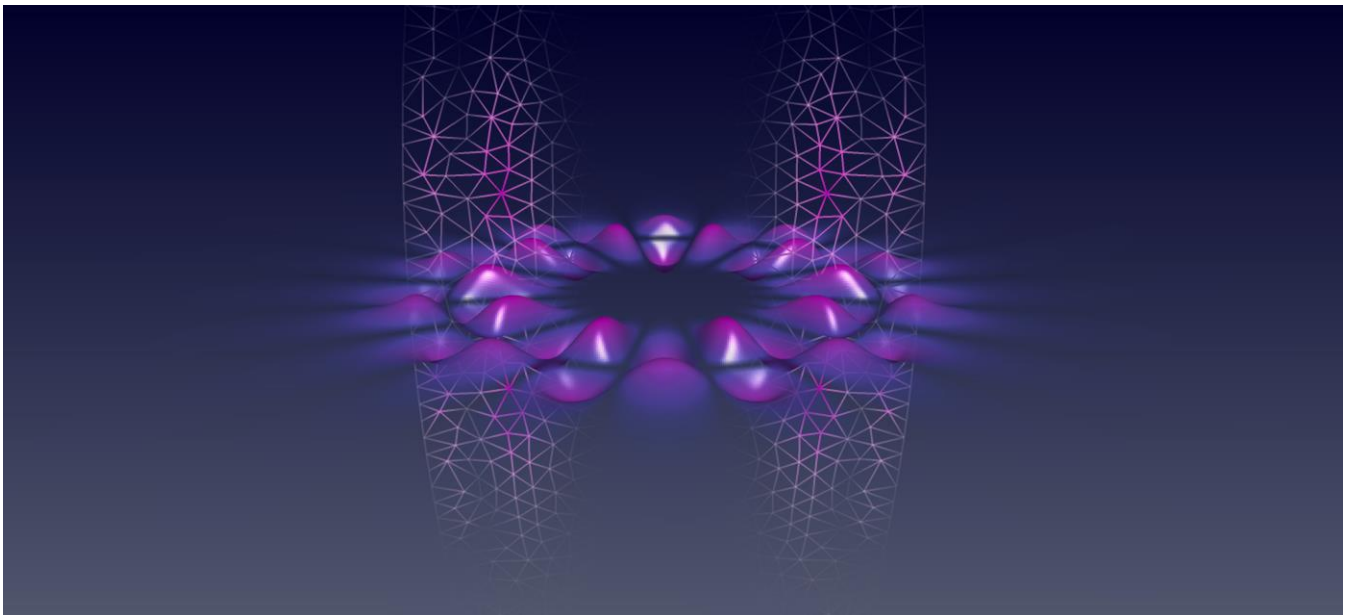# 15th Annual Meeting Photonic Devices

AMPD2023

Date: 29-31 March 2023
Location: Zuse Institute Berlin, Germany

Venue

Zuse Institute Berlin
Takustraße 7
14195 Berlin
Germany

Organizers

The Annual Meeting Photonic Devices is organized by members
of the Computational Nano Optics group.
www.zib.de/cno

Wednesday

From	Speaker	Affiliation	Title
09:00	**Coffee**		
10:00	Christof Schütte	Zuse Institute Berlin	Opening
10:15	Patrice Genevet	Université Côte d'Azur	Topological metasurfaces (invited)
10:45	Alberto Naldoni	University of Turin	Plasmonics for solar-powered chemical processes (invited)
11:15	Ya Yan Lu	City University of Hong Kong	Robust and Nonrobust Bound States in the Continuum
11:30	Adrià Canós Valero	University of Graz	Can we trap Light at an Exceptional Point?
11:45	**Lunch Break**		
13:15	Christophe Sauvan	Université Paris Saclay	Asymmetric comb waveguide for strong interactions between atoms and light (invited)
13:45	Markus Wess	Technische Universität Wien	Convergence analysis of time-domain PMLs for 2D electromagnetic wave propagation in dispersive waveguides
14:00	Maxim Vavilin	Karlsruhe Institute of Technology	Polychromatic T-Matrix: Group-theoretical Perspective and Applications
14:15	Thomas Christopoulos	Aristotle University of Thessaloniki	A Quasi-Normal Mode Framework for Non-Hermitian Systems Comprising 2D Materials
14:30	Zoltan Sztranyovszky	Cardiff University	Calculation of the light scattering by the resonant-state expansion
14:45	**Coffee Break**		

Wednesday

From	Speaker	Affiliation	Title
15:30	Costantino De Angelis	University of Brescia	Image processing with nonlocal nonlinear metasurfaces (invited)
16:00	Klaus Jäger	Helmholtz-Zentrum Berlin für Materialien und Energie	Solar Energy: Current Trends, Recent Developments and the Role of Nanophotonics
16:15	Christoph Sikeler	Ludwig-Maximilians-Universität München	The Effect of Crystal Dimensionality on the Chiroptical Response in a DNA Origami Framework
16:30	Günter Kewes	Humboldt-Universität zu Berlin	Monolayer WS2 on a Silver film: Experiments and Simulations on Strong Coupling
16:45	Peter Petrik	Centre for Energy Research, Budapest	Development of plasmonic nanostructures and non-destructive characterization tools for solid-liquid interface monitoring
17:00	**Poster Session**		Pizza and drinks at Zuse Institute Berlin
19:30	**End of Day**		

Wednesday Poster Session

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Nr.	Speaker	Affiliation	Title
1	Anubhav Paul	Delft University of Technology	Coherent Fourier scatterometry for particle detection on structured surfaces
2	Christine Pepke Gunnarsson	Technical University of Denmark, Lyngby	A tunable source of entangled pairs of photons operating in the telecom C-band
3	Federico Berto	QphoX B.V., Delft	Design and simulation of a microwave-to-optics quantum transducer for scalable quantum computing
4	Felix Binkowski	Zuse Institute Berlin	Computing eigenfrequency sensitivities using Riesz projections with automatic differentiation
5	Fridtjof Betz	Zuse Institute Berlin	From Riesz projections to regularized quasinormal modes
6	Gérard Granet	Université Clermont Auvergne	Multi-domain spectral analysis of axis-symmetric multisection fibers using Chebycheff polynomials
7	Kas Andrle	Physikalisch-Technische Bundesanstalt (PTB), Berlin	The influence of model imperfection on the reconstruction of nanostructures from grazing incidence X-ray fluorescence measurements
8	Lin Zschiedrich	JCMwave GmbH, Berlin	Computation of light scattering off semi-infinite structures
9	Lea Marlen Rektorschek	Humboldt-Universität zu Berlin	Optimization of adiabatic photon transfer between AlN/AlGaN and diamond waveguides
10	Maciej Dems	Lodz University of Technology	Various Factorization Rules in Modal Methods Using the Fourier-Bessel Basis
11	Mariia Poleva	ITMO University, Saint Petersburg	High-Q band edge resonances in one-dimensional arrays of dipolar scatterers
12	Massimo Rippa	Institute of Applied Sciences and Intelligent Systems "E. Caianiello" of CNR, Pozzuoli	Engineering of novel nanoclusters for Plasmonic applications: SERS analysis of Murine Norovirus
13	Matthias Plock	Zuse Institute Berlin	Robust Design Optimization using Bayesian Optimization and Warped Gaussian Processes
14	Mihir Dass	Ludwig-Maximilians-Universität München	Plasmonic Metasurfaces
15	Nick Feldman	AMOLF, Amsterdam	Metasurface based computational metrology
16	Paul Oleynik	Brandenburgische Technische Universität Cottbus-Senftenberg	Simulation and characterization of hybrid metallic-dielectric Al/Ge optical metasurfaces
17	Peter Tillmann	Helmholtz-Zentrum Berlin für Materialien und Energie	Metal grating back reflectors with periodic design for III-V-on-silicon multijunction solar cells: optical simulations and optimization
18	Ramin Emadi	National Institute of Optics (CNR-INO), Firenze	Numerical study of nanophotonic structures for enahnced collection of molecule-based single-photon emission
19	Sebastian Reiter	Brandenburgische Technische Universität Cottbus-Senftenberg	Plasmonic TiN nanohole arrays for on-chip refractive index sensors

Thursday

From	Speaker	Affiliation	Title
09:00	Rasmus E. Christiansen	Technical University of Denmark, Lyngby	Tailoring the Extreme Confinement of Light using Topology Optimization (invited)
09:30	Markus Nyman	Karlsruhe Institute of Technology	A digital twin for a cavity-enhanced chiral sensing platform
09:45	Masoud Hamidi	University of Graz	Mie Theory and Babinet's Principle
10:00	Laure Coudrat	Université de Paris	Nonlinear meta-holograms for the generation of second harmonic vortex beams
10:15	**Coffee Break**		
10:45	Andrea Walther	Humboldt-Universität zu Berlin	Calculus-based Optimization of Nanostructures for Pulse Shaping (invited)
11:15	Philipp-Immanuel Schneider	JCMwave GmbH, Berlin	Machine learning based optimization for optics design, scatterometry, and experiment control
11:30	Sebastian Heidenreich	Physikalisch-Technische Bundesanstalt (PTB), Berlin	Traceable metrology of optical constants – An EMPIR project
11:45	**Lunch Break**		
13:00	**Social Activity**		**Guided Tour: 100 years of German Oxford,** meeting point near the workshop venue: **Harnack-Haus, Ihnestr. 16-20, 14195 Berlin**
15:00	**Coffee Break**		

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Thursday

From	Speaker	Affiliation	Title
15:30	N. Asger Mortensen	Syddansk Universitet, Odense	Surface-response formalism for quantum-corrected electrodynamics in metallic nanostructures (invited)
16:00	Tina Müller	Toshiba Research Europe Limited, Cambridge	Increasing the efficiency of quantum dot devices for quantum network applications (invited)
16:30	Sébastien Designolle	Zuse Institute Berlin	Improved local models and new Bell inequalities via Frank-Wolfe algorithms
16:45	Lutz Mertenskötter	Weierstrass Institute (WIAS), Berlin	Laser Linewidth Estimation Beyond the Detector Noise Limit and Statistical Inference from Delayed Self-Heterodyne Measurements
17:00	Anthony J. Bennett	Cardiff University	Photonic Toblerones: manipulating light with triangular waveguides, couplers and cavities
17:15	Maciej Dems	Lodz University of Technology	Single-Mode Emission in VCSELs with Antiresonant Oxide Islands
17:30	**End of Day**		
18:30	**Workshop Dinner**		**Indian restaurant** near the workshop venue: **Schloßstraße 48a, 12165 Berlin** (everyone pays for their own drinks and food, cash payment)

Friday

From	Speaker	Affiliation	Title
09:30	Nando Farchmin	Physikalisch-Technische Bundesanstalt (PTB), Berlin	Contesting the Curse of Dimensionality: Parameter Reconstruction in High Dimensions
09:45	Marco Butz	University of Münster	Black-Box Optimization of Nanophotonic Devices through Reinforcement Learning
10:00	Andreas Strauch	Paderborn University	Optimization of Silicon Nanoantenna for Optical Phased Arrays
10:15	Leonhard M. Lohr	Physikalisch-Technische Bundesanstalt (PTB), Berlin	Determination of reconstruction uncertainties for nanoscale gratings using Markov chain Monte Carlo sampling with a finite element Maxwell solver
10:30	Anieza Maltsi	Weierstrass Institute (WIAS), Berlin	Symmetries in TEM imaging of semiconductor nanostructures with strain
10:45	**Coffee Break**		
11:30	Andreas Schell	Johannes Kepler University Linz	Photonic Structures for Solid-State-Quantum Emitters (invited)
12:00	Manfred Hammer	Paderborn University	Simple beam splitters for semi-guided waves in integrated silicon photonics
12:15	Saif Alnairat	ADVA Optical Networking SE, Berlin	Design and Modeling of Thermally Tunable Microring Resonator Based Silicon Photonics Integrated Optical Filters
12:30	**Lunch Break**		

Friday

From	Speaker	Affiliation	Title
14:00	Michael O'Donovan	Weierstrass Institute (WIAS), Berlin	Modeling random alloy fluctuations in carrier transport simulations of III-N based light emitting diodes – Connecting atomistic tight-binding to drift-diffusion
14:15	Mohamed Abdelkhalik	Eindhoven University of Technology	Metasurfaces to achieve ultra-high brightness and compact LEDs
14:30	Mikolaj Janczak	Lodz University of Technology	Thresholds currents optimization of quantum-cascade vertical-cavity surface-emitting lasers
14:45	Lilli Kuen	JCMwave GmbH, Berlin	Applying a Riesz projection based contour integral eigenvalue solver to compute the modes of a VCSEL
15:00	Oliver Anton	Humboldt-Universität zu Berlin	Comparison of reinforced learning algorithms for cold atom applications
15:15	**Closing Remarks**		
15:30	**End of Workshop**		

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