

# Details of Research Work

Last Updated : May 20, 2017

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## List of Publications

1. **A Note on the Spectrum of Turbulence in the Gas-Solid flow**  
N.Islam and H.P. Mazumdar  
Indian Journal of Technology, vol 31, P-669, 1993
2. **On some characteristics of a two-phase turbulent plume**  
Nurul Islam, A.Chanda and H.P. Mazumdar  
Indian Journal of Theoretical Physics, Vol. 43, No.3, 1995
3. **Limiting behavior of probability distribution of a reactive chemical on homogeneous Turbulent flow**  
Nurul Islam H.P.Mazumder and 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  $\delta$  Expansion method**  
Nurul Islam and 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**  
H.P. Mazumdar, N.Islam and 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**  
N.Islam and 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**  
N.Islam and H.P. Mazumdar  
Indian Journal of Theoretical Physics, vol.44, no.1, 1996
8. **On the Integrals of motions for Schimizu-Morioka Dynamical System**  
S.Ganguly, N.Islam, H.P. Mazumdar and A.Konar.  
Rev. Bull, Cal.Math.Soc, Vol-14, No-2, P:147-152, 2006
9. **Some effects of feedback control on the Rossler Dynamical System**  
H.P. Mazumdar and N.Islam  
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**  
B.Pai, N.Islam and H.P. Mazumdar  
Proc Indian National Science Academy, 73, No.4, p- 221-225, 2007
11. **Power Efficient integer multiplications overflow detection circuit using single Electron device based threshold logic gates**  
Anup Kr. Biswas, Souvik Sarkar, Sandip Gharami, Samir Kr. Sarkar and Nurul Islam  
2<sup>nd</sup> 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**  
Sanjoy Deb, A.N. Mishra, B.Singh, Giriprakash H.D., Nurul Islam and 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**  
Nurul Islam, 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**  
Tirtha S. Das, Abhik Roy, Somnath Maiti, Nurul Islam and Subir K.Sarkar  
Proceedings of 4th International Conference on Computers & Devices for Communication, 2009
15. **Influence of High K Insulating Layer on the Response characteristics of Submicron Double Gate MOSFET**  
S.Basu, G.P.S.Mishra, S.K.Sarkar, Nurul Islam and M.A.Gautam  
Proceedings of Silver Jubilee Conference on Communication Technologies & VLSI Design (CommV'09), VIT University, Vellore, India. Oct. 8-10, 2009, pp.145-148
16. **An approximate solution of MHD flow of a Visco-elastic second grade fluid**  
N. Islam, 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

17. **On the stability and control of the Shimizu-Morioka system of differential equations**  
N.Islam, H.P. Mazumdar and A. Das  
Diff.Geom. Dynamical Systems, Vol. 11, 2009, p- 135-143
18. **FPGA based Design of Robust Spatial Domain Image Watermarking Algorithm**  
Abhishek Basu, Tirtha Sankar Das, Nurul Islam 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)
19. **FPGA Prototype of Visual Information Hiding**  
Abhishek Basu, Tirtha Sankar Das, Subir Kumar Sarkar and Abhik Roy and Nurul Islam  
Green Energy, Computing and Communication, INDICON 2011, IEEE Calcutta Section, India, December 17-19, 2010
20. **Generalised Chaos synchronization of uni-directionally coupled Shimizu- Morioka Dynamical Systems**  
N.Islam, B. Islam and H.P.Mazumdar  
Diff. Geo. Dyn. Sys., vol 13(2011), p 101-106
21. **Application of Lie Group of Transformations for an approximate solution of MHD flows of visco-elastic second grade fluid**  
N.Islam, B. Islam, H.P. Mazumdar and Jhuma Lahiri  
Applied Sciences(APPS) vol.13(2011), p- 65-73
22. **Mathematical Analysis of 1-D Poisson's Equation in the Long Channel SOI MOSFET**  
S.Basu, T.Dey Malakar(Sarkar), Samir Kumar Sarkar and Subir Kumar Sarkar and Nurul Islam  
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
23. **On the integrals of motion of modified Goodwin-Griffith system of dynamical equations related to Tryptophan operon**  
N.Islam, P.Karmokar, M.Islam, B.Islam and H.P. Mazumdar  
Journal of the Calcutta Mathematical Society, Vol. 7, No. 2 (2011)
24. **Work function engineering with linearly graded binary Metal Alloy Gate Electrode for Short-Channel SOI MOSFET**  
Sanjoy Deb, N.Basanta Singh Nurul Islam and Subir Kumar Sarkar  
IEEE Transactions on Nanotechnology, Vol. 11, No. 03, 2012, p 472-478

25. **A note on the integrals of motion for the Lanford dynamical system**  
N.Islam, Amit Mondal, Mitul Islam and Bipul Islam  
Differential Geometry - Dynamical Systems (DGDS), Vol.14(2012), pp 90-93
  
26. **Dynamics of linear bidirectional synchronization of Shimizu-Morioka chaotic system**  
Nurul Islam, Mitul Islam and Bipul Islam  
Global Journal of Mathematical Science:Theory and Practical, Vol.4, No.3 (2012), pp. 279-290
  
27. **Spatial Composition Grading of Binary Metal Alloy Gate Electrode for Short-Channel SOI/SON MOSFET Application**  
Bibhas Manna, Sohini Sarkhel, Nurul Islam, S.Sarkar and Subir Kumar Sarkar.  
IEEE Transactions on Electron Devices , Vol 59 , No.12, 2012, pp 3280-3287
  
28. **A short note on integrals of motion for Sprott's model L**  
Amit Mondal and Dr.Nurul Islam  
Global Journal of Mathematics and Mathematical Sciences, Vol 02, No 1, 2012, p 57-60
  
29. **On the integrals of motion for Sprott's model B**  
Amit Mondal and Nurul Islam  
Indian Journal of Theoretical Physics, Vol. 60, No. 4, 2012, p257-260.
  
30. **Generalized Synchronization of Finance Chaotic System via Linear Transformation**  
N.Islam and P. Karmokar  
Global Journal Of Dynamical System And Applications, Vol. 2, No. 1(2012), pp 1-7
  
31. **Exact Solution of the Prey- Predator model with diffusion using an Expansion method**  
Mitul Islam, Bipul Islam and Nurul Islam  
Applied Sciences (APPS), Vol. 15 (2013), pp. 85-93.
  
32. **Rate estimation of identical synchronization by designing controllers**  
Mitul Islam , Bipul Islam and Nurul Islam  
Journal of Mathematics, Hindawi Publishing Corp. Vol., 2013, Article ID 590462,  
<http://dx.doi.org/10.1155/2013/590462>
  
33. **The Integrals of Motion for Modified Chua's Circuit**  
Pintu Mondal and Nurul Islam  
Int.J.Pure Appl. Sc.Technol., Vol.16, No.1, 2013, pp
  
34. **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.
  
35. **An Improved Method of Pre-Filter Based Image Watermarking in DWT Domain**  
Somnath Maity, Arindom Bose, Chirag Agarwal, Subir Sarkar and Nurul Islam  
International journal of computer Science and Technology(IJCST), vol. 4, No. 1, 2013, pp 133-140

36. **Identical Synchronization of Coupled New Lorenz-Like Chaotic System**  
Pintu Karmokar, Nurul Islam and Swarup Poria  
Int. J. Pure Appl. Sci. Technol., 16(1) (2013), pp1-6.
37. **Construction of bidirectionally coupled systems using generalized synchronization method**  
Mitul Islam , Bipul Islam , Nurul Islam and H.P.Mazumder  
Differential Geometry-Dynamical System (DGDS), Vol. 15 (2013), pp. 54-61
38. **Unidirectional Synchronization of chaotic Sprott Model L**  
Amit Mondal Nurul Islam and Sanjoy Sen  
Bulletin of Calcutta Mathematical Society , Vol.105 , No. 2 (2013)
39. **On the Integrals of Motion for Unified Chaotic System**  
Jhinjhit Poddar and Nurul Islam  
Mathematica Aeterna (Bulgaria). Vol.3, 2013, No.5, 397-402
40. **Stability and Control Analysis of the Sprott's Model L**  
Amit Mondal and Nurul Islam  
International Journal of Applied Mathematical Sciences(IJAMS), Vol.6, No.1(2013), pp 63-68
41. **Chaos Synchronization of Coupled Sprott Model L**  
Amit Mondal and Nurul Islam  
Int. J. Pure Appl. Sci. Technol., Vol. 16, No.2, (2013), pp. 32-38
42. **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 ISPPC, 978-1-4673-6190-3/13/31.00, 2013 IEEE
43. **Control of Lu Chaos by Exact Linearization Method Via Lie Algebra**  
Pintu Karmokar and Nurul Islam  
Indian Journal of Theoretical Physics., Vol.61. No, 3. 2013, pp.169-178
44. **Analytical study of influence of chemical agents in agricultural systems**  
Mitul Islam, M.S. Uddin, Bipul Islam Nurul Islam and H.P. Mazumdar  
GANIT: Journal of Bangladesh Mathematical Society, Vol.33, 2013, pp.41-51.
45. **Chaos Control in Shimizu-Morioka System by Lie Algebraic Exact Linearization**  
Mitul Islam, Bipul Islam and Nurul Islam  
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46. **Generalized Synchronization of Bidirectional coupled Chaotic Systems**  
P.Karmokar and N.Islam  
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47. **Generalized Synchronization of Nonlinear Oscillators Via OPCL Coupling**  
Amit Mondal and Nurul Islam  
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48. **Adaptive Control and Synchronization of Sprott's System C with Uncertain Parameter**  
Jhinjhit Poddar, Mitul Islam and Nurul Islam  
International Journal of Pure and Applied Mathematical Sciences, Vol.7, No.2(2014), pp.233-243.
49. **The Generalized Synchronization of Bidirectionally Coupled Qi–Chen systems via Linear Transformation**  
Pintu Karmokar and Nurul Islam  
Proc. Natl. Acad. Sci., India, Sect. A Phys. Sci. (Springer),  
Volume 85, Issue 1, pp 137-141, 2015  
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50. **Dynamics of Anti-synchronization of two Chaotic Systems**  
Mitul Islam, Bipul Islam and Nurul Islam  
Int. J. of Appl. Math and Mech. 10(9); 1-13, 2014.
51. **Robust anti-synchronization of chaos using sliding mode control strategy**  
Amit mondal, Mitul Islam and Nurul Islam  
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Vol. 84 (1); 47-67, 2015.
52. **Dynamics of Generalized Bidirectional Synchronization**  
Manoranjan Jana, Mitul Islam and Nurul Islam  
International Journal of Dynamics and Control (Springer)  
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53. **Control of Chaos in Sprott system B by State Space Exact Linearization Method**  
Amit Mondal and Nurul Islam  
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54. **Differential Geometric Control of Chaos in Unified Chaotic System**  
Jhinjhit Poddar, Mitul Islam and Nurul Islam  
Bulletin of Calcutta Mathematical Society, Vol 107(2), 2015; pp 125-144
55. **Adaptive Control and Synchronization of Sprott J System With estimation of Fully Unknown Parameters**  
Mitul Islam, Nurul Islam and Svetoslav Nikolov  
Journal of Theoretical and Applied Mechanics (JTAM), Sofia, 2015, v01.45, No.2, pp 45-58  
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56. **Study on Dynamical System with Time-delay**  
Amit Mondal and Nurul Islam  
Journal of Applied Nonlinear Dynamics (L H Scientific Publishing)  
Vol.5 no.4, 2016, pp 443-458
57. **Control of Chaotic Dynamics by Exact Linearisation**  
M.Jana, M.Islam and N.Islam  
Mathematica Aeterna ;Vol.6 n0.6, 2016, pp815-829

58. **Linear feedback-based control of blood glucose in a modified model for glucose-insulin kinetics: A theoretical study**  
Amit Mondal , Mitul Islam and Nurul Islam  
International Journal of Biomathematics (World scientific publishing company)  
Vol.10, no.4, 2017, 1750052(20 pages)  
DOI: 10.1142/S1793524517500528.
59. **Dynamics of Fractional order Chaotic System**  
M.Jana, M.Islam, N.Islam and H.P.Mazumdar  
Mathematica Aeterna, Vol.7,no.1, 2017, pp.1-17