

WORKSHOP PROGRAM**Wednesday, February 17th**

9:00-9:15 Opening

Session We-1: Two-dimensional systems and the quantum Hall effect9:15-9:45 R. Bratschitsch,*Atomically thin semiconductors light up*9:45-10:00 J. Jadczyk, D. Dumcenco, Y. S. Huang, Y. C. Lin, K. Suenaga, J. Kutrowska, A. Wójs, P. Sitarek, L. Bryja,*Composition dependence of lattice dynamics and photoluminescence emission in two dimensional $MoS_{2x}Se_{2(1-x)}$ alloys*10:00-10:30 A. Wójs, A. C. Balram, U. Wurstbauer, A. Pinczuk, J. K. Jain,*Detection of fractional skyrmions in Raman studies of quantum Hall systems*10:30-11:00 B. Szafran, S. Heun, K. Kolasiński, A. Mreńca-Kolasińska,*Aharonov-Bohm interferometers: scanning probe microscopy and magnetic forces*

11:00-11:30 Coffee break

Session We-2: Harnessing light-matter coupling: plasmons11:30-12:00 X. Wu, P. Jiang, H. Zhang, M. Pfeiffer, K. Lindfors, M. Lippitz, A. Rastelli, O. G. Schmidt, *Single quantum emitters for plasmonics*12:00-12:30 O. Hess,*Ultrafast and quantum dynamics of plasmonic stopped-light nanolasing*12:30-13:00 A. Vagov, I. A. Larkin, M. D. Croitoru, K. Keil, V. M. Axt,*Impact of spatial non-locality and Landau damping on the dynamics of a quantum dot coupled to surface plasmons*13:00-13:15 D. Knebl, A. Hörl, A. Trügler, J. Kern, J. R. Krenn, P. Puschnig, U. Hohenester, *Gap plasmonics of metallic nanoparticle dimers*

13:15-15:00 Lunch

Session We-3: Harnessing light-matter coupling: plasmons and polaritons15:00-15:30 U. Hohenester,*Probing particle plasmons with electrons*15:30-15:45 J. Kern, A. Trügler, I. Niehues, J. Ewering, R. Schmidt, R. Schneider, S. Najmaei, A. George, J. Zhang, J. Lou, U. Hohenester, S. Michaelis de Vasconcellos, R. Bratschitsch, *Nanoantenna-enhanced photoluminescence of atomically thin WS_2* 15:45-16:00 J.-G. Rousset, M. Król, R. Mirek, K. Lekenta, J. Szczytko, M. Nawrocki, B. Piętka, W. Pacuski,*Semimagnetic microcavity polaritons*16:00-16:15 M. Pieczarka, M. Syperek, Ł. Dusanowski, J. Misiewicz, F. Langer, M. Kamp, Ch. Schneider, S. Höfling, A. V. Kavokin, G. Sęk,*Collective excitations of a polariton condensate under incoherent pumping*

16:15-16:45 Coffee break

Session We-4: Carrier states in quantum dots and dashes16:45-17:15 J. Finley,*Electron spin and orbital dynamics in individual quantum dots and molecules*17:15-17:45 G. Sęk,*Exploring the application-relevant properties of InAs-InP epitaxial nanostructures*17:45-18:00 C. Dicken, C. Wolpert, K. Lindfors, H. Schweizer, M. Lippitz, L. Wang, P. A. Atkinson, A. Rastelli, O. G. Schmidt, R. Singh, G. Bester,*Ultrafast DC Stark switching of a single quantum dot*18:00-18:15 I. D'Amico,*Introduction to COST Action MP1403 NANOSCALE QUANTUM OPTICS*

Thursday, February 18thSession Thu-1: Excitons (large and small) in various dimensions

- 9:00-9:30 M. Bayer,
Rydberg excitons in cuprous oxide
- 9:30-10:00 D. E. Reiter,
Optical control of the dark exciton in a semiconductor quantum dot
- 10:00-10:15 M. Syrek, Ł. Dusanowski, J. Misiewicz, A. Somers, J. P. Reithmaier, S. Höfling, G. Sęk,
Exciton spin relaxation in InAs/InP(001) quantum dashes emitting at 1.55 μm
- 10:15-10:30 D. Wigger, Q. Mermillod, V. Delmonte, D. E. Reiter, C. Schneider, M. Kamp, S. Höfling,
W. Langbein, T. Kuhn, G. Nogues, J. Kasprzak,
Dynamics of four-wave mixing signals from excitons in single quantum dots
- 10:30-10:45 L. Bryja, J. Jadczyk, K. Ryczko, M. Kubisa, A. Wójs, M. Potemski, F. Liu, D. R. Yakovlev,
M. Bayer, C. A. Nicoll, I. Farrer, D. A. Ritchie,
*Investigations of charged exciton localization in magneto-photoluminescence experiments in
GaAs/Al_xGa_{1-x}As quantum wells*
- 10:45-11:00 K. Gawarecki, P. Machnikowski,
Modeling of exciton states in double quantum dots in magnetic field
- 11:00-11:30 Coffee break

Session Thu-2: Spin dynamics

- 11:30-12:00 P. Kossacki, T. Smoleński, J. Kobak, M. Goryca, A. Bogucki, M. Koperski, J.-G. Rousset,
J. Suffczyński, M. Nawrocki, A. Golnik, W. Pacuski,
Spin manipulation of a single magnetic ion in a quantum dot
- 12:00-12:30 M. P. Estarellas, I. D'Amico, T. P. Spiller,
Topologically protected localised states in spin chains
- 12:30-12:45 T. Smoleński, T. Kazimierzczuk, J. Kobak, M. Goryca, A. Golnik, P. Kossacki, W. Pacuski,
Magnetic ground state of an individual Fe²⁺ ion in a strained semiconductor nanostructure
- 12:45-13:00 J. Debus, T. S. Shamirzaev, D. Dunker, V. F. Sapega, D. R. Yakovlev, M. Bayer,
*Spin properties of the indirect exciton in indirect band-gap (In,Al)As/AlAs quantum dot
ensembles*
- 13:00-13:15 M. Cygorek, F. Ungar, P. I. Tamborenea, V. M. Axt,
Quantum kinetic spin dynamics in intrinsic diluted magnetic semiconductors
- 13:15-15:00 Lunch

Session Thu-3: Harnessing light-matter coupling: quantum dots and photonic structures

- 15:00-15:30 V. Savona,
*Automated optimization of photonic crystals for broadband slow light and ultra-high-Q
cavities*
- 15:30-16:00 J. Kasprzak,
Coherence of individual emitters in photonic nanostructures
- 16:00-16:15 A. Pusch, M. Yoshida, N. P. Hylton, A. Steiner-Vaquero, O. J. Curtin, C. C. Phillips,
N. J. Ekins-Daukes, O. Hess,
The photon ratchet intermediate band solar cell: using nanostructures to improve efficiency
- 16:15-16:30 A. Musiał, C. Hopfmann, M. Strauß, A. M. Barth, M. Glässl, A. Vagov, M. Strauß,
C. Schneider, S. Höfling, M. Kamp, V. M. Axt, S. Reitzenstein,
*Temperature-stable strong light-matter coupling in the solid state with quantum
dot-micropillars*
- 16:30-16:45 M. Holtkemper, D. E. Reiter, G. F. Quinteiro, T. Kuhn,
*The role of Coulomb interaction and band mixing on twisted light absorption in
semiconductor quantum dots*
- 16:45-17:00 Coffee break
- 17:00-19:00 Poster session

Friday, February 19thSession Fri-1: Harnessing light-matter coupling: photonic structures

- 9:00-9:30 S. Unsleber, Y.-M. He, S. Maier, S. Gerhardt, X. Ding, C.-Y. Lu, J.-W. Pan, M. Kamp, C. Schneider, S. Höfling,
On-demand indistinguishable photons generated by pulsed fluorescence from quantum dot-micropillar systems
- 9:30-10:00 M. Gschrey, A. Thoma, P. Schnauber, A. Kaganskiy, R. Schmidt, B. Wohlfeil, M. Seifried, J.-H. Schulze, S. Burger, F. Schmidt, A. Carmele, A. Knorr, A. Strittmatter, T. Heindel, S. Rodt, S. Reitzenstein,
Quantum dot microlenses: building blocks for quantum communication networks
- 10:00-10:15 P. Stepanov, A. Delga, N. Gregersen, E. Peinke, M. Munsch, J. Tessier, J. Mork, M. Richard, J. Bleuse, J.-M. Gérard, J. Claudon,
Gaussian and directive emission of giant photonic trumpets
- 10:15-10:45 Coffee break

Session Fri-2: Fundamental quantum physics and quantum information

- 10:45-11:15 P. Horodecki,
From broadcasting of information to emergence of objectivity from quanta
- 11:15-11:30 K. Roszak, Ł. Cywiński,
Characterization and measurement of qubit-environment entanglement generation during pure dephasing
- 11:30-11:45 K. Korzekwa, M. Lostaglio, D. Jennings, T. Rudolph,
Quantum coherence, time-translation symmetry and thermodynamics
- 11:45-12:00 P. Szańkowski, M. Trippenbach, Ł. Cywiński,
Spectroscopy of cross-correlations of environmental noises with two qubits
- 12:00-12:15 J. Tuziemski, J. Korbicz,
Emergence of classical features in Quantum Brownian Motion
- 12:15-12:30 Closing
- 12:30-14:15 Lunch

Poster Session (Thursday)

- P01 S. Lüker, D. E. Reiter, T. Kuhn,
Phonon–impact on the preparation of dark excitons in a quantum dot
- P02 T. Smoleński, T. Kazimierczuk, M. Goryca, M. Koperski, P. Wojnar, A. Golnik, P. Kossacki,
P–shell exciton complexes with neutral–exciton–like exchange interaction in CdTe/ZnTe quantum dots
- P03 T. Smoleński, M. Goryca, T. Kazimierczuk, P. Wojnar, P. Kossacki,
Mechanism and dynamics of biexciton formation from a long–lived dark exciton in a CdTe quantum dot
- P04 M. Ściesiek, J. Suffczyński, W. Pacuski, J.-G. Rousset, M. Parlińska-Wojtan, A. Golnik,
Design, growth and spectroscopy of coupled ZnTe planar optical microcavities
- P05 A. Musiał, B. Wohlfeil, S. Burger, T. Heuser, A. Kaganskiy, E. Y. Tauscher, R. Schmidt, S. Rodt, S. Reitzenstein,
Circular Bragg grating cavity design for efficient sources of single photons fabricated within a deterministic technology platform
- P06 A. Henrykowski, W. Jacak,
Size dependence and spatial range of plasmon effect in photovoltaics – theory and experiment
- P07 K. Kluczyk, W. Jacak,
Surface plasmon resonance in metallic nano–particles: comparison of RPA, FEM calculations and Mie theory
- P08 R. Kerber, J. Fitzgerald, S. S. Oh, O. Hess, T. Kuhn, D. E. Reiter,
Simulation of electric field patterns modified by metallic nanoantennas
- P09 K. Gwóźdź, E. Płaczek-Popko, Z. Gumienny, E. Zielony, R. Pietruszka, B. S. Witkowski, K. Kopalko, M. Godlewski,
Recombination losses in n–ZnO nanorods/p–Si plasmonic solar cells
- P10 S. Guazzotti, A. Pusch, D. E. Reiter, O. Hess,
Intensity dependence of the third harmonic generation from a semiconductor quantum well
- P11 J. Rautert, J. Debus, D. Braukmann, V. Yu. Ivanov, D. R. Yakovlev, G. Karczewski, T. Wojtowicz, M. Bayer,
Impact of the dynamically tuned 2DEG density on the photoluminescence of CdTe and CdMnTe quantum wells
- P12 M. P. Polak, P. Scharoch, R. Kudrawiec,
Bismuth diluted III–V semiconductor materials for quantum well based optoelectronic devices
- P13 A. Bogucki, M. Goryca, K. Oreszczuk, T. Smoleński, J. Kobak, W. Pacuski, P. Kossacki,
Spin relaxation studies of an individual Co^{2+} ion in a CdTe/ZnTe quantum dot
- P14 A. Mielnik–Pyszczorski, K. Gawarecki, P. Machnikowski,
Charge and spin injection in a quantum well–quantum dot system
- P15 M. Gawelczyk, P. Machnikowski,
Spin dynamics and magneto–optical response in charge-neutral tunnel–coupled quantum dots
- P16 F. Ungar, M. Cygorek, P. I. Tamborenea, V. M. Axt,
Competition between exchange interaction and spin–orbit coupling in the spin dynamics of paramagnetic II–VI diluted magnetic semiconductors
- P17 M. Krzykowski, M. Gawelczyk, P. Machnikowski,
Hole spin dynamics in coupled quantum dots
- P18 I. Bragar, Ł. Cywiński,
Dynamics of entanglement between two singlet–triplet qubits: role of nuclear spin baths and charge noise
- P19 J. Kutrowska, J. Jadczak, E. Zdanowicz, P. Sitarek, Y. S. Huang, L. Bryja,
Optical control of charge carrier density in monolayer MoS_2 and WS_2
- P20 M. Bieniek, T. Woźniak, P. Potasz, A. Wójs,
Electronic properties of 2–dimensional bilayer bismuth topological insulator

- P21 M. Brzezińska, P. Potasz, A. Wójs,
Entanglement spectrum of a Chern insulator on the Lieb lattice
- P22 P. Bugajny, P. Potasz, A. Wójs,
Analysis of symmetry in the graphene quantum dots
- P23 B. Kuśmierz, A. Wójs,
Natural and reverse lexicographic order of partitions and fractional quantum Hall effect
- P24 T. Woźniak, M. Bieniek, J. Jadczyk, P. Scharoch, A. Wójs,
Ab initio studies of structural, electronic and dynamical properties of chosen group VI–B transition metal dichalcogenides systems
- P25 A. Sitek, G. Thorgilsson, V. Gudmundsson, A. Manolescu,
Controllable properties of polygonal quantum rings
- P26 P. Podemski, A. Maryński, M. Pieczarka, J. Misiewicz, A. Löffler, S. Höfling, S. Reitzenstein, G. Sęk,
Microphotoluminescence excitation spectroscopy on single $In_{0.3}Ga_{0.7}As/GaAs$ quantum dots
- P27 A. Maryński, M. Syperek, J. Misiewicz, V. Liverini, M. Beck, J. Faist, G. Sęk,
Barrier layer dependence of the carrier dynamics in $InAs/InP$ quantum dot structures
- P28 P. Mrowiński, K. Tarnowski, J. Olszewski, W. Urbanczyk, P. Machnikowski, J. Misiewicz, A. Somers, J. P. Reithmaier, S. Höfling, G. Sęk,
Tailoring the polarization anisotropy of exciton emission from $InAs/InGaAlAs$ quantum dashes
- P29 Ł. Dusanowski, M. Syperek, J. Misiewicz, A. Somers, J. P. Reithmaier, S. Höfling, G. Sęk,
Temperature dependence of photon emission statistics and dynamics of a charged exciton in an $InAs/InP$ quantum dash
- P30 A. Crai, A. Pusch, D. E. Reiter, O. Hess,
Microscopic model of hot electron generation in a metal nanosphere
- P31 A. M. Barth, S. Lüker, F. Ungar, S. Wolf, A. Vagov, V. M. Axt, D. E. Reiter, T. Kuhn,
The role of adiabatic undressing for fast phonon–assisted quantum dot state preparation
- P32 S. Holzinger, E. Schlottmann, B. Lingnau, K. Lüdge, C. Schneider, M. Kamp, S. Höfling, J. Wolters, S. Reitzenstein,
Injection Locking in the Quantum Regime
- P33 A. Vagov, A. A. Shanenko, S. Wolf, J. A. Aguiar, V. M. Axt,
Inter–type superconductivity in multi–band materials
- P34 S. Wolf, A. Vagov, A. A. Shanenko, J. A. Aguiar, V. M. Axt,
Exotic vortex configurations in superconductors with deep and shallow bands
- P35 K. Wittek, H. Maćzko, M. P. Polak, M. Gładysiewicz, P. Scharoch,
Ab initio vs $k \cdot p$ $Ge_{(1-x)}Sn_{(x)}$ electronic structure for QW modelling
- P36 P. Karwat, D. E. Reiter, T. Kuhn, O. Hess,
Thermal lasing in nanoscopic quantum systems
- P37 D. Kwiatkowski, Ł. Cywiński,
Decoherence of an NV center coupled to a bath of ^{13}C nuclear spins
- P38 E. Zielony, M. Morawski, E. Płaczek-Popko, Z. Gumienny, S. Chusnutdinow, G. Karczewski,
Investigation of recombination centers in $CdTe$ -based photodiodes
- P39 K. M. Paradowska, E. Płaczek-Popko, M. A. Pietrzyk, A. Kozanecki,
Optical and electrical properties of ZnO -based structures for ultraviolet detection