

Details of Research Work

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List of Publications

1. **A Note on the Spectrum of Turbulence in the Gas-Solid flow**
(with H.P. Mazumdar)
Indian Journal of Technology, vol 31, P-669, 1993
2. **On some characteristics of a two-phase turbulent plume**
(with H.P. Mazumdar & A. Chanda)
Indian Journal of Theoretical Physics, Vol. 43, No.3, 1995
3. **Limiting behavior of probability distribution of a reactive chemical on homogeneous Turbulent flow**
(with H.P.Mazumder & A. Chanda)
Proc. Seminar on Fluid Mechanics Research, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, 1995
4. **Mapping closure scheme for some odd-order reactions and their solutions by δ Expansion method**
(With A. Chanda)
Proc.Seminar on Fluid Mechanics Research, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh, 1995
5. **A Mathematical model for Turbulent Bubble Plume**
(With H.P. Mazumdar & A. Chanda)
Physica Scripta, The Royal Swedish Academy of Science, Vol. 53, P: 575-581, 1996
6. **On the Turbulence modification in a particle fluid simple Shear flow**
(with H.P. Mazumdar)
Presented in the 12th International Congress of Chemical and Process Engineering (CHISA), 1996, Praha, Czech Republic, 25-30 August, 1996

7. **On the characteristics of self preserving turbulence energy spectrum in a gas-solid flow**
(With H.P. Mazumdar)
Indian Journal of Theoretical Physics, vol.44, no.1, 1996
8. **On the Integrals of motions for Schimizu-Morioka Dynamical System**
(with H.P. Mazumdar et.al.)
Rev. Bull, Cal.Math.Soc, Vol-14,No-2,P:147-152,2006
9. **Some effects of feedback control on the Rossler Dynamical System**
(with H.P. Mazumdar)
Presented in the International Congress Non-Linear Dynamical Analysis-2007(NDA-2007) held during 4-8 June, 2007 at the St. Petersburg University, Russia
10. **On the stability and control of Goodwin-Griffith system of Dynamical Equations Governing Tryptophan Operon**
(with B.Pai and H.P. Mazumdar)
Proc Indian National Science Academy, No.4, p- 221-225, 2007
11. **Power Efficient integer multiplications overflow detection circuit using single Electron device based threshold logic gates**
(With Anup Kr. Biswas, Souvik Sarkar, Sandip Gharami, Samir Kr. Sarkar)
2nd National Conference on Recent Trends in Information Systems (ReTIS-08),7-9 February, 2008
Organised by CMATER, SRUVM project, CSE Department, (TEQUIP), Jadavpur University, IEEE GOLD Affinity Group, IEEE Calcutta Selection Computer Jagat.
12. **Effects of Well Width & 2D Carrier Concentration on carrier transport in wave Function Modulated GaAs/AlAs Multiple Quantum Well**
(With Sanjoy Deb, A.N. Mishra, B.Singh, Giriprakash H.D., Subir Kr. Sarkar)
National Conference on Device, Intelligent Systems & communication & Networking (AEC-DISC 2008) at Asansol Engineering College, West Bengal, 1-2 August, 2008
13. **On the dynamics of a bio-regulatory system of equations**
(with B. Islam, H.P. Mazumdar and P.Karmakar)
Rev.Bull of the Cal. Math. Soc. , Vol 17, 1 &2, June & December 2009,p- 29-40
14. **Real time watermarking in spatial domain using TMS320CDSK6713**
(With Tirtha S. Das, Abhik Roy, Somnath Maiti and Subir K.Sarkar)
Proceedings of 4th International Conference on Computers & Devices for Communication, 2009
15. **An approximate solution of MHD flow of a Visco-elastic second grade fluid**
(with B. Islam, H.P. Mazumdar and J. Lahiri)
Presented in the International Conference of Differential Geometry and Dynamical systems (DGDS 2010), 25-28 Aug, 2010, University Politehnica of Bucharest, Romania
16. **On the stability and control of the Schimizu-Morioka system of differential equations**

(with H.P. Mazumdar and A. Das)
Diff.Geom. Dynamical Systems, Vol. 11, 2009, p- 135-143

17. **FPGA based Design of Robust Spatial Domain Image Watermarking Algorithm**
(with Abhishek Basu, Tirtha Sankar Das and Subir kr. Sarkar)
Proceedings of PEIE 2010, CSIS 102, p- 91-95, 2010, ©Springer-Verlag Berlin Heidelberg 2010
(International Conference, Power Electronics and Instrumentation Engineering 2010, Kochi, Kerala, India, September 7-9,2010)
18. **FPGA Prototype of Visual Information Hiding**
(with Abhishek Basu, Tirtha Sankar Das, Subir Kumar Sarkar and Abhik Roy)
Green Energy, Computing and Communication, INDICON 2011, IEEE Calcutta Section, India, December 17-19, 2010
19. **Generalised Chaos synchronization of uni-directionally coupled Shimizu- Morioka Dynamical Systems**
(with B. Islam and H.P.Mazumdar)
Diff. Geo. Dyn. Sys., vol 13(2011), p 114-119
20. **Application of Lie Group of Transformations for an approximate solution of MHD flows of visco-elastic second grade fluid**
(with B. Islam, H.P. Mazumdar and Jhuma Lahiri)
Applied Sciences(APPS) vol.13(2011), p- 65-73
21. **Mathematical Analysis of 1-D Poisson's Equation in the Long Channel SOI MOS-FET**
(with S.Basu, T.Dey Malakar(Sarkar), Samir Kumar Sarkar and Subir Kumar Sarkar)
Proceedings of the "International Conference on Nanoscience Engineering and Technology(ICONSET 2011)
Organised by Satyabhama University in association with Indira Gandhi centre for Atomic Research(IGCAR),Kalpakkm,India,28-30 November,2011
22. **On the integrals of motion of modified Goodwin-Griffith system of dynamical equations related to Tryptophan operon**
(with P.Karmokar, M.Islam, B.Islam and H.P. Mazumdar)
Journal of the Calcutta Mathematical Society, Vol. 7, No. 2 (2011)
23. **Work function engineering with linearly graded binary Metal Alloy Gate Electrode for Short-Channel SOI MOSFET**
(with Sanjoy Deb, N.Basanta Singh and Subir Kumar Sarkar)
IEEE Transactions on Nanotechnology, Vol. 11, No. 03, 2012, p 472-478
24. **A note on the integrals of motion for the Lanford dynamical system**
(With Amit Mondal, Mitul Islam and Bipul Islam)
Differential Geometry - Dynamical Systems (DGDS), Vol. No. 14(2012)
25. **Dynamics of linear bidirectional synchronization of Shimizu-Morioka chaotic system**

(With Mitul Islam and Bipul Islam)

Global Journal of Mathematical Science:Theory and Practical, Vol.4, No.3 (2012), pp. 279-290

26. **Spatial Composition Grading of Binary Metal Alloy Gate Electrode for Short-Channel SOI/SON MOSFET Application**
(with Bibhas Manna, Sohini Sarkhel, Subir Kumar Sarkar et al.
IEEE Transactions on Electron Devices ,Vol 59 ,No.12, 2012, pp 3280-3287
27. **A short note on integrals of motion for Sprott's model L**
with Amit Mondal
Global Journal of Mathematics and Mathematical Sciences, Vol 02, No 1, 2012, p 57-60
28. **On the integrals of motion for Sprott's model B**
with Amit Mondal
Indian Journal of Theoretical Physics, Vol. 60, No. 4, 2012, p257-260.
29. **Generalized Synchronization of Finance Chaotic System via Linear Transformation**
with P. Karmokar
Global Journal Of Dynamical System And Applications, Vol. 2, No. 1(2012) ,
30. **Exact Solution of the Prey- Predator model with diffusion using an Expansion method**
With Mitul Islam and Bipul Islam
Applied Sciences (APPS), Vol. 15 (2013), pp. 85-93.
31. **Rate estimation of identical synchronization by designing controllers**
with Mitul Islam and Bipul Islam
Journal of Mathematics, Hindawi Publishing Corp. Vol.,2013, Article ID 590462,
<http://dx.doi.org/10.1155/2013/590462>
32. **Controlling and stabilizing the dynamical system of Sprott's model B**
Amit Mondal, Nurul Islam and Sanjay Sen
Indian Journal of Theoretical Physics, Vol. 61, No. 2, 2013, pp.95-100.
33. **An Improved Method of Pre-Filter Based Image Watermarking in DWT Domain**
With Somnath Maity, Arindom Bose, Chirag Agarwal, Subir Sarkar
International journal of computer Science and Technology(IJCST), vol. 4, No. 1,2013, pp 133-140
34. **Identical Synchronization of Coupled New Lorenz-Like Chaotic System**
with Pintu Karmokar and Swarup Poria
Int. J. Pure Appl. Sci. Technol., 16(1) (2013), pp1-6.
35. **Construction of bidirectionally coupled systems using generalized synchronization method**
with Mitul Islam , Bipul Islam and H.P.Mazumder
Differential Geometry-Dynamical System (DGDS), Vol. 15 (2013), pp. 54-61

36. **Unidirectional Synchronization of chaotic Sprott Model L**
with Amit Mondal
Bulletin of Calcutta Mathematical Society ,Vol.105 ,No. 2 (2013)
37. **On the Integrals of Motion for Unified Chaotic System**
with Jhinjhit Poddar
Mathematica Aeterna (Bulgaria). Vol.3, 2013, No.5, 397-402
38. **Stability and Control Analysis of the Sprott's Model L**
with Amit Mondal
International Journal of Applied Mathematical Sciences(IJAMS), Vol.6, No.1(2013), pp 63-68
39. **Chaos Synchronization of Coupled Sprott Model L**
with Amit Mondal
Int. J. Pure Appl. Sci. Technol., Vol. 16, No.2, (2013), pp. 32-38
40. **Enhanced Data Hiding Method Using DWT Based on Saliency Model**
Chirag Agarwal, Arindam Bose, Somnath Maity, Nurul Islam and Subir Kumar Sarkar
The Proceedings of 2013 IEEE ISPPCC, 978-1-4673-6190-3/13/31.00, 2013 IEEE
41. **Control of Lu Chaos by Exact Linearization Method**
Pintu Karmokar and Nurul Islam
Indian Journal of Theoretical Physics.,Vol.61. No,3. 2013
42. **Analytical study of effects of chemical agents in agricultural systems**
(With Mitul Islam, M.S. Uddin, Bipul Islam and H.P. Mazumdar)
Accepted for publication, GANIT, Journal of Bangladesh Mathematical Society

Papers Communicated

43. **Study on adaptive control and synchronization of Sprott R**
with Pintu Mondal and Mitul Islam
(Communicated)
44. **Study on adaptive control and synchronization of Sprott C**
with Jhinjhit Podder and Mitul Islam
(Communicated)
45. **Chaos Control in Shimizu-Morioka System by Lie Algebraic Exact Linearization**
Mitul Islam, Bipul Islam and Nurul Islam
(Communicated)
46. **Anti-Synchronization of Sprott System L by Sliding Mode Control Method**
Amit Mondal and Nurul Islam
(Communicated)

47. **Control of Chaos in Sprott system B by State Space Exact Linearization Method**
Amit Mondal and Nurul Islam
(Communicated)
48. **Anti-synchronization between two identical and different chaotic systems**
with Bipul Islam and Mitul Islam
(Communicated)
49. **Study on adaptive control and synchronization of fully uncertain Sprott J system with parameter identification**
with Pintu Mondal and Mitul Islam
(Communicated)

Research Scholars

1. Somnath Maiti
Asst. Professor, Future Institute of Engineering and Management, Kolkata-700105, West Bengal
Working on : Image Watermarking
2. Amit Mondal
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Working on : Control and synchronization of chaotic dynamical systems
3. Pintu Karmokar
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4. Jhinjhit Podder
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6. Sovan Sahoo
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Working on: Dynamical System
7. Pintu Mondal
UGC NET qualified for Lecturership
Working on: Non-linear dynamics

Books Authored

1. **Numerical Analysis and Statistics**
with Jibon Banerjee
(for Undergraduate students)
Academic Publishers, Kolkata, 2002

2. **Numerical Analysis**
(for Undergraduate students)
Academic Publishers, Kolkata, 2003

3. **Madhyamik Sampurna Ganit (IX)**
(With Debashis Dutta, Swarnakamal Mishra)
ABS Publishing House, April 2008

4. **Madhyamik Sampurna Ganit (X)**
(With Debashis Dutta, Swarnakamal Mishra)
ABS Publishing House, May 2008