BANKURA UNIVERSITY

FACULTY ACADEMIC PROFILE/ CURRICULUM VITAE

1. **Name:** **Dr. DEBABRATA BISWAS,**
2. **Designation:** **ASSISTANT PROFESSOR,**
3. **Date of Birth:** **06/10/1988,**
4. **Specialization:**
   a) **Master's Specialization: Radiophysics and Electronics,**
   b) **Research Specialization: Nonlinear Dynamics,**
5. **Contact Information:**
   a) Contact Address: Department of Physics, Bankura University, Puabagan Camapus, Bankura-722 146, West Bengal, India,
   b) Email: **debbisrs@gmail.com**
   c) Phone Number (Optional): **7679731041 / 9749799877**
   d) **For more details visit: https://sites.google.com/site/debabratabu/home**
6. **Academic Qualifications:**

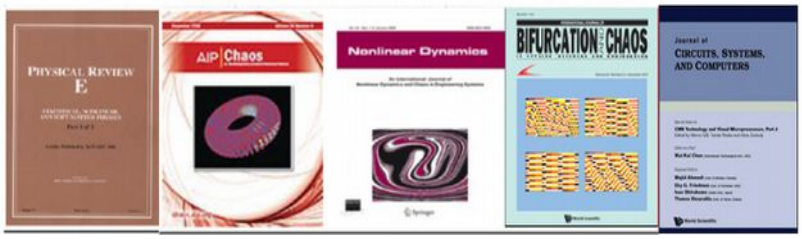
Please mention here the degrees (graduation onwards):

College/ University from which the degree was obtained	Abbreviation of the degree
The University of Burdwan	B. Sc. with Physics Hons
The University of Burdwan	M. Sc. in Physics
The University of Burdwan	Ph. D. in Physics
CSIR	CSIR-NET
WBCSC	WBSET
GATE	GATE 2010

7. **Past Employments/ Academic Experience:**

a) Assistant Professor of Physics in Rampurhat College (April, 2017 to July, 2019),

8. **Administrative Experience:**
   a) Convener of B.Sc. Physics Odd semester Examinations, BKU,
9. **Research Interests**:
   a) Nonlinear Dynamics,
   b) Chaotic Dynamical Systems,
   c) Time-Delayed Nonlinear Dynamical Systems,
   d) Synchronization of Chaos,
   e) Nonlinear Electronic Circuits and Systems,
   f) Oscillation suppression: Amplitude death,
   g) Mathematical Biology,
   h) Multistability (Birhythmicity),
   i) Coupled Network and Collective behavior: Chimera states.
10. **Research Guidance / Supervision:**
   a) Number of research awarded M. Phil/Ph.D. degrees: NA
   b) Number of research pursuing M. Phil/Ph.D.: NA
11. **Research Projects:**
   a) ***Completed Projects:*** NA
   b) ***Current Projects:*** NA
12. **Selected list of Publications:**
   a) ***Journals / Online Journal:***



POST PH.D.:

2020

- **16. Debabrata Biswas**, *"A new chaotic jerk system with double-hump nonlinearity"*, Accepted to be published in **Jouranl of Circuits, Systems and Computers (JCSC), (World Scientific), Vol 29 No. 14, November 2020 (In Press)**

2019

- **15.** Krishnakumar, **Debabrata Biswas**, Tanmoy Banerjee, Wei Zou, D.V. Senthilkumar and J. Kurths, *"Revival and death of oscillation under*

mean-field coupling: Interplay of intrinsic and extrinsic filtering", **Physical Review E 100, 052212, 2019**.

- **14. Debabrata Biswas**, Tanmoy Banerjee and Jürgen Kurths, *"Effect of filtered-feedback on birhythmicity: Suppression of birhythmic oscillation"*, **Physical Review E 99, 062210, 2019.**

2018

- **13.** Tanmoy Banerjee, **Debabrata Biswas**, Debarati Ghosh, Biswabibek Bandyopadhyay, Jürgen Kurths: *"Transition from homogeneous to inhomogeneous limit cycles: Effect of local filtering in coupled oscillators"*, **Physical Review E 97, 042218, 2018**. (arXiv:1803.02138v1 [nlin.CD]).
- **12.** Tanmoy Banerjee, **Debabrata Biswas**, Debarati Ghosh, Eckehard Schöll and Anna Zakharova: *"Networks of coupled oscillators: from phase to amplitude chimeras"*, **Chaos 28, 113124, 2018**. arXiv:1808.08131v1 [nlin.AO].

2017

- **11. Debabrata Biswas**, Biswajit Karmakar and Tanmoy Banerjee: *"A hyerchaotic time-delayed system with single-humped nonlinearity: Theory and experiment"*, **Nonlinear Dynamics, 89(3), 1733-1743, 2017**. (IF-3.464, ISSN-0924090X).
- **10. Debabrata Biswas**, Tanmoy Banerjee and Jürgen Kurths: *"Control of birhythmicity: A self-feedback approach"*, **Chaos, 27(6), 063110, 2017.** (IF-2.283, ISSN-10541500).

2016

- **09. Debabrata Biswas**, Tanmoy Banerjee and Jürgen Kurths: *"Control of birhythmicity through conjugate self-feedback: Theory and experiment"*, **Physical Review E, 94, 042226, 2016**. (IF-2.366, ISSN-2470-0045).
- **08. Debabrata Biswas**, Nirmalendu Hui and Tanmoy Banerjee: *"Amplitude death in intrinsic time-delay chaotic oscillators with direct-indirect coupling: The existence of death islands"*, **Nonlinear Dynamics, 88(4), 2783-2795, 2017**. (IF- 3.464, ISSN-0924090X).

DURING PH.D.:

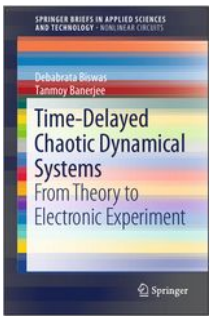
2016

- **07. Debabrata Biswas**, Tanmoy Banerjee: *"A simple chaotic and hyperchaotic time-delay system: design and electronic circuit implementation"*, **Nonlinear Dynamics, 83(4), 2331-2347, 2016**. (IF-3.464, ISSN-0924090X).

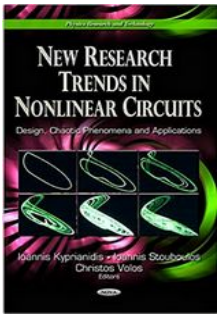
- **06.** Tanmoy Banerjee, **Debabrata Biswas**: *"Amplitude death and synchronized states in nonlinear time-delay systems coupled through mean-field diffusion"*. **Chaos, 23, 043101, 2013**. (IF-2.283, ISSN-10541500).
- **05.** Tanmoy Banerjee, **Debabrata Biswas**, B. C. Sarkar: *"Complete and generalized synchronization of chaos and hyperchaos in a coupled first-order time-delayed system"*. **Nonlinear dynamics, 71, 279-290, 2013**. (IF- 3.464, ISSN-0924090X).
- **04.** Tanmoy Banerjee, **Debabrata Biswas**, B. C. Sarkar: *"Anticipatory, complete and lag synchronization of chaos and hyperchaos in a nonlinear delay-coupled time-delayed system"*. **Nonlinear Dynamics, 72, 321-332, 2013**. (IF- 3.464, ISSN-0924090X).
- **03.** Tanmoy Banerjee, **Debabrata Biswas**: *"Synchronization in hyperchaotic time- delayed electronic oscillators coupled indirectly via a common environment"*. **Nonlinear Dynamics, 73, 2025-2048, 2013**. (IF-3.464, ISSN-0924090X).
- **02.** Tanmoy Banerjee, **Debabrata Biswas**: *"Theory and experiment of a first-order chaotic delay dynamical system"*. **International Journal of Bifurcation and Chaos, 23(6), 1330020, 2013**. (IF- 1.329, ISSN- 0218-1274).
- **01.** Tanmoy Banerjee, **Debabrata Biswas**, B. C. Sarkar: *"Design and analysis of a first order time-delayed chaotic system"*. **Nonlinear Dynamics, 70, 721-734, 2012**. (IF- 3.464, ISSN-0924090X).

b) ***Books / book chapters / E-book:***

- **BOOKS:**
- **01. Debabrata Biswas** and Tanmoy Banerjee: *"Time-Delayed Chaotic Dynamical Systems: From Theory to Electronic Experiment"*, **Springer-Nature, 2018**.
  - ISBN: 978-3-319-70992-5 (print), ISBN: 978-3-319-70993-2 (ebook), DOI: 10.1007/978-3-319-70993-2
  - **Springer International Publishing (Springer-Nature) [link]**
  - **Amazon [link]**



- **BOOK CHAPTERS:**
- Tanmoy Banerjee, **Debabrata Biswas**, B. C. Sarkar (2014) *"Design of Autonomous Time-Delayed Hyperchaotic System"*, Chapter 4, pp. 73-95, in book *"New Research Trends in Nonlinear Circuits: Design,*



Chaotic Phenomena and Applications", **Nova Science Publishers**, NY 11788-3619 (USA) [ISBN: 978-1-63321-406-4]. (The picture shown in the Book Cover is from one of the figures of our book chapter.)

- **Amazon [**link**]**

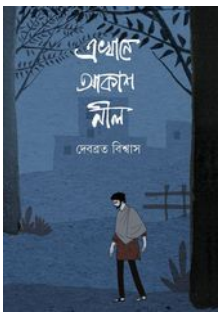
c) ***Conference/ seminar volumes:***

- **09. Debabrata Biswas**, Jurgen Kurths and Tanmoy Banerjee: *"Feedback control of birhythmic oscillations"*, MDCCT-2018, pp. 61-64, Burdwan University, 22-23 June, 2018, ISBN-978-81-88391-55-4
- **08.** Biswabibek Bandyppadhyay, **Debabrata Biswas**, Debarati Ghosh, Jurgen Kurths, Tanmoy Banerjee: *"Effect of filtering on the dynamics of coupled oscillators"*, MDCCT-2018, pp. 65-68, Burdwan University, 22-23 June, 2018, ISBN-978-81-88391-55-4
- **07.** Biswjit Karmakar, **Debabrata Biswas** and Tanmoy Banerjee: *"Transitions of synchronization in chaotic systems coupled through nonlinear modulated delay"*, MDCCT-2018, pp. 89-91, Burdwan University, 22-23 June, 2018, ISBN-978-81-88391-55-4
- **06.** Taniya Khatun, **Debabrata Biswas** and Tanmoy Banerjee: *"Laminar chaos in time-delayed systems with time-varying delay"*, MDCCT-2018, Burdwan University, 22-23 June, 2018, ISBN-978-81-88391-55-4
- **05. Debabrata Biswas** and Tanmoy Banerjee: *"Design of a simple hyperchaotic time delay system"*. MDCCT-2016 (19-20 February, 2016), Burdwan University. ISBN- 978-93-85775-03-1
- **04.** Tanmoy Banerjee, **Debabrata Biswas**: *"Amplitude death induced by mean-field density in coupled hyperchaotic time-delay system"*, MDCCT-2014, Burdwan University; 02/2014. ISBN 978-93-80663-20-3
- **03.** Tanmoy Banerjee, **D. Biswas**, B. Karmakar, B. C. Sarkar: *"A simple inductor-free autonomous chaotic circuit"*. MDCCT-2012, 6th-7th Feb., 2012. The University of Burdwan, Pages 120-123, ISBN-978-93-80663-36-4.
- **02.** Tanmoy Banerjee, **Debabrata Biswas**, B. C. Sarkar: *"A new time-delayed chaotic and hyperchaotic electronic circuit"*. Proceedings of National Conference on Electronics, Communication and Signal Processing (NCECS2012), 19th September 2012. Pages 153-157, ISBN-978-93-82338-06-2, 2012.
- **01.** Tanmoy Banerjee, **D. Biswas**, B. Karmakar, B. C. Sarkar: *"Synchronization of chaos in a SAB based chaotic electronic oscillator"*. ICLMSC 2011, 7-10 Dec., The University of Burdwan, Pages 302-304, ISBN-9380813147.

13. ***BENGALI NOVELS AND STORIES***

a) **BOOKS**

- **EKHANE AKASH NEEL: Debabrata Biswas, Ananda Publishers.**
- **EBAR ARANYE: Debabrata Biswas, Sristisukh Publishers,**



b) **Debabrata Biswas**: Maraner Epar Hote, **Sukhi Grihikon, Bartaman, No. March-01, 2015**

c) Debabrata Biswas: Bela Shesher Gaan

d) Debabrata Biswas: Bibhaas

e) Debabrata Biswas: Ekhane akash neel (**Sanonda Pujabarshiki**)

f) Debabrata Biswas: "Ebar Aanye", Sristisukh Publishers, (In Press).

g) Debabrata Biswas: Se Aase Nirabe

h) Debabrata Biswas: Sandhya Naamile (ongoing)

i) Debabrata Biswas: His Silent Presence

14. **Membership of Learned Societies**:

a) Life member of Indian Association for Physics Teachers (IAPT).

b) Fellow of Institute for Electronics and Telecommunication Engineers (IETE), India. (M-501551)

15. **Fellowships:**

- **Max-Planck Institute Travel grant and Accomodation (2018).**
  - To attend and participate in the visitors programme "Predicting Transitions in Complex Systems", Max-Planck Institute for the Physics of Complex Systems, Dresden, Germany
- **Max-Planck Institute Travel grant, Accommodation and Fellowship (2016).**
  - To attend and participate in the four weeks long visitors programme "Multistability and tipping: From mathematics and physics to climate and brain", Max-Planck Institute for the Physics of Complex Systems, Dresden, Germany
- **CSIR-SRF Fellowship (2015).**

- Direct Council of Scientific and Industrial Research (CSIR, India) fellowship.
- **West Bengal State Funded Fellowship (2012).**
- Obtained WB State Funded fellowship.
- **Merit-cum-means Fellowship (2010).**
- Merit-cum-means Fellowship for BSc result.

16. **Invited lectures delivered :**
    - Delivered Invited talk as resource person at Visva-Bharati University on Raspberry Pi on 09/02/2019
    - Delivered Invited Talk as resource person at Department of Physics, Krishna Chandra College, Hetampur, Birbhum on "Scilab" to be held on 05 December, 2018.
    - Delivered Invited Talk as resource person at Department of Physics, The University of Burdwan on two-day "Workshop on Scilab" held on 17-18 August, 2018.
    - Delivered Invited talk as resource person at Department of Physics, The University of Burdwan on Raspberry Pi on 24/03/2017.
    - Delivered Invited talk as resource person at Department of Computer Science, Jadavpur University on Raspberry Pi on 27/02/2017.
17. **Papers presented in Conferences, Seminars, Workshops and Symposia :**

    International (Abroad)
    - 2018 Predicting transitions in complex systems (Pretra18) held on 22/04/2018-28/04/2018 at **Max-Planck Institute for Physics and Complex Systems, Dresden, Germany**
    - 2016 Multistability and tipping: From mathematics and physics to climate and brain held on 19/09/2016-14/10/2016 at **Max-Planck Institute for Physics and Complex Systems, Dresden, Germany**

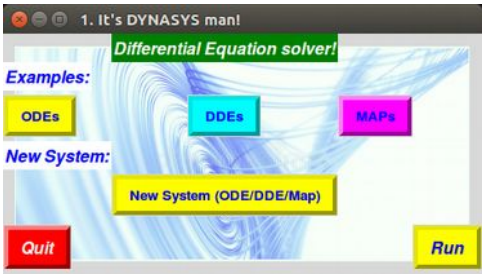
    Schools Attended
    - **2018 Summer School Dynamics of Complex Systems, 2018, Organized by International Center for Theoretical Sciences (ICTS-TIFR), Bangalore, from 16/06/2018-25/06/2018.**

    International and National Conferences Attended (inside country)
    - 2018 National Conference on Materials, Devices and Circuits in Communication Technology (MDCCT 2018) held on 22-23 June, 2018 at the University of Budrdwan (Conference Paper Published)
    - 2016 Conference on Nonlinear Systems and Dynamics (CNSD-2016) held on 16-18 December,
    - 2016, IISER Kolkata. (Presented a Poster) 2016 Fourth International Conference on Complex Dynamical Systems and Applications (CDSA 2016) held on 15-17 February, 2016 at the NIT, Durgapur

- 2016 National Conference on Materials, Devices and Circuits in Communication Technology (MDCCT 2016) held on 19-20 Feb., 2016 at the University of Budrdwan (Conference Paper Published)
- 2015 National Seminar on Condensed Matter, Laser and Communication (NSCMLC 2015) held on 27-28 February, 2015 at the University of Burdwan 2015 21-st West Bengal State Science and Technology Congress-2014 held on 20-21 February, 2014 at the University of Burdwan (Received Best Oral Presentation Prize)
- 2014 National Conference on Materials, Devices and Circuits in Communication Technology (MDCCT 2014) held on 7-8 February, 2012 at the University of Budrdwan (Conference Paper Published)
- 2013 Third National Seminar on Recent Trends in Condensed Matter Physics including Laser Application held on 5-7 March, 2013 at the University of Burdwan
- 2012 National Conference on Materials, Devices and Circuits in Communication Technology (MDCCT 2012) held on 6-7 February, 2012 at the University of Budrdwan (Conference Paper Published)
- 2012 Second National Seminar on Recent Trends in Condensed Matter Physics including Laser Application (SMSCMPLA 2012) held on 22-23th March, 2012 at The University of Burdwan
- 2012 2nd National Conference on Electronics, Communication and Signal Processing (NCECS 2012) held on 19th September, 2012 at Siliguri Institute of Technology, Siliguri, West Bengal (Conference Paper Published)
- 2012 First National Seminar on Recent Trends in Condensed Matter Physics including Laser Application (FNSCMPLA 2012) held on 6-7 March, 2012 at the University of Burdwan.
- 2011 One day seminar on Recent Trends in Communication Technology (RCTC 2011), held on 26 th February at the University of Burdwan
- 2011 International Conference on Laser, Material Science and Communication (ICLMSC 2011) held on 7-9 December, 2011 at The University of Burdwan (Conference Paper Published)

18. **Other notable activities** :

SOFTWARE DEVELOPMENT



The basic need in dynamical research is to generate computer program to solve different dynamical systems. This requires some mastering in computer programming. In this project we focus on developing a dynamical software DYNASYST, short

form of DYNamical SYSTems (written in Python). The Software is built focusing the need for good integrator to numerically integrate dynamical systems. In the present state of the software it contains the following (examples):

- ODEs: Lorenz system, Rossler system, Lotka-Volterra Predator-Prey Model;
- DDEs: Mackey-Glass System, Equivalent Ikeda System, Half-wave rectifier nonlinear time-delayed system invented by us;
- Maps: Logistic Map.;

Also it can draw the bifurcation diagrams of the ODEs listed above. Currently I have included a general platform to integrate different ODEs in the section "New System". It can integrate a plethora of nonlinear dynamical systems. The dimension and number of parameters are to be feed. Then subsequent parameters and their range and system equations along with the initial conditions are to be given to integrate the system.

- The software may be found in: https://github.com/debbisrs/DYNASYST_0.3
- The YouTube tutorial: https://www.youtube.com/watch?v=lD37maoV0jI&t=22s

19. aa

Signature of the Faculty Member