

Chittaranjan Hens

Personal Information

Sex Male
Date of Birth May 4, 1986
Nationality Indian
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Affiliation

Designation INSPIRE Faculty
Department / Unit / Institute Physics & Applied Mathematics Unit,
Indian Statistical Institute
203 BT Road, Kolkata-700108.

Academic Qualification

2015- 2018 (April) Post Doctoral Fellow (Indo-Israel Fellowship (PBC),
Mathematics Dept., Bar-Ilan University, Israel)
2015, January PhD in Physics, Jadavpur University (CSIR-Indian Institute of Chemical Biology)
2014 – 2015 Research Associate,
CSIR-Indian Institute of Chemical Biology, India
2008 – 2013 Project Fellow,
CSIR-Indian Institute of Chemical Biology, India
2006 – 2008 M.Sc. in Physics,
Jadavpur University, India
2003 – 2006 B.Sc. in Physics,
Jadavpur University, India

Research Interest

Area of Research Nonlinear Dynamics, Chaos theory, Network Science, Stability of dynamical Network.

Theses Title MULTIPLE ATTRACTOR DYNAMICS IN COUPLED OSCILLATORS

Supervisor Dr.Syamal Kumar Dana, Emeritus Scientist, Jadavpur University.

2015-Present: Post Doctoral Research, Bar-Ilan University, Israel

1. Application of network Dynamics: Predicting the spatio-temporal pattern of signals in Network dynamics such as the spreading process of disease (epidemics) through air traffic network.
2. Stability analysis of ecological network: How an optimal network and dynamical ecological model can enhance the stability of an ecological patch.

2008-2014: Doctoral Research, CSIR-IICB, Kolkata, India

1. Designed a novel approach to identify the multistability in coupled chaotic oscillators.
2. Addressing the Turing type bifurcation in coupled oscillators.

Publication/Works

Total Number of Published papers: **19** (Total impact factor: \sim **36**)
Total Number of Citations (According to Google Scholar) : \sim **300**

Computer Proficiency

MATLAB, FORTRAN

Papers (Published in peer review journals)

1. *Perfect synchronization in networks of phase-frustrated oscillators*,
Authors: Prosenjit Kundu, [Chittaranjan Hens](#), Baruch Barzel, Pinaki Pal.
Journal Ref.: [Europhysics Letters](#), 120, 4 (2018).
2. *Transition to synchrony in degree-frequency correlated Sakaguchi-Kuramoto model*,
Authors: Prosenjit Kundu, Pitambar Khanra, [Chittaranjan Hens](#), Pinaki Pal.
Journal Ref.: [Phys. Rev. E](#) 96, 052216 (2017).
3. *Basin stability measure of different steady states in coupled oscillators*,
Authors: Sarbendu Rakshit, Bidesh K Bera, Soumen Majhi, [Chittaranjan Hens](#), Dibakar Ghosh.
Journal Ref.: [Scientific Reports](#) 7, 45909 (2017).
4. *Coherent libration to coherent rotational dynamics via chimeralike states and clustering in a Josephson junction array*,
Authors: Arindam Mishra, Suman Saha, [Chittaranjan Hens](#), Prodyot K Roy, Mridul Bose, Patrick Louodop, Hilda A Cerdeira, Syamal K Dana.
Journal Ref.: [Phys. Rev. E](#) 95, 010201 (2017).
5. *Emergence of amplitude death scenario in a network of oscillators under repulsive delay interaction*,
Authors: Bidesh K. Bera, [Chittaranjan Hens](#), Dibakar Ghosh.
Journal Ref.: [Phs. Lett. A](#) 380, 2366-2373 (2016).
6. *Transition from homogeneous to inhomogeneous steady states in oscillators under cyclic coupling*,
Authors: Bidesh K. Bera, [Chittaranjan Hens](#), Sourav K. Bhowmick, Pinaki Pal, Dibakar Ghosh.
Journal Ref.: [Phs. Lett. A](#) 380, 130-134 (2016).
7. *Chimeralike states in a network of oscillators under attractive and repulsive global coupling*,
Authors: Arindam Mishra, [Chittaranjan Hens](#), Mridul Bose, Prodyot K. Roy, and Syamal K. Dana.
Journal Ref.: [Phys. Rev. E](#) 92, 062920(R) (2015)
8. *Extreme multistability : Attractor Manipulation and Robustness*,
Authors: [Chittaranjan Hens](#), Syamal K. Dana, Ulrike Feudel.
Journal Ref.: [Chaos](#) 25, 053112 (2015).
9. *Bursting dynamics in population of oscillatory and excitable Josephson junctions*,
Authors: [Chittaranjan Hens](#), Pinaki Pal, Syamal. K. Dana.
Journal Ref.: [Phys. Rev. E](#) 92, 022915 (2015).
10. *Chimera states in a population of identical oscillators under planar cross-coupling*,
Authors: [C. R. Hens](#), A Mishra, P K Roy, A Sen, S K Dana.
Journal Ref.: [Pramana](#) 84, 2, 229-235 (2015).
11. *Transition from amplitude to oscillation death in a network of oscillators*,
Authors: Mauparna Nandan, [C. R. Hens](#), Pinaki Pal, Syamal K Dana.
Journal Ref.: [Chaos](#) 24, 043103 (2014).
12. *Reply to "Comment on How to obtain extreme multistability in coupled dynamical systems"*,
Authors: [C. R. Hens](#), R. Banerjee, U. Feudel, and S. K. Dana.
Journal Ref.: [Phys. Rev. E](#) 89, 066902 (2014).

13. *Diverse routes of transition from amplitude to oscillation death in coupled oscillators under additional repulsive links*,
 Authors: [C. R. Hens](#), Pinaki Pal, Sourav K. Bhowmick, Prodyot K. Roy, Abhijit Sen, and Syamal K. Dana.
 Journal Ref.: [Phys. Rev. E 89, 032901 \(2014\)](#).
14. *Experimental observation of extreme multistability in an electronic system of two coupled Rössler oscillator*,
 Authors: Mitesh S. Patel, Unnati Patel, Abhijit Sen, Gautam C. Sethia, Chittaranjan Hens, Syamal K. Dana, Ulrike Feudel, Kenneth Showalter, Calistus N. Ngonghala, Ravindra E. Amritkar.
 Journal Ref.: [Phys.Rev.E 89, 022918 \(2014\)](#).
15. *Oscillation death in diffusively coupled oscillators by local repulsive link*,
 Authors: [C. R. Hens](#), Olasunkanmi I.Olusola, Pinaki Pal, Syamal K. Dana.
 Journal Ref.: [Phys.Rev.E 88\(3\),034902 \(2013\)](#).
16. *How to obtain extreme multistability in coupled dynamical system*,
 Authors: [C. R. Hens](#), R. Banerjee, U. Feudel, S. K. Dana.
 Journal Ref.: [Phys. Rev. E 85, 035202\(R\) \(2012\)](#) .
17. *Mixed synchronization in chaotic oscillators using scalar coupling*,
 Authors: Sourav K. Bhowmick, Chittaranjan Hens, Dibakar Ghosh, Syamal K. Dana.
 Journal Ref.: [Phys. Lett. A 376, 2490-2495 \(2012\)](#).
18. *Engineering generalized synchronization in chaotic oscillators*,
 Authors: P. K. Roy, [C. Hens](#), I. Grosu, S. K. Dana.
 Journal Ref.: [Chaos 21, 013106 \(2011\)](#).
19. *Engineering synchronization of chaotic oscillators using controller based coupling design.*,
 Authors: E. Padmanaban, Chittaranjan. [Hens](#), Syamal K. Dana.
 Journal Ref.: [Chaos 21, 013110 \(2011\)](#).

Referee Work

Journals Refereed:

Scientific Reports – Nature Publishing Group.

Physical Review E – American Physical Society.

Chaos - American Institute of Physics.

Ecological Complexity - Elsevier.

Chaos, Solitons & Fractals - Elsevier.

Communications in Nonlinear Science and Numerical Simulations - Elsevier.

Pramana - Journal of Physics - Springer.

Conference, School and Workshop

Talk

1. *XXXVII Dynamics Days Europe International Conference*, Szeged, Hungary (2017).
2. *International Symposium Recent Advances in Nonlinear Dynamics and Complex Structures*, University of Oldenburg, Oldenburg, Germany (2017).
3. *International School and Conference on Network Science (NetSci-X)*, Hilton Tel Aviv (2017).
4. *International conference on Complex dynamical system and application (CDSA-IV)*, Department of Mathematics, National Institute of Technology, Durgapur, India (2016).
5. *International Seminar and Workshop on Multistability and Tipping: From Mathematics and Physics to Climate and Brain*, Max-Planck Institute for the Physics of Complex Systems, Dresden, Germany. (2016).

6. *7th International Scientific Conference on Physics and Control (Physcon 2015)*, Istanbul Technical University, Istanbul, Turkey (2015).
7. *International Conference on Nonlinear Dynamics and its Application in Physical and Biological Sciences (CNDAPBS-14)*, Darjeeling, India (2014).
8. Institute for Chemistry and Biology of the Marine Environment, of Oldenburg, Oldenburg, Germany (2014).
9. Universidad Rey Juan Carlos and Center for Biomedical Technology, Madrid, Spain (2014).
10. Potsdam Institute for Climate Impact Research (PIK), Potsdam, Germany (2014).
11. Institute for Chemistry and Biology of the Marine Environment, of Oldenburg, Germany (2013).
12. *National Conference of Nonlinear Systems and Dynamics (NCNSD)* IISER, Pune, India (2012).
13. *National Workshop on Nonlinear Dynamical Systems (NDS)*, Department of Mathematics, National Institute of Technology, Durgapur, India (2011).

Poster

14. *Causality, Information Transfer and Dynamical Networks*, Max-Planck Institute for the Physics of Complex Systems, Dresden, Germany (2014).
15. *Nonlinear Data Analysis and Modeling: Advances, Applications, Perspectives (Prof. Jürgen Kurths' 60th birthday)*, Potsdam Institute for Climate Impact Research, Potsdam, Germany (2013).
16. *4th Workshop on Complex Networks*, Berlin, Germany (2013).

School Workshop

17. *Hands-on-Research in complex system*, The Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy (2013).
18. *DST-SERC school on nonlinear dynamics*, Delhi University, Delhi, India, (2009).
19. *Complex Dynamics in Large-Scale Interacting Brain Systems: Towards Physical Models of Sleep and Consciousness*. Max-Planck Institute for the Physics of Complex Systems, Dresden, Germany. (2009).

Conference, Seminar Attended

20. *International Symposium Complex dynamical system and application (CDSA-III)*, Indian Statistical Institute, Kolkata, India, March (2014).
21. *International Symposium On Complex dynamical system and application (CDSA-II)*, Presidency University, Kolkata, India, (2012).
22. *International workshop on Nonlinear Dynamics of Electronic System (NDES)*, CSIR-Indian Institute of Chemical Biology and Saha Institute of Nuclear Physics, Kolkata, India. (2011).
23. *International Symposium On Complex dynamical system and application (CDSA)*, Digha Science Center, Digha, India (2009).
24. *Indo-Russian workshop*, CSIR-Indian Institute of Chemical Biology, Kolkata, India (2009).

Referee names

Dr. Syamal Kumar Dana

Designation: Emeritus Professor

Email: syamaldana@gmail.com

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Dr. Ulrike Feudel

Designation: Professor

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Address: Oldenburg University, Carl von Ossietzky Street, Oldenburg, Germany

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Dr. Baruch Barzel

Designation: Professor

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