers, Netherlands**, 123-124.
- [53]. **L. M. Saha** and Til Prasad Sarma (2003): Motion of an artificial satellite moving around the oblate earth under the influence of atmospheric drag, **Mathematical Analysis and Applications**, ed. R. C. Sharma, Allied Publishers Pvt. Limited, New Delhi, pp. 241 – 246.
- [54]. **L. M. Saha**, Til Prasad Sarma, G. H. Erjaee and Purnima Dixit (2005): Hill's stability criteria in the oblate restricted three-body problem, **Proc. Nat. Acad. Sci., Sec. A, 75A**, No. 1, 51 – 55.
- [55]. Neenu Gupta and **L. M. Saha** (2005): Regularity and chaos in stellar variability. **Nat. Acad. Science Lett.**, **28**, No. 3 & 4, 109 – 115.
- [56]. Neenu Gupta and **L. M. Saha** (2005): Application of dynamical system to study stellar pulsations. Proceedings of the National Conference on **Frontiers in Applied and Computational Mathematics, (FACM – 2005)**, March 04 – 05, 2005. Eds. H. S. Kasana, M. K. Sharma, R. Kumar and K. Verma, Allied Publishers Pvt. Ltd., New Delhi, P. 350 – 355.
- [57]. Ayub Khan, **L. M. Saha** and Til Prasad Sarma (2005): Lie technique in restricted three body problem, **Ganita Sandesh**, **19**, 63 – 78.
- [58]. **L. M. Saha**, M. K. Das, Pankaj Narang and M. Yuasa (2005): On the effect of Poynting-Robertson drag on nonlinear stability of motion in a binary system. Presented at **CELMEC IV**, San Martino al Cimino, Viterbo, Italy, Sept. 11-16, (2005).
- [59]. **L. M. Saha**, Z. A. Taqvi and Monika Saxena (2006): Stability of motion of an artificial earth, **News Bull. Cal. Math. Soc.**, **29**, 13 – 18.
- [60]. M. K. Das, **L. M. Saha** and Yasuo Tanaka (2006): Radiation effect on the stability of a small mass moving in the potential field of binary stars. **To appear in IUCAA Proceedings**.
- [61]. **L. M. Saha**, Ayub Khan & Renu Sharma, (2006): Chaotic motion of an ellipsoidal satellite II, Communicated to **Bull. Astro. Soc. Ind.**
- [62]. **L. M. Saha** and Neenu Gupta (2007): Lyapunov exponent in stellar oscillations for regular and chaotic evolutions. **In Press, Int. J. Appl. Math. Mech.**

- [63]. Neenu Gupta **and L. M. Saha** (2007): On regular and chaotic evolution in stellar system. **Nat. Acad. Sci. Lett.**, **30**, 303 – 308.
- [64]. Neenu Gupta **and L. M. Saha** (2007): Lyapunov exponents in stellar variability and chaos. Communicated to **Cal. Math. Soc.**
- [65]. M. K. Das, **L. M. Saha** and Pankaj Narang (2007): Simulation and characterization of trajectories in Sun-Jupiter-Comet system. Presented at IHY-CAWSES India Workshop on Super active Regions of Solar Cycle 23 and their Geo-Space Impact, AIRES, Nainital, May 7 10, 2007.
- [66]. **L. M. Saha**, Pankaj Narang, M. K. Das and M Yuasa (2007): Stability of motion of a Comet in Sun-Jupiter system. Presented at IHY-CAWSES India Workshop on Super active Regions of Solar Cycle 23 and their Geo-Space Impact, AIRES, Nainital, May 7 10, 2007.
- [67]. M. K. Das, Pankaj Narang, M. Yuasa **and L. M. Saha** (2008): On particle trajectories in restricted 3-body problem including the effect of radiation: Sun-Jupiter system. **Astrophys. Space Sc.** **314**, 59 – 71.
- [68]. Z. A. Taqvi, Gobind Jha **and L. M. Saha** (2007): Averaged Hamiltonian of third order resonances in the Jacobian coordinates of the three-body problem of Saturn, Mimas and Tethys system. To appear in GPM Journal of Technology & Management.
- [69] Z. A. Taqvi, Gobind Jha **and L. M. Saha** (2007): Role of primary third order resonances on Mimas-Tethys system. Communicated.
- [70]. Z. A. Taqvi, Gobind Jha **and L. M. Saha** (2007): Averaged Hamiltonian of Thir order resonances in the Jacobian coordinates of three body problem of Saturn, Mimas and Tethys system. Communicated to **Planetary and Space Science.**
- [71]. **L. M. Saha**, Z. A. Taqvi and Monika Saxena (2009): Regular and irregular motion of a satellite, Proc. Nat. Acad. Sci. India, **79**,

Continuum Mechanics:

- [72]. **L. M. Saha**, (1972): Some observations on stress-strain relations , **Ind. J. Phys.****45**,193-199.
- [73]. M. Dutta **and L. M. Saha**, (1972):On the number of elastic coefficients of general aeolotropic bodies, **Ind. J. Phys.** **45**, 140-142.
- [74]. **L. M. Saha**, (1972): On some important relations between elastic coefficients, **Anal. Bucu. Ser. Mat. Meca.**, **21**, 81-83.
- [75]. **L. M. Saha** and L. Debnath, (1973):Unsteady boundary layer flows induced by a wavy plate, **Pure and Applied Geophys.**, **105**, 801-809.
- [76]. G. Capriz **and L. M. Saha**, (1974) :Anelastic deformation as an internal

- parameter, (with G. Capriz), (1974) : Topics in Contemporary Mechanics, **CISM 210**, Springer, Wien, P.53-57.
- [77]. G. Capriz and **L. M. Saha**, (1974) :Deformazioni di continui con dislocazioni, Proceedings of 2nd Congresso Nazionale del' Associazione Italiana di Meccanica Teorica ed Applicata, **AIMETA**, Napoli, P. 37-45.
- [78]. G. Capriz and **L. M. Saha**, (1976) :Anelastic deformation as an internal parameter, **Meccanica**, **11**, 36-41.
- [79]. **L. M. Saha** and L. Debnath, (1975) :Unsteady boundary layer flows between two wavy plates, Published in **J. Fluid Mech.**
- [80]. **L. M. Saha** and Y. K. Mehta, (1981) : On finite strain theory for elastic-inelastic bodies, **Ind. J. Pure and Appl. Math.**, **12**, 758-763.
- [81]. **L. M. Saha**, (1986) : On a mathematical theory of deformation for bodies with microstructure, **Libyan J. Sci.**, **12**, 67-74.