Curriculum Vitae

Richard Sebastian Eydam

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Positions

Postdoctoral Researcher Neural Circuits and Computations Unit 2021–
RIKEN Center for Brain Science, Wako, Japan

Researcher Laser Dynamics Research Group 2015–2019
Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany
Project: CRC-910 „Control of self-organizing nonlinear systems“, A3: „Self-organization and control in coupled networks and time-delayed systems“

Research Interests

My research focuses on nonlinear dynamical systems, in particular, coupled oscillators and excitable systems. I am interested in the applications connected to this line of research and like to study multiple time scale problems and bifurcations.

Education

PhD Department of Mathematics and Natural Sciences 2019
Technical University of Berlin, Germany
Thesis: *Mode-locking in Systems of Globally-Coupled Phase Oscillators*

M. Sc. Department of Physics, Free University of Berlin 2011–2014
Student exchange, Department of Physics Uppsala University, Sweden 2012–2013
Master thesis, Free University Berlin, Nonlinear Dynamics Group:
Thesis: *Chaos in Cosmological Models with Scalar Fields*

B. Sc. Department of Physics, Free University of Berlin 2007–2011
Thesis: *Influence of capping-potentials on the electronic structure of double bonds*

Publications

Eydam, Sebastian; Wolfrum, Matthias
Mode locking in systems of globally-coupled phase oscillators. Appeared in: Phys. Rev. E, 96 (2017), pp. 052205/1–052205/8; DOI 10.1103/PhysRevE.96.052205

Eydam, Sebastian; Wolfrum, Matthias
The link between coherence echoes and mode locking. Appeared in: Chaos 29, 103114 (2019); DOI 10.1063/1.5114699

Eydam, Sebastian; Franović, Igor; Wolfrum, Matthias
Leap-frog patterns in systems of two coupled FitzHugh–Nagumo units. Appeared in: Phys. Rev. E, 99 (2019), pp. 042207/1–042207/9; DOI 10.1103/PhysRevE.99.042207

Eydam, Sebastian
Mode locking in systems of globally-coupled phase oscillators.
Dissertation: http://dx.doi.org/10.14279/depositonce-8576 (2019)

Franović, Igor; Yanchuck, Serhiy; Eydam, Sebastian; Wolfrum, Matthias; Iva Bačić
Dynamics of a stochastic excitable system with slowly adapting feedback. Appeared in: Chaos 30, 083109 (2020); https://doi.org/10.1063/1.5145176

Projects

CRC-910 Member: collaborative research center funded by the DFG
Project: *Control of self-organizing nonlinear systems, A3: Self-organization and control in coupled networks and time-delayed systems*

Scientific exchange: Belgrade institute of Physics, Serbia, funded by the DAAD
Project: *Emergent Dynamics in Systems of Coupled Excitable Units*

Unpublished Works and Preprints

Eydam, Sebastian
Chaos in Cosmological Models with Scalar Fields, Free University Berlin thesis (2015)

Franović, Igor; Eydam, Sebastian; Semenova, Nadezhda; Zakharova, Anna
Unbalanced clustering and solitary states in coupled excitable systems (2021); https://arxiv.org/abs/2106.10930

Conferences

Patterns of Dynamic, (Free University Berlin)	2016
Control of Complex Systems and Networks, (Usedom, Germany)	2016
Dynamics Days Europe, (Loughborough, UK)	2018
Control of Self-Organizing Nonlinear Systems, (Warnemünde, Germany)	2018
Dynamics Days Europe, (Rostock, Germany)	2019

Workshops

Waves, Solitons and Turbulence in Optical Systems, (WIAS, Berlin)	2015
Synchronization and oscillators with generalized coupling, (University of Exceter)	2016
Control of Self-Organizing Nonlinear Systems, (Wittenberg, Germany)	2015, 2017
Nonlinear Dynamics in Semiconductor Lasers, (WIAS, Berlin)	2016
Dynamics of Delay Equations, (WIAS, Berlin)	2016
Nonlinear Waves and Turbulence in Optics and Hydrodynamics, (WIAS, Berlin)	2017
Optical Solitons and Frequency Combs, (WIAS, Berlin)	2019

Teaching

Lab instructor: Department of Physics, Free University Berlin 2010-2011, 2014

Instructing and supervising experiments in optics, electronics, mechanics, and mathematics introductions

References

Dr. Matthias Wolfrum
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Ass. Prof. Dr. Igor Franović
Collaborator and Mentor
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