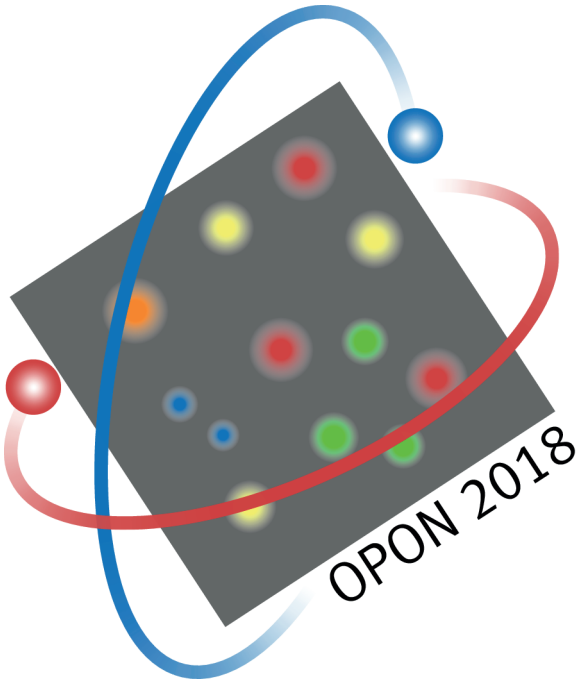
5TH INTERNATIONAL WORKSHOP ON THE OPTICAL PROPERTIES OF NANOSTRUCTURES

Münster, 14.-16.02.2018



PROGRAM

WORKSHOP PROGRAM

Wednesday, 14.02.

09:00–09:15 Opening Session

Session We1: Quantum Dots, Dashes and Wires

09:15–09:45 H. J. Krenner
Interfacing single quantum emitters with coherent elastic waves

09:45–10:15 M. Syperek
Optical properties and carrier dynamics in InAs/InP(001) quantum dashes/dots

10:15–10:30 P. T. Różański, M. Zieliński
Excitonic spectra of ten-million atom crystal-phase quantum dots

10:30–10:45 A. Sitek, M. Urbaneja Torres, V. Gudmundsson, A. Manolescu
Corner and side states in prismatic semiconductor shells

10:45–11:15 Coffee Break

Session We2: Non-Classical Light Emitters I

11:15–11:45 S. Reitzenstein
Non-classical light emission of deterministically fabricated quantum dot-microlenses

11:45–12:15 E. del Valle
The true colours of quantum light

12:15–12:30 A. J. Brash, C. L. Phillips, J. O'Hara, F. Liu, L. M. P. P. Martins, R. J. Coles, B. Royall, C. Bentham, I. Itskevich, L. R. Wilson, M. S. Skolnick, A. M. Fox
Influence of excitation pulse parameters on a single photon source with very short radiative lifetime

12:30–12:45 A. Musiał, Ł. Dusanowski, P. Holewa, P. Mrowiński, A. Maryński, K. Gawarecki, T. Heuser, N. Srocka, D. Quandt, A. Strittmater, S. Rodt, S. Reitzenstein, G. Sęk
Single photon emission from GaAs-based quantum dots at telecom wavelengths

12:45–14:15 Lunch Break

Session We3: Plasmons and Polaritons

14:15–14:45 M. Lippitz
Nonlinear plasmonics: Second- and third-harmonic generation in plasmonic nanostructures

14:45–15:15 A. Vagov, I. A. Larkin, M. D. Croitoru, K. Keil, V. M. Axt
Spatial non-locality and superanomalous skin effect for surface plasmon-polaritons

15:15–15:30 J. Obermeier, T.-Y. Chen, F.-C. Lin, J.-S. Huang, C.-B. Huang, M. Lippitz
Second harmonic generation in fully symmetric gold nanostructures

15:30–15:45 P. Stepanov, S. Klembt, T. Klein, A. Minguzzi, M. Richard
Thermal decoherence of a non-equilibrium polariton fluid

15:45–16:00 J. Suffczyński, K. Sawicki, J.-G. Rousset, R. Rudniewski, M. Ściesiek, T. Kazimierczuk, W. Pacuski, M. Nawrocki
Light-matter coupling in Te/Se based optical microcavities

16:00–16:30 Coffee Break

16:30–18:30 **Poster Session**

Thursday, 15.02.

Session Th1: Two-Dimensional Materials I

09:00–09:30 A. Castellanos-Gomez
Naturally occuring van der Waals heterostructures

09:30–10:00 A. Knorr, M. Selig, D. Christiansen, F. Katsch, G. Berghäuser, E. Malic
Exciton based description of atomically thin materials: Optical lineshape, intervalley coupling and luminescence dynamics

10:00–10:15 T. Jakubczyk, K. Nogajewski, M. R. Molas, M. Bartos, W. Langbein, M. Potemski, J. Kasprzak
Impact of environment on dynamics of exciton complexes in a WS_2 monolayer

10:15–10:30 T. Deilmann, K. S. Thygesen
Interlayer trions in the MoS_2/WS_2 van der Waals heterostructure

10:30–10:45 A. Arora, M. Drüppel, R. Schmidt, T. Deilmann, R. Schneider, M. R. Molas, P. Marauhn, S. Michaelis de Vasconcellos, M. Potemski, M. Rohlfing, R. Bratschitsch
Interlayer excitons in a bulk van der Waals semiconductor

10:45–11:15 Coffee Break

Session Th2: Quantum Transport and Tunneling

11:15–11:45 F. Gallego-Marcos, J. Picó, G. Platero
Long range quantum state transfer in AC driven quantum dot arrays

11:45–12:15 K. Roszak, Ł. Cywiński
Equivalence of qubit-environment entanglement and discord generation via pure dephasing interactions and the consequences thereof

12:15–12:30 R. Rosati, F. Lengers, D. E. Reiter, T. Kuhn
Spatial control of the spatiotemporal dynamics of the captured charge into localized states in $MoSe_2$ monolayers

12:30–12:45 M. Gawełczyk, M. Krzykowski, K. Gawarecki, P. Machnikowski
Controllable electron spin dephasing due to phonon state distinguishability in coupled quantum dots

12:45–14:15 Lunch Break

Session Th3: Two-Dimensional Materials II

14:15–14:45 T. Smoleński, T. Kazimierczuk, M. Goryca, M. Koperski, M. Molas, C. Faugeras, A. Bogucki, K. Nogajewski, M. Potemski, P. Kossacki
Magnetic field induced polarization enhancement in monolayer tungsten dichalcogenides

14:45–15:15 M. Rohlfing
Electronic and optical spectra of layered materials

15:15–15:45 F. Dolcini, R. C. Iotti, A. Montorsi, F. Rossi
Photoexcitation of electron wavepackets in 2D topological insulators

15:45–16:00 R. Frisenda
Surface doping of single-layer MoS_2 with neutral organic radical molecules

16:00–16:30 Coffee Break

Session Th4: Spectroscopy

16:30–17:00 J. Kasprzak
Coherent spectroscopy of nanostructures: Where should we go from here?

17:00–17:30 M. Bayer
Interacting Rydberg excitons in cuprous oxide

17:30–17:45 D. Wigger, D. E. Reiter, T. Kuhn, J. Kasprzak
Coherence and population dynamics of quantum dot excitons revealed by four-wave mixing spectroscopy

19:00 **Dinner**

Friday, 16.02.

Session Fr1: Quantum Dots

09:00–09:30 M. Zieliński
Atomistic theory of excitons in nanostructures: Beyond 10-million atoms in simulation

09:30–10:00 A. M. Fox
On-chip quantum photonics using integrated quantum dot emitters

10:00–10:15 T. Czerniuk, D. Wigger, A. V. Akimov, C. Schneider, M. Kamp, S. Höfling, D. R. Yakovlev, T. Kuhn, D. E. Reiter, M. Bayer
Picosecond control of quantum dot laser emission by coherent phonons

10:15–10:30 M. Weiß, S. Kapfinger, T. Reichert, J. J. Finley, A. Wixforth, M. Kaniber, H. J. Krenner
Surface acoustic wave regulated single photon emission of a coupled quantum dot-nanocavity system

10:30–10:45 M. Cygorek, A. M. Barth, F. Ungar, A. Vagov, V. M. Axt
Phonon effects on laser-driven quantum-dot–cavity systems in the strong-coupling strong-driving limit

10:45–11:15 Coffee Break

Session Fr2: Non-Classical Light Emitters II

11:15–11:45 S. Michaelis de Vasconcellos
Strain-induced single-photon emitters in 2D semiconductors

11:45–12:00 S. Franke, M. Gegg, S. Hughes, A. Knorr, M. Richter
Exciton-photon dynamics and mode quantization in nanocavity-emitter structures

12:00–12:15 T. Heindel, A. Thoma, M. von Helversen, M. Schmidt, A. Schlehahn, M. Gschrey, P. Schnauber, J.-H. Schulze, A. Strittmatter, J. Beyer, S. Rodt, A. Carmele, A. Knorr, S. Reitzenstein
A bright triggered twin-photon source in the solid state

12:15–12:30 T. Chlouba, M. Žonda, T. Ostatnický, T. Novotný
Analytical calculation of phase bistability switching rates in dissipative Jaynes-Cummings model

12:30–12:45 Closing Session

12:45–14:15 Lunch

POSTERS

P1 P. Tonndorf, O. del Pozo-Zamudio, N. Gruhler, J. Kern, R. Schmidt, S. Schwarz, I. Niehues, A. I. Dmitriev, A. P. Bakhtinov, D. N. Borisenko, N. N. Kolesnikov, A. I. Tartakovskii, W. Pernice, S. Michaelis de Vasconcellos, R. Bratschitsch
On-chip waveguide coupling of single-photon emitters in GaSe crystals

P2 D. Possemeyer, V. Kovalyuk, S. Ferrari, A. Korneev, G. Gol'tsman, W. Pernice
On-chip coherent detection with quantum limited sensitivity

P3 M. von Helversen, J. Böhm, M. Schmidt, J.-H. Schulze, A. Strittmatter, S. Rodt, J. Beyer, T. Heindel, S. Reitzenstein
Exploring quantum-light sources using photon-number resolving detectors

P4 F. Beutel, J. Muenzberg, A. Vetter, S. Ferrari, C. Rockstuhl, W. Pernice
Ultra-fast waveguide-integrated single-photon detectors

P5 J. Olthaus, D. E. Reiter, P. Schrinner, C. Schuck
Coupling of a single emitter to a Si_3N_4 photonic crystal nanobeam cavity

P6 R. Roß, C. Schuck
Inverse design of compact nanophotonic devices

P7 T. Tuła, M. Kraft, A. Knorr
Correlation of photons in 1D QED waveguide systems with feedback and Förster interactions between two-level systems

P8 P. Schrinner, M. Otte, R. Henke, C. Schuck
Nano-photonic circuits with integrated quantum emitter

P9 R. M. Kerber, J. M. Fitzgerald, S. S. Oh, O. Hess, D. E. Reiter
Using plasmonic nanoantennas to read out the orbital angular momentum of light

P10 T. Stiehm, J. Kern, R. Schmidt, M. Jürgensen, S. Michaelis de Vasconcellos, R. Bratschitsch
Radiation pattern of the third harmonic emission generated in gold nanoantennas

P11 S. Franke, S. Hughes, A. Knorr, M. Richter
Construction of annihilation and creation operators of quasinormal modes for open cavity-QED

P12 A. Bogucki, M. Goryca, W. Pacuski, P. Kossacki
Precise determination of strain-related spin Hamiltonian parameters by angle-dependent optically detected magnetic resonance in (Cd,Mn)Te/(Cd,Mg)Te quantum wells

P13 M. Cosacchi, M. Cygorek, F. Ungar, V. M. Axt
Influence of optically generated nonequilibrium carrier distributions on D'yakonov-Perel'-type spin dynamics

P14 F. Ungar, M. Cygorek, V. M. Axt
Reversed dependency of exciton spin-transfer rates on magnetic field revealed by quantum kinetic calculations

P15 B. Seredyński, M. Król, P. Starzyk, R. Mirek, M. Ściesiek, K. Sobczak, J. Borysiuk, D. Stephan, J. Szczytko, B. Piętka, W. Pacuski
Lift-off using MgTe sacrificial buffer for transmission studies of polaritons in II-VI semiconductor microcavity

P16 M. Pieczarka, C. Schneider, S. Höfling, G. Sęk
Dynamics of nonresonantly driven quasi-one-dimensional microcavity laser

P17 J.-G. Rousset, M. Król, R. Mirek, K. Lekenta, J. Szczytko, M. Nawrocki, B. Piętka, W. Pacuski
Condensation of semimagnetic microcavity polaritons

P18 A. Mielnik-Pyszczorski, K. Gawarecki, P. Machnikowski, V. M. Axt
Carrier kinetics in a coupled quantum well-quantum dot system

P19 F. Lengers, R. Rosati, T. Kuhn, D. E. Reiter
Carrier capture processes in semiconductor heterostructures: On the consequences of dimensionality

P20 J. Preuß, O. del Pozo-Zamudio, R. Schmidt, P. Tonndorf, J. Kern, S. Michaelis de Vasconcellos, R. Bratschitsch
Single-photon emitters in hBN

P21 H. Osthues, N. L. Doltsinis
Functionalization of MoS_2 with light switchable azobenzene

P22 R. Schmidt, G. Berghäuser, R. Schneider, M. Selig, P. Tonndorf, E. Malic, A. Knorr, S. Michaelis de Vasconcellos, R. Bratschitsch
Ultrafast Coulomb intervalley coupling in a WS_2 monolayer

P23 C. Schwermann, N. L. Doltsinis
Unraveling photoluminescence enhancement in MoS_2

P24 F. Katsch, M. Selig, A. Carmele, A. Knorr
Theory of exciton-exciton interactions in monolayer transition metal dichalcogenides

P25 I. Niehues, R. Schmidt, R. Schneider, M. Drüppel, T. Deilmann, M. Rohlfing, S. Michaelis de Vasconcellos, A. Castellanos-Gomez, R. Bratschitsch
Strain engineering in two-dimensional WSe_2

P26 A. F. Blob, I. Niehues, V. Jadriško, B. Radatović, M. Kralj, S. Michaelis de Vasconcellos, R. Bratschitsch
Strain tuning of CVD-grown MoS_2 monolayers

P27 P. Gant, R. Frisenda, P. Huang, D. Pérez de Lara, A. Castellanos-Gomez
Biaxial strain to tune the optoelectronic behavior of 2D photodetectors

P28 J. Kern, I. Niehues, P. Tonndorf, R. Schmidt, D. Wigger, R. Schneider, T. Stiehm, S. Michaelis de Vasconcellos, D. E. Reiter, T. Kuhn, R. Bratschitsch
Deterministic positioning of single-photon emitters in monolayer WSe_2 on the nanoscale

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Thickness dependent electronic and optical properties of TMDCs within many-body perturbation theory

P30 R. Schmidt, A. Arora, G. Plechinger, P. Nagler, A. Granados del Águila, M. V. Ballottin, P. C. M. Christianen, S. Michaelis de Vasconcellos, C. Schüller, T. Korn, R. Bratschitsch
Magnetic-field-induced rotation of polarized light emission from monolayer WS_2

P31 L. Eschmann, P. Krüger, M. Rohlfing
Energy shift of the Ag (111) Shockley state due to adsorption of NTCDA

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Effects of the Tamm-Dancoff approximation on the optical spectra of organic molecules

P33 J. Gesenhues, D. Nabok, M. Rohlfing, C. Draxl
GW and beyond from matrix resolvents

P34 M. Świderski, M. Zieliński
Atomistic theory of excitonic fine structure in $InAs_xP_{1-x}/InP$ nanowire quantum dot molecules

P35 M. Holtkemper, D. E. Reiter, G. F. Quinteiro, T. Kuhn
Unusual transitions in a quantum dot induced by spatially structured laser beams

P36 A. Rodek, T. Kazimierczuk, W. Pacuski, P. Kossacki
Radiative recombination of dark excitons emitted from self-assembled CdSe/ZnSe quantum dots

P37 K. Gawarecki
Spin-orbit coupling and magnetic field dependence of hole states in a self-assembled quantum dot

P38 K. Oreszczuk, M. Goryca, W. Pacuski, T. Smoleński, M. Nawrocki, P. Kossacki
Excitation mechanisms of Mn^{2+} ion in CdSe/ZnSe quantum dots

P39 T. Smoleński, T. Kazimierczuk, M. Goryca, W. Pacuski, P. Kossacki
Fine structure of an exciton coupled to a single Fe^{2+} ion in a CdSe/ZnSe quantum dot

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Hole spin decoherence in a coupled quantum dot system

P41 M. Gawełczyk, M. Syperek, A. Maryński, P. Mrowiński, Ł. Dusanowski, K. Gawarecki, J. Misiewicz, A. Somers, J. P. Reithmaier, S. Höfling, G. Sęk
Properties of exciton states in InAs on InP nanostructures emitting at telecom wavelengths

P42 P. Wyborski, A. Maryński, P. Podemski, A. Musiał, J. Misiewicz, J.-H. Schulze, S. Strittmatter, S. Rodt, S. Reitzenstein, G. Sęk
Properties of light-hole excitons in single InGaAs/GaAs quantum dots observed in photoluminescence perpendicular to the growth direction

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Exciton diffusion in a quantum dot ensemble

P44 G. J. Schäfer, A. Rastelli, M. Lippitz
Speeding up a single quantum dot pump-probe experiment

P45 P. Holewa, P. Mrowiński, A. Musiał, J. Misiewicz, N. Srocka, D. Quandt, A. Strittmatter, S. Rodt, S. Reitzenstein, G. Sęk
Temperature dependence of photoluminescence from deterministic quantum dot - micromesas emitting single photons at 1.3 μm

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Extracting the degree of two-photon entanglement in the biexciton cascade in quantum dot-cavity systems

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Exploring chaos synchronization in optically delay-coupled high-β quantum-dot micropillar lasers

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Towards strong sound-matter interactions in hybrid quantum dot-surface acoustic wave resonators

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Polaron resonances in self-assembled double quantum dots

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Theoretical concept of a thermal phonon lasing

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Phonon effects on time-resolved pump-probe signals of a continuously driven quantum dot

P52 P. Eickholt, M. Holtmann, C. Sanders, M. Dendzik, M. Bianchi, P. Hofmann, M. Donath
Dispersion and spin structure of conduction bands of single-layer WS_2 on Au(111)