

Nonlinear Dynamics in Semiconductor Lasers 2025



Weierstrass Institute for Applied Analysis and Stochastics
Erhard-Schmidt Lecture Room, Mohrenstr. 39, 10117 Berlin

June 16 | Monday

June 17 | Tuesday

June 18 | Wednesday

8:55 – 9:00 Welcome		
9:00 – 9:25 Svetlana Gurevich Coherent pulse interactions in mode-locked semiconductor lasers	9:00 – 9:25 Stephan Reitzenstein Single-quantum-dot devices for photonic quantum technologies: Design, deterministic nanofabrication, and application perspectives	9:00 – 9:25 Marcel Clerc Turbulence-Like Phenomena in Liquid Crystal Light Valves
9:25 – 9:50 Julien Javaloyes Time Crystals in Active Mode-Locked Lasers	9:25 – 9:50 Gian Luca Lippi Scaling Effects in Semiconductor Lasers: The Impact of Cavity Size on Dynamics and Detectability	9:25 – 9:50 Mustapha Tlidi Spatio-temporal dissipative solitons in optical cavities
9:50 – 10:15 Kamel Merghem Self-injected quantum-dash mode locked lasers for frequency comb generation	9:50 – 10:15 Yi Yu Simulating Nanolasers with Extreme Dielectric Confinement	9:50 – 10:15 Majid Taki tba.
10:15 – 10:30 Navia Kleemann Competitive Dynamics of Self Mode-Locking and Passive Mode-Locking in QD and QW Lasers	10:15 – 10:30 Monty Drechsler Quantum fluctuation in mode-locked single-section semiconductor quantum dot lasers	10:15 – 10:30 Margarida Facao Role of packaging induced stress on filamentation characteristics of broad area semiconductor lasers
10:30 – 11:00 Coffee Break	10:30 – 11:00 Coffee Break	10:30 – 11:00 Coffee Break
11:00 – 11:25 Cristina Rimoldi Near field and spectral study of four-wave mixing in multimode VCSELs	11:00 – 11:25 Frank Jahnke Optical Gain in Lasers Based on Two-Dimensional TMDC Semiconductors	11:00 – 11:25 Guillaume Huyet Property of frequency combs under noisy optical injection
11:25 – 11:50 Deb Kane Coherence Collapse – How collapsed?	11:25 – 11:40 Dmitri Boiko Self-confident light-current-voltage analytical model for QW saturable electroabsorber in a ridge waveguide laser structure	11:25 – 11:50 Otti D'Huys Excitability and stochastic effects in a spiking laser network
11:50 – 12:15 Cristina Masoller Experimental study of the coherence of the light emitted by a semiconductor laser with optical feedback and current modulation	11:40 – 12:05 Gadi Eisenstein Coherent interactions and quantum properties of short pulses propagating in a quantum dot gain medium	11:50 – 12:15 Daria Dolinina Synchronization between Kerr cavity solitons and broad laser pulse injection
12:15 – 12:30 Elias Koch Impact of slow thermal effects on dynamics of vertically emitting Kerr microcavities	12:05 – 12:30 Nikolay Rosanov Recent advances in low-cycle electromagnetic pulses	12:15 – 12:30 Berta Martínez-Pàmias Dynamics of phase synchronization in a coupled laser system for quantum random number generation
12:30 – 14:00 Lunch Break	12:30 – 12:40 Group Photo 12:40 – 14:00 Lunch Break	12:30 – 12:35 Closing
14:00 – 14:25 Sergei K. Turitsyn Extreme learning machine using semiconductor optical amplifier	14:00 – 14:25 Kestutis Staliunas Light Trapping by Non-Hermitian Thin Films	
14:25 – 14:50 Lina Jaurigue Resonance and delay effects in delay-based photonic reservoir computing	14:25 – 14:50 Angela Thränhardt Photonic and Phononic Structures Across Scales: From Art Installations to Semiconductor Lasers	
14:50 – 15:15 Kathy Lüdge Photonic Reservoir Computing with Quantum Dot Lasers: Impact of Charge-Carrier Dynamics	14:50 – 15:05 Thorsten Ackemann Laser patterns and supersolids of light	
15:15 – 15:45 Coffee Break	15:05 – 15:30 Coffee Break	List of Posters Poster Session on Monday (June 16)
15:45 – 16:10 Dmitry V. Skryabin Hyper-parametric and $\chi(2)$ solitons in microresonators	15:30 – 15:55 Maria Ana Cataluna Dynamic optical injection of mode-locked quantum-dot lasers for high-speed optical sampling	Poster 1 Hans Wenzel Design of wavelength stabilized Bragg reflection waveguide laser for parametric fluorescence
16:10 – 16:35 Tobias Herr Frequency combs from nanostructured microresonators	15:55 – 16:20 Peng Huanfa Chip-Scale Kerr Frequency Combs for Ultra-Broadband Optical Arbitrary Waveform Generation	Poster 2 Maria Ana Cataluna Understanding mode-locked quantum-dot lasers using the dispersion-scan technique
16:35 – 17:00 Darko Zibar Subspace tracking: a novel measurement method to test the standard phase noise model of optical frequency combs	16:20 – 16:45 Quentin Bournet Long-wavelength microresonator-based frequency combs	Poster 3 Ko Dogyun Estimation of the second-order coherence function using quantum reservoir and ensemble methods
17:00 – 17:15 Jesús Yelo-Sarrión A time-delayed renewal model for Kerr frequency combs	16:45 – 17:00 Dmitri Boiko 200pJ pulse energy monolithic mode locking in GaInAs/GaInAsP vs GaInAsP/GaInP QW systems	Poster 4 Ruiling Weng Time Crystal Coarsening in Active Mode-Locked Lasers
17:15 – 20:00 Poster Session WIAS main building (4th floor) Room 405/406 See right column for list of posters.	from 18:00 Workshop Dinner Restaurant Maximilians Friedrichstraße 185-190, 10117 Berlin	Poster 5 Lilli Kuen Numerical study of time dependent dynamical simulations of PCSELs Poster 6 Lutz Mertenskötter Non-Markovian Noise in Semiconductor Lasers