

22nd International Conference on Electron Dynamics in Semiconductors, Optoelectronics and Nanostructures



MÜNSTER, GERMANY
14-18 August 2023

Program and Abstracts

Agora Conference Center
Bismarckallee 11, Münster

Supported by

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Conference Program

Sunday, 13 August 2023**Welcome Reception**

17:00 – 21:00 Schloss (Palace), Schlossplatz 2

Monday, 14 August 2023

09:00 – 09:15 Opening session

Session Mo A: Topological phenomena/Perovskites

Chair: Rudolf Bratschitsch, University of Münster, Germany

09:15 – 09:45 Mo A-1 (invited)

S. Iwamoto*Research Center for Advanced Science and Technology and Institute of Industrial Sciences, The University of Tokyo*

Topological states of light in nanophotonic structures

09:45 – 10:00 Mo A-2

T.A. Uaman Svetikova^{1,3}, T.V.A.G. de Oliveira¹, A. Pashkin¹, A. Ponomaryov¹, C. Berger², L. Fürst², F. Bayer², H. Buhmann², L.W. Molenkamp², M. Helm^{1,3}, T. Kiessling², S. Winnerl¹, S. Kovalev¹, and G.V. Astakhov¹¹*Helmholtz-Zentrum Dresden-Rossendorf, Germany*, ²*Physikalisches Institut (EP3), Universität Würzburg, Germany*, ³*Technische Universität Dresden, Germany*

Efficient THz third harmonic generation in topological HgTe quantum wells

10:00 – 10:15 Mo A-3

G.A. Khodaparast¹, **B.A. Magill**¹, K. Wang², S. McGill³, C.J. Stanton⁴, S. Priya²¹*Department of Physics, Virginia Tech, Blacksburg, VA, USA*, ²*Materials Research Institute, Penn State, University Park, PA, USA*, ³*Department of Physics, Florida State University and National High Magnetic Field Laboratory, Tallahassee, FL, USA*, ⁴*Department of Physics, University of Florida, Gainesville, FL, USA*

Time-Resolved Optical Studies of High-Quality Quasi-2D Halide Perovskites

10:15 – 10:30 Mo A-4

G. Ammirati^{1,2}, F. Martelli³, P. O’Keeffe¹, S. Turchini¹, A. Paladini¹, M. Palummo⁴, G. Giorgi^{5,6,7}, M. Cinquino^{8,9}, M. De Giorgi⁸, L. De Marco⁸, D. Catone¹¹*ISM-CNR, Istituto di Struttura della Materia, EuroFEL Support Laboratory (EFSL), Rome, Italy*, ²*CHOSE (Centre for Hybrid and Organic Solar Energy), University of Rome Tor Vergata, Rome, Italy*, ³*Istituto per la Microelettronica e i Microsistemi (IMM), CNR, Rome, Italy*, ⁴*INFN, Dept. of Physics, University of Rome Tor Vergata, Roma, Italy*, ⁵*Department of Civil & Environmental Engineering (DICA), University of Perugia, Perugia, Italy*, ⁶*CNR-SCITEC, Perugia, Italy*, ⁷*CIRIAF - Interuniversity Research Centre, University of Perugia, Italy*, ⁸*CNR NANOTEC, Institute of Nanotechnology, University of Salento, Lecce, Italy*, ⁹*Dipartimento di Matematica e Fisica E. De Giorgi, Università Del Salento, Lecce, Italy*

Band structure and exciton dynamics in Quasi-2D dodecylammonium halide perovskites

10:30 – 11:00 Coffee Break

Session Mo B: Transport in nanostructures and disordered systems

Chair: Carlo Jacoboni, University of Modena and Reggio Emilia, Italy

11:00 – 11:30 Mo B-1 (invited)

O. Tal

Department of Chemical Physics, Weizmann Institute of Science, 7610001 Rehovot, Israel

Unknown versions of electronic flicker noise in nanoscale conductors and their potential applications

11:30 – 11:45 Mo B-2

J.C. Bayer, A. Schmidt, T. Wagner and R. J. Haug

Institute for Solid State Physics, Leibniz Universität Hannover, Germany

A Periodically Driven Single-Electron Transistor

11:45 – 12:00 Mo B-3

Y. Ban¹, K. Kato², S. Iizuka², S. Murakami², K. Ishibashi¹, S. Moriyama³, T. Mori² and K. Ono¹

¹RIKEN, 2-1, Wako, 351-0198 Saitama, Japan, ²Device Technology Research Institute (D-Tech), National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan, ³Tokyo Denki University (TDU), Adachi-ku, Japan

Single-electron transport and Pauli spin blockade up to room temperature via deep impurity levels in silicon

12:00 – 12:15 Mo B-4

A. Gupta¹, G. Kataria², **J.J. Heremans**³, M. Chandra⁴, R. Sundararaman⁴, S. Fallahi^{5,6}, G.C. Gardner⁶ and M.J. Manfra^{5,6,7}

¹Department of Electrical Engineering, Princeton University, New Jersey, USA, ²Bradley Dept. of Electrical and Computer Engineering, Virginia Tech, Virginia, USA, ³Department of Physics, Virginia Tech, Virginia, USA, ⁴Dept. of Materials Science and Engineering, Rensselaer Polytechnic Institute, New York, USA, ⁵Department of Physics and Astronomy, Purdue University, Indiana, USA, ⁶Birck Nanotechnology Center, Purdue University, Indiana, USA, ⁷Schools of Electrical and Computer Eng. & Materials Eng., Purdue University, Indiana, USA

Electron-electron Scattering in GaAs/AlGaAs Quantified by Mesoscopic Ballistic Transport

12:15 – 12:30 Mo B-5

M. Gawętczyk^{1,2}, G.W. Bryant^{3,4}, and M. Zieliński¹

¹Institute of Physics, Faculty of Physics, Astronomy and Informatics, Nicolaus Copernicus University, Toruń, Poland, ²Institute of Theoretical Physics, Wrocław University of Science and Technology, Poland, ³Atom Based Device Group, National Institute of Standards and Technology, Gaithersburg, MD, USA, ⁴Joint Quantum Institute, University of Maryland, College Park, MD, USA

Disorder-Resilient Transport Through Dopant Arrays in Silicon

12:30 – 14:00 Lunch

Session Mo C: Coherent carrier dynamics for quantum technologies I

Chair: Akira Oiwa, Osaka University, Japan

14:00 – 14:30 Mo C-1 (invited)

T. Nakajima*RIKEN Center for Emergent Matter Science, Saitama, Japan*

Building a Tiny Quantum Computer with Silicon Quantum Dot

14:30 – 14:45 Mo C-2

Y. Karli¹, D. Vajner², F. Kappe¹, P.C.A. Hagen³, L. Hansen^{4,8}, S.F. Covre da Silva⁵, T.K. Bracht^{6,7}, R. Schwarz¹, C. Schimpf⁵, V. Remesh¹, J. Loredo^{4,8}, A. Rastelli⁵, V.M. Axt³, P. Walther^{4,8}, D.E. Reiter⁶, T. Heindel², and G. Weihs¹¹*Institute für Experimentalphysik, Universität Innsbruck, Austria*, ²*Institute of Solid State Physics, Technische Universität Berlin, Germany*, ³*Theoretische Physik III, Universität Bayreuth, Germany*, ⁴*Vienna Center for Quantum Science and Technology (VCQ), University of Vienna, Austria*, ⁵*Institute of Semiconductor and Solid State Physics, Johannes Kepler University Linz, Austria*, ⁶*Condensed Matter Theory, Department of Physics, TU Dortmund, Germany*, ⁷*Institut für Festkörpertheorie, Universität Münster, Germany*, ⁸*Christian Doppler Laboratory for Photonic Quantum Computer, University of Vienna, Austria*

Exploring Stimulated Two-photon Resonant Excitation for the Generation of Photon Number Coherent States

14:45 – 15:00 Mo C-3

J. A. Preuß¹, D. Groll², R. Schmidt¹, T. Hahn^{1,2}, P. Machnikowski³, T. Kuhn², R. Bratschitsch¹, D. Wigger⁴ and **S. Michaelis de Vasconcellos^{1,5}**¹*University of Münster, Institute of Physics and Center for Nanotechnology, Germany*, ²*University of Münster, Institute of Solid State Theory, Germany*, ³*Wrocław University of Science and Technology, Department of Theoretical Physics, Poland*, ⁴*School of Physics, Trinity College Dublin, Ireland*, ⁵*Department of Physics, TU Dortmund University, Germany*

Ultrafast Coherent Optical Manipulation of a Single Quantum Light Emitter in hBN

15:00 – 15:15 Mo C-4

T.K. Bracht^{1,2}, Y. Karli³, F. Kappe³, V. Remesh³, V.M. Axt⁴, G. Weihs³, **D.E. Reiter¹**¹*Condensed Matter Theory, TU Dortmund, Germany*, ²*Institute of Solid State Theory, University of Münster, Germany*, ³*Institut für Experimentalphysik, Universität Innsbruck, Austria*, ⁴*Theoretische Physik III, Universität Bayreuth, Germany*

Coherently exciting quantum emitters making use of the SUPER scheme

15:15 – 15:30 Mo C-5

D. Hashemi Kalibar, P. Henzler, R. Tenne, and A. Leitenstorfer*Department of Physics and Center for Applied Photonics, University of Konstanz, Germany*

Ultrafast Selective Initialization of Coherent Excitonic States in a Single Quantum Dot

15:30 – 15:45 Mo C-6

A.P. Garrido^{1,2}, D. Zamorano², J.P. Ramos-Andrade², **P.A. Orellana¹**¹*Departamento de Física, Universidad Técnica Federico Santa María, Valparaiso, Chile*, ²*Departamento de Física, Universidad de Antofagasta, Antofagasta, Chile*

Bound states in the continuum and Majorana zero modes in a double quantum dot interferometer: Ghost-Fano-Majorana effect

15:45 – 16:15 Coffee Break

Session Mo P

16:15 – 18:00 Poster Session I

Tuesday, 15 August 2023

Session Tu A: 2D materials

Chair: Ursula Wurstbauer, University of Münster, Germany

09:00 – 09:30 Tu A-1 (invited)

J. Klein

Department of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA

Atom-by-atom control of structure and properties of the magnetic semiconductor CrSBr

09:30 – 09:45 Tu A-2

M.G. Harats¹, J.N. Kirchof², S. Kovalchuk², M. Xiao², K. Greben², K.I. Bolotin²

¹*Department of Materials Engineering, Ben Gurion University, Beer-Sheva, Israel,*

²*Faculty of Physics, Freie University Berlin, Germany*

Features of Non-Uniform Strain in Transition-Metal Dichalcogenides Monolayers

09:45 – 10:00 Tu A-3

D. Wigger¹, A. Rodek², T. Hahn³, J. Howarth⁴, T. Taniguchi⁵, K. Watanabe⁶, M. Potemski^{2,7,8}, P. Kossacki² and J. Kasprzak^{2,9,10}

¹*School of Physics, Trinity College Dublin, Ireland,* ²*Faculty of Physics, University of Warsaw, Poland,* ³*Institute of Solid State Theory, University of Münster, Germany,*

⁴*National Graphene Institute, University of Manchester, UK,* ⁵*International Center for Materials Nanoarchitectonics, National Institute for Materials Science, Tsukuba, Japan,*

⁶*Research Center for Functional Materials, National Institute for Materials Science, Tsukuba, Japan,* ⁷*Laboratoire National des Champs Magnétiques Intenses, CNRS-*

UGA-UPS-INSa-EMFL, Grenoble, France, ⁸*CENTERA Labs, Institute of High Pressure Physics, PAS, Warsaw, Poland,* ⁹*Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, Grenoble, France,* ¹⁰*Walter Schottky Institut and TUM School of Natural*

Sciences, Technische Universität München, Germany

Ultrafast nonlinear spectroscopy of coherently coupled exciton complexes in a gated MoSe₂ monolayer

10:00 – 10:15 Tu A-4

A.O. Slobodeniuk¹, P. Koutenský², M. Bartoš³, F. Trojánek², P. Malý², T. Novotný¹ and M. Kozák²

¹*Department of Condensed Matter Physics, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic,* ²*Department of Chemical Physics and Optics, Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic,* ³*Central*

European Institute of Technology, Brno University of Technology, Czech Republic

Valley-selective Stark and Bloch-Siegert shifts of exciton resonances in TMD monolayers

10:15 – 10:30 Tu A-5

T. Hahn¹, D. Vaclavkova², M. Bartos^{2,3}, K. Nogajewski⁵, M. Potemski^{2,4}, K. Watanabe⁵, T. Taniguchi⁶, P. Machnikowski⁷, T. Kuhn¹, J. Kasprzak⁸, and D. Wigger⁹

¹*Institute of Solid State Theory, University of Münster, Germany*, ²*Laboratoire National des Champs Magnétiques Intenses, CNRS-UGA-UPS-INSA-EMFL, Grenoble, France*, ³*Central European Institute of Technology, Brno University of Technology, Brno, Czech Republic*, ⁴*Institute of Experimental Physics, Faculty of Physics, University of Warsaw, Poland*, ⁵*Research Center for Functional Materials, National Institute for Materials Science, Tsukuba, Japan*, ⁶*International Center for Materials Nanoarchitectonics, National Institute for Materials Science, Tsukuba, Japan*, ⁷*Department of Theoretical Physics, Wrocław University of Science and Technology, Poland*, ⁸*Université Grenoble Alpes, CNRS, Institut Néel, Grenoble, France*, ⁹*School of Physics, Trinity College Dublin, Ireland*

Destructive Photon Echo in Six-Wave Mixing Dynamics Formed by Local Field Effects

10:30 – 11:00 Coffee Break

Session Tu B: Light-matter coupling, plasmons, polaritons

Chair: Doris Reiter, Technical University of Dortmund, Germany

11:00 – 11:30 Tu B-1 (invited)

F. Pisani, Y. Todorov

Laboratoire de Physique de l'Ecole Normale Supérieure, Paris, France

Ultra-strong light-matter coupling regime in semiconductor devices

11:30 – 11:45 Tu B-2

P.-C. Kuo^{1,2,3}, N. Lambert², M. Cirio⁴, Y.-T. Huang^{1,2}, F. Nori^{3,5,6}, and Y.-N. Chen^{1,2}

¹*Department of Physics, National Cheng Kung University, Tainan, Taiwan*, ²*Center for Quantum Frontiers of Research and Technology, NCKU, Tainan, Taiwan*, ³*Theoretical Quantum Physics Laboratory, Cluster for Pioneering Research, RIKEN, Wakoshi, Saitama, Japan*, ⁴*Graduate School of China Academy of Engineering Physics, Haidian District, Beijing, China*, ⁵*Center for Quantum Computing (RQC), RIKEN, Wakoshi, Saitama, Japan*, ⁶*Physics Department, The University of Michigan, Ann Arbor, Michigan, USA*

The Kondo effect and photon trapping in a two-impurity Anderson model ultra-strongly coupled to light

11:45 – 12:00 Tu B-3

F. Deng¹, X.G. Zhao², S.R.U. Haque³, C.X. Chen², Y. Zhang³, S.D. March⁴, S.J. Maddox⁴, S.R. Bank⁴, X. Zhang², J. D. Zhang^{1,3}, R. D. Averitt³

¹*Department of Physics, Hong Kong University of Science and Technology, Kowloon, Hong Kong, China*, ²*Department of Mechanical Engineering, Boston University, Boston, MA, USA*, ³*Department of Physics, University of California, San Diego, La Jolla, CA, USA*, ⁴*Microelectronics Research Center, University of Texas at Austin, Austin, TX, USA*

Ultrafast dynamics of hybrid plasmonic modes in InAs array studied by broadband THz spectroscopy

12:00 – 12:15 Tu B-4

J. Hazarika, F. Meng, M.D. Thomson, and H.G. Roskos*Physikalisches Institut, Goethe-University Frankfurt, Frankfurt am Main, Germany*

Ultrafast switch-off of metamaterial polariton modes in a terahertz photonic crystal cavity

12:15 – 14:00 Lunch

Session Tu C: Terahertz phenomena

Chair: Paolo Bordone, University of Modena and Reggio Emilia, Italy

14:00 – 14:15 Tu C-1

T. Ostatnický¹, **F. Klimovič**¹, V. Pushkarev², P. Kužel², H. Němec²¹*Charles University, Faculty of Mathematics and Physics, Praha, Czech Republic,*²*Institute of Physics ASCR, Praha, Czech Republic*

Quantum modeling of linear THz response reveals transport properties for electrons in semiconductor nanostructures

14:15 – 14:30 Tu C-2

V. Rindert^{1,2} E. Önder¹, and **A. Wacker**²¹*Mathematical Physics and NanoLund, Lund University, Sweden,* ²*Solid State Physics and NanoLund, Lund University, Sweden*

Terahertz Quantum Cascade Lasers for near-room-temperature operation

14:30 – 14:45 Tu C-3

B. Barut¹, X. Cantos-Roman², J. Crabb², A. Mundaganur¹, S. Mundaganur¹, T. Sugaya³, E. Einarsson¹, J.M. Jornet², **J.P. Bird**¹, and G.R. Aizin⁴¹*Department of Electrical Engineering, University at Buffalo, Buffalo, NY, USA,*²*Department of Electrical and Computer Engineering, Northeastern University, Boston, MA, USA,* ³*National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan,* ⁴*Kingsborough College, The City University of New York (CUNY), NY, USA**(CUNY), NY, USA*

Asymmetrically Engineered Nanoscale Transistors for On-Demand Sourcing of Terahertz Plasmons

14:45 – 15:00 Tu C-4

S. Mitra, L. Avazpour, and I. Knezevic*Department of Electrical and Computer Engineering, University of Wisconsin-Madison, Madison, WI, USA*Computational characterization of terahertz electronic transport of monolayer MoS₂ using coupled EMC-FDTD technique

15:00 – 15:30 Tu C-5 (invited)

D. Soranzio¹, E. Abreu¹, J. Dössegger¹, S. Houver^{1,2}, M. Savoini¹, F. Teppe³, N.N. Mikhailov⁴, S.A. Dvoretzki⁵ and S.L. Johnson¹¹*Institute for Quantum Electronics, Physics Department, ETH Zurich, Switzerland,*²*Université Paris Cité, CNRS, Matériaux et Phénomènes Quantiques, Paris, France,*³*Laboratoire Charles Coulomb, UMR CNRS 5221, University of Montpellier, Montpellier, France,* ⁴*Institute of Semiconductor Physics, Siberian Branch, Russian Academy of Sciences, Novosibirsk, Russia,* ⁵*Novosibirsk State University, Novosibirsk, Russia**Novosibirsk, Russia*Role of temperature and field amplitude in the nonlinear 2D THz response of Hg_{1-x}Cd_xTe

15:30 – 16:00 Coffee Break

Session Tu P

16:00 – 17:45 **Poster Session II**

Guided walking tour of the historic city center of Münster

18:30 – 20:00 Meeting point: Domplatz, in front of the LWL museum

Wednesday, 16 August 2023

Session We A: Coherent carrier dynamics for quantum technologies II

Chair: Steffen Michaelis de Vasconcellos, University of Münster, Germany

09:00 – 09:30 We A-1 (invited)

G. Platero

Instituto de Ciencia de Materiales de Madrid (CSIC), Cantoblanco, Madrid, Spain

Long-Range Quantum State Transfer in Semiconductor Quantum Dots Arrays

09:30 – 09:45 We A-2

S. Yasui^{1,2}, T. Inaba¹, A. Ishizawa¹, K. Hitachi¹, H. Omi⁴, R. Kaji², T. Tawara³, S. Adachi², X. Xu¹, H. Sanada¹

¹*NTT Basic Research Laboratories, NTT Corporation, Atsugi, Kanagawa, Japan,*

²*Graduate School of Engineering, Hokkaido University, Sapporo, Hokkaido, Japan,*

³*College of Engineering, Nihon University, Koriyama, Fukushima, Japan,* ⁴*Faculty of Science and Engineering, Yamato University, Suita, Osaka, Japan*

Development of Comb Transfer Method for High Efficiency Atomic Frequency Comb Quantum Memory

09:45 – 10:00 We A-3

D.A. Vajner¹, P. Holewa^{2,3,4}, A. Sakanas³, U.M. Gür³, P. Mrowinski², A. Huck⁵, K. Yvind^{3,4}, N. Gregersen³, A. Musiał², M. Syperek², E. Semenova^{3,4} and T. Heindel¹

¹*Institute of Solid State Physics, Technische Universität Berlin, Germany,* ²*Department of Experimental Physics, Faculty of Fundamental Problems of Technology, Wrocław University of Science and Technology, Wrocław, Poland,* ³*DTU Electro, Department of Electrical and Photonics Engineering, Technical University of Denmark, Kongens Lyngby, Denmark,* ⁴*NanoPhoton-Center for Nanophotonics, Technical University of Denmark, Kongens Lyngby, Denmark,* ⁵*Center for Macroscopic Quantum States (bigQ), Department of Physics, Technical University of Denmark, Kongens Lyngby, Denmark*

On-demand Generation of Indistinguishable Photons in the Telecom C-Band

10:00 – 10:15 We A-4

P. Machnikowski¹, D. Wigger^{1,2}, J. Schall³, M. Deconinck³, N. Bart⁴, P. Mrowinski^{1,5}, M. Krzykowski¹, K. Gawarecki¹, T. Hahn⁶, M. von Helversen³, R. Schmidt³, L. Bremer³, F. Bopp⁷, D. Reuter⁸, A. D. Wieck⁴, S. Rodt³, J. Renard⁹, G. Nogues⁹, A. Ludwig⁴, J.J. Finley⁷, S. Reitzenstein³ and J. Kasprzak^{7,9}

¹*Institute of Theoretical Physics, Wrocław University of Science and Technology, Poland,* ²*School of Physics, Trinity College Dublin, Ireland,* ³*Institute of Solid State Physics, Technische Universität Berlin, Germany,* ⁴*Lehrstuhl für Angewandte Festkörperphysik Ruhr-Universität Bochum, Germany,* ⁵*Laboratory for Optical Spectroscopy of Nanostructures, Department of Experimental Physics, Wrocław University of Technology, Poland,* ⁶*Institut für Festkörpertheorie, Universität Münster, Germany,* ⁷*Walter Schottky Institut and Physik Department, Technische Universität München, Germany,* ⁸*Department Physik, Universität Paderborn, Germany,* ⁹*Université Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, 38000 Grenoble, France*

Coherent coupling between optical transitions in a quantum dot molecule revealed by 2-dimensional four-wave-mixing spectroscopy

10:15 – 10:30 We A-5

P.C.A. Hagen¹, M. Bozzio², M. Cosacchi¹, T. Seidelmann¹, M. Cygorek³, A. Vagov¹, D.E. Reiter⁴, V.M. Axt¹

¹*Theoretische Physik III, Universität Bayreuth, Germany,* ²*Faculty of Physics, University of Vienna, VCQ, Austria,* ³*Institute of Photonics and Quantum Sciences, Heriot-Watt University, Edinburgh, UK,* ⁴*Condensed Matter Theory, TU Dortmund, Germany*

Phonons fail to destroy the photon number coherence of photons generated in quantum dots

10:30 – 11:00 Coffee Break

Session We B: Carrier dynamics in energy conversion devices

Chair: Luca Varani, University of Montpellier, France

11:00 – 11:30 We B-1 (invited)

V.R. Whiteside and I.R. Sellers

Department of Physics & Astronomy, University of Oklahoma, Norman OK, USA

Towards the Realization of the Hot Carrier Solar Cell

11:30 – 11:45 We B-2

N. Isaev, H. Esmailpour, J.J. Finley and G. Koblmüller

Walter Schottky Institute and Physics Department, TUM School of Natural Sciences, Technical University of Munich, Germany

Control of hot carrier relaxation rates in 1D-InGaAs nanowires by design

11:45 – 12:00 We B-3

A.S. Sharma, S.P. Bremner, M.P. Nielsen, M.J.Y. Tayebjee, F.E. Rougieux, N.J. Ekins-Daukes, and A.Pusch

School of Photovoltaic & Renewable Energy Engineering, UNSW Sydney, Australia

The Role of Carrier-Carrier Equilibration in Hot Carrier Solar Cells

12:00 – 12:15 We B-4

I. Baranowski¹, I.R. Sellers², D. Vasileska¹ and S. M. Goodnick¹

¹Arizona State University, Tempe, USA, ²Oklahoma University, Norman, USA

Monte Carlo Simulation of Ultrafast Carrier Relaxation in InAs/AlAsSb Quantum Wells

12:15 – 13:30 Lunch

Conference Excursion: Moated castles in the region around Münster

13:30 – 18:00 Departure from bus stop *Körnerstraße* (from the conference site turn left)

Thursday, 17 August 2023

Session Th A: Carrier heating/cooling and thermal transport

Chair: Rossella Brunetti, University of Modena and Reggio Emilia, Italy

09:00 – 09:30 Th A-1 (invited)

A. K. Sivan¹, C. Arya¹, J. Trautvetter¹, Y. Kaur¹, S. Tachikawa¹, G. de Vito¹, R. Swami¹, B. Abad¹, **I. Zardo**^{1,2}

¹Department of Physics, University of Basel, CH-4056 Basel, Switzerland, ²Swiss Nanoscience Institute, University of Basel, CH-4056 Basel, Switzerland

Engineering Thermal Transport in Low-Dimensional Systems

09:30 – 09:45 Th A-2

J.T. Nicholls¹, A.K. Jain¹, S.N. Holmes², C. Chen³ and D.A. Ritchie³

¹Physics Department, Royal Holloway, University of London, UK, ²London Centre for Nanotechnology, University College London, UK, ³Cavendish Laboratory, University of Cambridge, UK

The Heating and Cooling of Two-Dimensional Electrons at Low Temperatures

09:45 – 10:00 Th A-3

Z. Xiangyu¹, C. Salhani¹, G. Etesse², M. Bescond^{2,3}, G. Bastard⁴

¹Institute of Industrial Science, University of Tokyo, Japan, ²IM2NP UMR CNRS 7334 Aix-Marseille University, Marseille, France, ³LIMMS-CNRS, University of Tokyo, Japan,

⁴Physics Department, ENS PSL, Paris, France

Electron cooling/heating behavior in cascading multiple quantum well structures

10:00 – 10:15 Th A-4

T. Vezin¹, H. Esmailpour², S. Rani¹, L. Lombez³, D. Suchet¹, J.-F. Guillemoles¹

Institut Photovoltaïque d'Ile de France, UMR-IPVF 9006, CNRS, Ecole Polytechnique IPParis, ENSCP PSL, Palaiseau, France, ²Walter Schottky Institute, Technische Universität München, Germany, ³Laboratory of Physics and Chemistry of Nano-Objects (LPCNO-INSA), Toulouse, France

Optical Determination of Thermoelectric Properties of InGaAsP Quantum Well

10:15 – 10:45 Coffee Break

Session Th B: 2D materials: bilayers and heterostructures

Chair: Hubert Krenner, University of Münster, Germany

10:45 – 11:15 Th B-1 (invited)

K.J. Tielrooij*Eindhoven University of Technology, 5612 AZ Eindhoven, the Netherlands & Catalan Institute of Nanoscience and Nanotechnology (ICN2), Bellaterra (Barcelona), Spain*

Ultrafast thermodynamics in (twisted) quantum materials

11:15 – 11:30 Th B-2

T. Stiehm¹, N. Saigal¹, **H. Lambers**¹, F. Sigger², L. Sigl², M. Troue², J. Figueiredo², M. Katzer³, A. Knorr³, A.W. Holleitner² and U. Würstbauer²¹*Institute of Physics and Center for Nanotechnology, University of Münster, Germany,* ²*Walter Schottky Institute and Physics Department, Technical University Munich, Germany,* ³*Institute for Theoretical Physics, Nonlinear Optics and Quantum Electronics, Technical University of Berlin, Germany*

Millikelvin Spectroscopy on Degenerate Exciton Ensembles in van der Waals Bilayers

11:30 – 11:45 Th B-3

C.-H. Hsu^{1,2,3}, D. Loss^{3,4} and J. Klinovaja⁴¹*Yukawa Institute for Theoretical Physics, Kyoto University, Japan,* ²*Institute of Physics, Academia Sinica, Taipei, Taiwan,* ³*RIKEN Center for Emergent Matter Science, Wako, Saitama, Japan,* ⁴*Department of Physics, University of Basel, Basel, Switzerland*

Unconventional States of Matter in the Quantum-Wire Network of Moiré Systems

11:45 – 12:00 Th B-4

R. Rosati¹, I. Paradisanos², L. Huang³, Z. Gan^{4,5}, A. George^{4,5}, K. Watanabe⁶, T. Taniguchi⁷, L. Lombez², P. Renucci², A. Turchanin^{4,5}, B. Urbaszek^{2,8}, and E. Malic¹¹*Department of Physics, Philipps-Universität Marburg, Germany,* ²*Université de Toulouse, INSA-CNRS-UPS, LPCNO, Toulouse, France,* ³*Department of Chemistry, Purdue University, West Lafayette, IN, USA,* ⁴*Friedrich Schiller University Jena, Institute of Physical Chemistry, Germany,* ⁵*Abbe Centre of Photonics, Jena, Germany,* ⁶*Research Center for Functional Materials, NIMS, Namiki, Tsukuba, Japan,* ⁷*International Center for Materials Nanoarchitectonics, NIMS, Namiki, Tsukuba, Japan,* ⁸*Institute of Condensed Matter Physics, Technische Universität Darmstadt, Germany*

Charge-transfer excitons in 2D lateral heterostructures: Engineering and optics

12:00 – 12:15 Th B-5

A. Karmakar¹, A. Al-Mahboob² and M.R. Molas¹¹*Division of Solid State Physics, Institute of Experimental Physics, Faculty of Physics, University of Warsaw, Poland,* ²*Center for Functional Nanomaterials, Brookhaven National Laboratory, Upton, NY, USA*

Effect of Excitonic Level Overlaps in the Energy Transfer Processes in 2D Heterostructures

12:15 – 12:30 Th B-6

M. Huang, Z. Wu, X. Cai and **N. Wang***Department of Physics and Center for Quantum Materials, The Hong Kong University of Science and Technology, Kowloon, Hong Kong, China*

Giant Nonlinear Hall Effects in 2D Twisted Moiré Superlattices

12:30 – 14:00 Lunch

Session Th C: Graphene

Chair: Jonathan Bird, University at Buffalo, NY, USA

14:00 – 14:30 Th C-1 (invited)

S. Winnerl¹, A. Seidl^{1,2}, D.B. But³, M. Orlita⁴, and M. Helm^{1,2}¹*Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany*, ²*Technische Universität Dresden, Germany*, ³*National Centre for Nuclear Research: Warsaw, Poland*, ⁴*Laboratoire National des Champs Magnétiques Intenses, CNRS-UGA-UPS-INSA-EMFL, Grenoble, France*

Low energy carrier dynamics in Landau quantized graphene and HgCdTe - Perspectives for optical gain?

14:30 – 14:45 Th C-2

M.T. Greenaway^{1,2}, P. Kumaravadivel^{3,4}, J. Wengraf^{3,5}, L.A. Ponomarenko^{3,5}, A.I. Berdyugin³, J. Li⁶, J.H. Edgar⁶, R. Krishna Kumar³, A.K. Geim^{3,4}, and L. Eaves²¹*Department of Physics, Loughborough University, UK*, ²*School of Physics and Astronomy, University of Nottingham, UK*, ³*School of Physics and Astronomy, University of Manchester, UK*, ⁴*National Graphene Institute, University of Manchester, UK*, ⁵*Department of Physics, University of Lancaster, UK*, ⁶*Tim Taylor Department of Chemical Engineering, Kansas State University, USA*

Graphene's Non-equilibrium Fermions Reveal Doppler-Shifted Magnetophonon Resonances accompanied by Mach Supersonic and Landau Velocity Effects

14:45 – 15:00 Th C-3

G. Forghieri¹, P. Bordone¹, and A. Bertoni²¹*Università di Modena e Reggio Emilia, Italy*, ²*Centro S3, CNR-Istituto di Nanoscienze, Modena, Italy*

Coherent Transport in Mach-Zender Interferometers in Graphene

Session Th D: 50 years of EDISON/HCIS: A special session in honor of Carlo Jacoboni and Lino Reggiani

Chair: Tilmann Kuhn, University of Münster, Germany

15:00 – 15:05 Introduction

15:05 – 15:25 Th D-1

E. Schöll^{1,2,3}¹*Institut für Theoretische Physik, Technische Universität Berlin, Germany*, ²*Potsdam Institute for Climate Impact Research, Potsdam, Germany*, ³*Bernstein Center for Computational Neuroscience Berlin, Humboldt-Universität, Berlin, Germany*

Nonequilibrium phase transitions and quantum signatures of chimera states

15:25 – 15:45 Th D-2

Z. Wang¹, J. Mendez-Villanueva², D. Vasileska¹ and **S.M. Goodnick**¹¹*ECEE, Arizona State University, Tempe, AZ, USA*, ²*Department of Electronics, National Institute for Astrophysics, Optics, and Electronics, Puebla, Mexico*

Understanding the Origin of Self-Heating Effects in FD SOI Devices

15:45 – 16:15 Coffee Break

- 16:15 – 16:35 Th D-3
R. Brunetti¹, C. Jacoboni¹, and **M. Rudan**²
¹*Dipartimento FIM, Università degli Studi di Modena e Reggio Emilia, Modena, Italy,*
²*Dipartimento DEI, Alma Mater Studiorum Università di Bologna, Bologna, Italy*
 Do Urbach Tails Matter in Determining the Electric Properties of Amorphous Chalcogenides? A Simulative Approach to the Problem
- 16:35 – 16:55 Th D-4
 M. Lechelon^{1,2,3}, Y. Meriguet^{4,5}, M. Gori^{1,2,6}, S. Ruffenach⁵, I. Nardecchia^{1,2,3}, E. Floriani^{1,2}, D. Coquillat⁵, F. Teppe⁵, S. Mailfert³, D. Marguet³, P. Ferrier³, **L. Varani**⁴, J. Sturgis⁷, J. Torres⁴, M. Pettini^{1,2}
¹*Aix-Marseille Univ., Université de Toulon, CNRS, Marseille, France,* ²*Centre de Physique Théorique, CNRS, Marseille, France,* ³*Centre d'Immunologie de Marseille-Luminy, Aix-Marseille Univ., CNRS, Inserm, Marseille, France,* ⁴*Institut d'Electronique et des Systèmes, University of Montpellier, CNRS, Montpellier, France,* ⁵*Laboratoire Charles Coulomb, University of Montpellier, CNRS, Montpellier, France,* ⁶*Quantum Biology Lab, Howard University, Washington, DC, USA,* ⁷*Laboratoire d'Ingenierie des Systèmes Macromoleculaires, Aix-Marseille Univ., CNRS, Marseille, France*
 Nonequilibrium Spectroscopies of Biomolecules: Evidence of Long-Range Electrodynamic Forces
- 16:55 – 17:15 Th D-5 (invited)
P. Lugli
Free University of Bozen–Bolzano, Bozen, Italy
 Modena & Friends (1980-1990): A personal journey through 10 exciting years
- 17:15 – 17:45 Th D-6 (invited)
L. Reggiani
Università del Salento, Lecce, Italy
 1973-2023 half a century of HCIS - Unforgettable memories and souvenirs of a founder

Conference Dinner

19:00 Restaurant Ratskeller, Prinzpalmarkt 8

Friday, 18 August 2023

Session Fr A: Acoustic waves and piezoelectricity

Chair: Daniel Wigger, Trinity College Dublin, Ireland

- 09:00 – 09:30 Fr A-1 (invited)
 D.D. Bühler¹, **M. Weiß**², A. Crespo-Poveda³, E.D.S. Nysten², K. Müller⁴, P.V. Santos³, M.M. De Lima Jr.¹, and H.J. Krenner²
¹*Materials Science Institute (ICMUV), Universitat de València, Spain,* ²*Institute of Physics and Center for Nanotechnology, University of Münster, Germany,* ³*Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany,* ⁴*Walter Schottky Institut and Electrical Engineering, TU München, Germany*
 On-chip Generation and Dynamic Piezo-Optomechanical Rotation of Single Photons

09:30 – 09:45 Fr A-2
N. Spitzner¹, P. Zhao¹, R. Liang², C.H. Sharma¹, L. Tiemann¹ and R.H. Blick¹
¹*Center for Hybrid Nanostructures, University of Hamburg, Germany,* ²*School of Integrated Circuits, Tsinghua University, Beijing, China*
 Acoustically induced effects in magnetotransport measurements of MoS₂

09:45 – 10:00 Fr A-3
M. Yuan¹, K. Biermann¹, S. Takada², C. Bäuerle³ and P.V. Santos¹
¹*Paul-Drude-Institut für Festkörperelektronik, Leibniz-Institut im Forschungsverbund Berlin e.V., Berlin, Germany,* ²*National Institute of Advanced Industrial Science and Technology (AIST), National Metrology Institute of Japan (NMIJ), Tsukuba, Ibaraki, Japan,* ³*Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, Grenoble, France*
 GHz Surface-Acoustic-Wave Pumping of Flying and Single Excitons in Quantum Nanostructures

Session Fr B: Fluctuations and noise

Chair: Stephen M. Goodnick, Arizona State University, Tempe, AZ, USA

10:00 – 10:15 Fr B-1
 O. Chiatti¹, B. Düzel¹, C. Riha¹, S.S. Buchholz¹, A.D. Wieck³, D. Reuter⁴, and **S.F. Fischer**^{1,2}
¹*Novel Materials Group, Institut für Physik, Humboldt-Universität zu Berlin, Germany,* ²*Center for the Science of Materials Berlin, Humboldt-Universität zu Berlin, Germany,* ³*Angewandte Festkörperphysik, Ruhr-Universität Bochum, Germany,* ⁴*Optoelektronische Materialien und Bauelemente, Universität Paderborn, Germany*
 Excess Noise in Al_xGa_{1-x}As/GaAs-based Quantum Rings

10:15 – 10:30 Fr B-2
S. Cavazzoni¹, P. Bordone^{1,2}, and M.G.A. Paris^{3,4}
¹*Dipartimento di Scienze Fisiche, Informatiche e Matematiche, Università di Modena e Reggio Emilia, Modena, Italy,* ²*Centro S3, CNR-Istituto di Nanoscienze, Modena, Italy,* ³*Quantum Technology Lab, Dipartimento di Fisica Aldo Pontremoli, Università degli Studi di Milano, Italy,* ⁴*INFN, Sezione di Milano, Italy*
 Noise-assisted quantum transport on graphs and engineered coupling for optimal transport efficiency

10:30 – 10:45 Fr B-3
L. Reggiani and E. Alfinito
Dipartimento di Matematica e Fisica, "Ennio de Giorgi" Università del Salento, Lecce, Italy
 Breaking News on Last Achievements on the Definition of the Black-Body Total Internal-Energy

10:45 – 11:15 Coffee Break

Session Fr C: Spin phenomena

Chair: Paweł Machnikowski, Wrocław University of Science and Technology, Poland

11:15 – 11:45 Fr C-1 (invited)

A. Secchi

Centro S3, CNR-Istituto di Nanoscienze, Modena, Italy

Hole Spins in Silicon Quantum Dots for Quantum-Information Processing Devices

11:45 – 12:00 Fr C-2

S. Adachi, S. Yamamoto, R. Kaji, H. Sasakura

Graduate School of Engineering, Hokkaido University, Sapporo, Hokkaido, Japan

Impact of nuclear quadrupole interaction in anomalous Hanle effect

12:00 – 12:15 Fr C-3

Y. Tokura

Pure and Applied Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan

Fidelity of Heralded Conversion from Photon Polarization to Spin

12:15 – 12:30 Closing session

12:30 – 14:00 Lunch

Poster Session Monday

- Mo P-1 J. Okada and N. Mori
Graduate School of Engineering, Osaka University, Japan
 Statistical Study of the Effect of Interface Roughness on Electron Mobility in Si Nanosheets
- Mo P-2 Y.-T. Huang^{1,2}, P.-C. Kuo^{1,2}, N. Lambert³, M. Cirio⁴, S.-L. Yang^{1,2}, F. Nori^{2,5,6} and Y.-N. Chen^{1,2}
¹*Department of Physics, National Cheng Kung University, Tainan, Taiwan,* ²*Center for Quantum Frontiers of Research and Technology, NCKU, Tainan, Taiwan,* ³*Theoretical Quantum Physics Laboratory, Cluster for Pioneering Research, RIKEN, Wakoshi, Saitama, Japan,* ⁴*Graduate School of China Academy of Engineering Physics, Haidian District, Beijing, China,* ⁵*Center for Quantum Computing (RQC), RIKEN, Wakoshi, Saitama, Japan,* ⁶*Physics Department, The University of Michigan, Ann Arbor, Michigan, USA*
 Heom.jl: An efficient julia framework for hierarchical equations of motion in open quantum systems
- Mo P-3 K. Kawa, P. Machnikowski
Institute of Theoretical Physics, Wrocław University of Science and Technology, Wrocław, Poland
 Exciton Diffusion in an Ensemble of Self-Assembled Semiconductor Quantum Dots
- Mo P-4 P. Steeger¹, J.-H. Graalman², R. Schmidt¹, I. Kuppenko³, C. Sanchez-Valle³, P. Maruhn², T. Deilmann², S. Michaelis de Vasconcellos¹, M. Rohlfing², R. Bratschitsch¹
¹*Institute of Physics and Center for Nanotechnology, University of Münster, Germany,* ²*Institute of Solid State Theory, University of Münster, Germany,* ³*Institute of Mineralogy, University of Münster, Germany*
 Intra- and Interlayer Excitons in a MoS₂ Bilayer Under Pressure
- Mo P-5 J.J. Heremans¹, G. Kataria², R. Khatiwada¹, T. Anderson¹, A. Gupta³, M. Chandra⁴, R. Sundararaman⁴, S. Fallahi^{5,6}, G.C. Gardner⁶ and M.J. Manfra^{5,6,7}
¹*Department of Physics, Virginia Tech, Virginia, USA,* ²*Bradley Dept. of Electrical and Computer Engineering, Virginia Tech, Virginia, USA,* ³*Department of Electrical Engineering, Princeton University, New Jersey, USA,* ⁴*Dept. of Materials Science and Engineering, Rensselaer Polytechnic Institute, New York, USA,* ⁵*Department of Physics and Astronomy, Purdue University, Indiana, USA,* ⁶*Birck Nanotechnology Center, Purdue University, Indiana, USA,* ⁷*Schools of Electrical and Computer Eng. & Materials Eng., Purdue University, Indiana, USA*
 Nonlinear Nonlocal Current-Voltage Characteristics of Mesoscopic Devices
- Mo P-6 J. Shoemaker¹, R. Vatan², T. Biswas¹, A. Singh¹, M. Saraniti², S.M. Goodnick²
¹*Department of Physics, Arizona State University, Tempe, AZ, USA,* ²*Department of Electrical Engineering, Arizona State University, Tempe, AZ, USA*
 Calculation of Impact Ionization Coefficients For Ultra-Wide Bandgap Materials Using DFT and GW with Monte Carlo Simulations
- Mo P-7 F. Ludwig¹, A. Generalov², J. Holstein¹, A. Murros², K. Viisanen², M. Prunnila² and H. G. Roskos¹
¹*Physikalisches Institut, Goethe Universität, Frankfurt am Main, Germany,* ²*VTT Technical Research Centre of Finland, Espoo, Finland*
 Graphene field-effect transistors as THz detectors: The dominant role of the hot carrier photo-thermoelectric effect

- Mo P-8 G. Fukuda¹, T. Kanda¹, T. Fujita^{1,3}, J. Ritzmann², A. Ludwig², A.D. Wieck², and A. Oiwa^{1,3,4,5}
¹SANKEN, Osaka University, Japan, ²Lehrstuhl für Angewandte Festkörperphysik, Ruhr-Univ. Bochum, Germany, ³Center for Quantum Information and Quantum Biology (QIQB), Osaka University, Japan, ⁴Spintronics Research Network Division, OTRI, Osaka University, Japan, ⁵Center for Spintronics Research Network (CSRN), Graduate School of Engineering Science, Osaka University, Japan
 Influence of light illumination on two-dimensional electron gas and gate-defined quantum point contacts in a short-period-super-lattice-doped QW
- Mo P-9 J. Nathawat¹, I. Mansaray², K. Sakanashi³, N. Wada³, M. D. Randle¹, S. Yin¹, K. He¹, N. Arabchigavkani¹, R. Dixit¹, B. Barut², M. Zhao⁴, H. Ramamoorthy⁵, R. Somphonsane⁶, G.H. Kim⁷, K. Watanabe⁸, T. Taniguchi⁸, N. Aoki³, J.E. Han², and J.P. Bird^{1,2}
¹Department of Electrical Engineering, University at Buffalo, Buffalo, NY, USA, ²Department of Physics, University at Buffalo, Buffalo, NY, USA, ³Department of Materials Science, Chiba University, Inage-ku, Chiba, Japan, ⁴Institute of Microelectronics of Chinese Academy of Sciences, Beijing, PR China, ⁵Depart. of Electronics Engineering, King Mongkut's Institute of Technology Ladkrabang, Thailand, ⁶Department of Physics, King Mongkut's Institute of Technology Ladkrabang, Thailand, ⁷School of Electronic and Electrical Engineering, Sungkyunkwan University, Suwon, Korea, ⁸Advanced Materials Laboratory, National Institute for Materials Science, Tsukuba, Japan
 Signatures of Hot Carriers and Hot Phonons in the Re-Entrant Metallic and Semiconducting States of Moiré-Gapped Graphene
- Mo P-10 K. Jürgens¹, D. Wigger² and T. Kuhn¹
¹Institute of Solid State Theory, University of Münster, Germany, ²School of Physics, Trinity College Dublin, Ireland
 Phonon-Impact on Absorption Spectra of Moiré Exciton-Polaritons: A Model Study
- Mo P-11 A. Vartanian
 Department of Solid State Physics, Yerevan State University, Yerevan, Armenia
 Intermediate Coupling Theory of the Dirac Fermions with Plasmon-Surface Polar Optical Phonon Excitations in the Monolayer Graphene on Polar Substrate
- Mo P-12 J. A. Preuß¹, H. Gehring^{1,2}, R. Schmidt¹, L. Jin^{1,2}, D. Wendland^{1,2}, J. Kern¹, W.H.P. Pernice^{1,2,3}, S. Michaelis de Vasconcellos^{1,4}, and R. Bratschitsch¹
¹Institute of Physics and Center for Nanotechnology, University of Münster, Germany, ²Center for Soft Nanoscience, University of Münster, Germany, ³Kirchhoff-Institute for Physics, University of Heidelberg, Germany, ⁴Department of Physics, TU Dortmund University, Germany
 Efficient Narrow-Beam hBN Single-Photon Source
- Mo P-13 J.H. Gosling^{1,2}, S.V. Morozov³, E.E. Vdovin³, M.T. Greenaway⁴, Y.N. Khanin³, Z. Kudrynskiy¹, A. Patané¹, L. Eaves¹, L. Turyanska², T.M. Fromhold¹ and O. Makarovskiy¹
¹School of Physics and Astronomy, University of Nottingham, UK, ²Additive Manufacturing, Faculty of Engineering, University of Nottingham, UK, ³Institute of Microelectronics Technology RAS, Chernogolovka, Russia, ⁴Department of Physics, Loughborough University, UK
 Graphene FETs with High and Low Mobilities Have Universal Temperature-Dependent Properties

- Mo P-14 M. Wörle¹, J. Pittrich¹, A.W. Holleitner^{1,2}, R. Kienberger¹ and H. Iglev¹
¹*Physik-Department, Technische Universität München, Germany, ²Munich Center for Quantum Science and Technology (MCQST), Germany*
 Hot Carrier Dynamics in Silicon (100) Studied via Phase-Resolved Transient Absorption Spectroscopy
- Mo P-15 J. Bensmann, R. Schmidt, R. Schneider, J. Kern, P. Steeger, M. Adnan, S. Michaelis de Vasconcellos, and R. Bratschitsch
Institute of Physics and Center for Nanotechnology, University of Münster, Germany
 Nanoimprint Lithography for Creating Inhomogeneous Strain Profiles in 2D Semiconductors
- Mo P-16 D. Sandner¹, H. Esmailpour², F. del Giudice², G. Koblmüller² and H. Iglev¹
¹*Chair for Laser and X-ray Physics, Physics Department, TUM School of Natural Sciences, Technical University of Munich, Germany, ²Walter Schottky Institute, TUM School of Natural Sciences, Technical University of Munich, Germany*
 Ultrafast Optical Study of Hot Carriers in InAs NWs
- Mo P-17 J. Kaspari, D.E. Reiter
Condensed Matter Theory, TU Dortmund, Germany
 Theoretical Analysis of Non-Linear Optical Signals for Pulses with Finite Duration
- Mo P-18 F. Conradt, V. Bezold, V. Wiechert, A. Leitenstorfer, and R. Tenne
University of Konstanz, Germany
 Electric-Field Fluctuations as the Source of Spectral Diffusion in Colloidal Quantum Dots
- Mo P-19 R. Schmidt¹, R. Rosati², S. Brem², R. Perea-Causín³, I. Niehues⁴, J. Kern¹, J. Preuß¹, R. Schneider¹, S. Michaelis de Vasconcellos¹, Ermin Malic^{2,3}, and R. Bratschitsch¹
¹*Institute of Physics and Center for Nanotechnology, University of Münster, Germany, ²Department of Physics, Philipps-Universität Marburg, Germany, ³Chalmers University of Technology, Department of Physics, Gothenburg, Sweden, ⁴CIC nanoGUNE BRTA, 20018 San Sebastián, Spain*
 Dark exciton anti-funneling in inhomogeneously strained monolayer transition metal dichalcogenides
- Mo P-20 F. Kappe¹, Y. Karli¹, T. Bracht^{2,3}, S.F. Covre da Silva⁴, Tim Seidelmann⁵, A. Rastelli⁴, V.M. Axt⁵, G. Weihs¹, D. Reiter³, V. Remesh¹
¹*Institut für Experimentalphysik, Universität Innsbruck, Austria, ²Institut für Festkörpertheorie, Universität Münster, Germany, ³Condensed Matter Theory, Department of Physics, TU Dortmund, Germany, ⁴Theoretische Physik III, Universität Bayreuth, Germany, ⁵Institute of Semiconductor and Solid State Physics, Johannes Kepler University Linz, Austria*
 Collective Excitation of Spatio-Spectrally Distinct Quantum Dots Enabled by Chirped Pulses
- Mo P-21 G. Forghieri¹, A. Secchi², A. Bertoni², P. Bordone¹, F. Troiani²
¹*Università di Modena e Reggio Emilia, Modena, Italy, ²Centro S3, CNR-Istituto di Nanoscienze, Modena, Italy*
 Quantum Sensing with Hole-Spin Qubits in Quantum Dots
- Mo P-22 T. Vasselon¹, A. Hernández-Mínguez², M. Hollenbach^{3,4}, G.V. Astakhov³, and P.V. Santos²
¹*Université Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, Grenoble, France, ²Paul-Drude-Institut für Festkörperelektronik, Leibniz-Institut im Forschungsverbund Berlin e.V., Berlin, Germany, ³Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Dresden, Germany, ⁴Technische Universität Dresden, Germany*
 Identification of Acoustically Induced Spin Resonances of Si Vacancy Centers in 4H-SiC

- Mo P-23 P.-M. Piel¹, J. Klein², N. Saigal¹, Z. Sofer³, U. Wurstbauer¹
¹*Institute of Physics, Muenster University, Germany*, ²*Department of Materials Science and Engineering, Massachusetts Institute of Technology, USA*, ³*Department of Inorganic Chemistry, University of Chemistry and Technology Prague, Czech Republic*
 Magnetic anisotropy in excitonic resonances and exciton-phonon of the 2D magnetic semiconductor CrSBr
- Mo P-24 A. Vezzosi¹, G. Goldoni^{1,2}, A. Bertoni²
¹*Università di Modena e Reggio Emilia, Modena, Italy*, ²*Istituto Nanoscienze - CNR, Modena, Italy*
 Subband Engineering in Doped Core-shell Nanowires with Type-I, Type-II and Broken-gap Radial Heterointerfaces: A Self-consistent Multiband Model
- Mo P-25 M. Pacheco¹, V. Núñez¹, S. Bravo¹, J. Correa² and L. Chico³
¹*Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile*, ²*Facultad de Ciencias Básicas, Universidad de Medellín, Colombia*, ³*Departamento de Física de Materiales, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, Spain*
 Realization of the obstructed phase of a SSH model in monolayer pentagonal PdSe₂
- Mo P-26 B. Mayer, C. Strobl, E.D.S Nysten, M. Weiß, H.J. Krenner and U. Wurstbauer
Institute of Physics, University of Münster, Germany
 Surface acoustic wave-controlled photocurrent in multilayer WSe₂
- Mo P-27 A. Ghassami¹, E. Oleiki², W. Wang¹ and G. Lee²
¹*MAX IV Laboratory, Lund University, Sweden*, ²*Department of Chemistry, Ulsan National Institute of Science and Technology (UNIST), Ulsan, Republic of Korea*
 Impact of Molecular Halogenation of Hole Transporting Layer on Defect Passivation of CH₃NH₃PbI₃ Perovskite for Photovoltaic Applications
- Mo P-28 L. Reggiani¹, E. Alfinito¹, T. Kuhn², and F. Intini³
¹*Dipartimento di Matematica e Fisica, "Ennio de Giorgi", Università del Salento, Lecce, Italy*, ²*Institute of Solid State Theory, University of Münster, Germany*, ³*Dipartimento di Scienze e Metodi dell'Ingegneria, Università di Modena e Reggio Emilia, Reggio Emilia, Italy*
 From conductance viewed as transmission to resistance viewed as reflection
- Mo P-29 S. Walfort, H. Treppke, N. Holle and M. Salinga
University of Münster, Institute of Materials Physics, Germany
 Correlations in Resistance Fluctuations of Germanium Telluride Glass
- Mo P-30 B.A. Magill¹, N.W. Smith¹, M.-G. Kang², J. Holleman³, S. McGill³, Y. Pleimling¹, R.R.H. Mudiyansele¹, C.J. Stanton⁴, S. Priya², G.A. Khodaparast¹
¹*Department of Physics, Virginia Tech, Blacksburg, VA, USA*, ²*Materials Research Institute, Penn State, University Park, PA, USA*, ³*Department of Physics, Florida State University and National High Magnetic Field Laboratory, Tallahassee, FL, USA*, ⁴*Department of Physics, University of Florida, Gainesville, FL, USA*
 Probe and Control of Coherent States in Multifunctional Materials
- Mo P-31 D. Groll¹, F. Paschen¹, P. Machnikowski², O. Hess^{3,4}, T. Kuhn¹ and D. Wigger³
¹*Institute of Solid State Theory, University of Münster, Germany*, ²*Institute of Theoretical Physics, Wrocław University of Science and Technology, Poland*, ³*School of Physics, Trinity College Dublin, Ireland*, ⁴*CRANN Institute and Advanced Materials and Bioengineering Research (AMBER), Trinity College Dublin, Ireland*
 Readout of Phonon Statistics via Resonance Fluorescence of a Single-Photon Emitter

Poster Session Tuesday

- Tu P-1 W. Miyazaki, H. Tanaka and N. Mori
Graduate School of Engineering, Osaka University, Japan
Full-Band Monte Carlo Analysis of the Effects of Strain on the Impact Ionization of GaN
- Tu P-2 Z. Wang¹, M. Hilke¹, N. Fong², D.G. Austing^{1,2}, S. Studenikin², K.W. West³ and L. N. Pfeiffer³
¹*Department of Physics, McGill University, Montréal, Quebec, Canada,* ²*Emerging Technology Division, National Research Council of Canada, Ottawa, Ontario, Canada,* ³*Department of Electrical Engineering, Princeton University, Princeton, New Jersey, USA*
Non-equilibrium Electrical Transport in Ultra-high Mobility Two-dimensional Electron Gas: Acoustic Phonons Revisited
- Tu P-3 Y. Tian¹, S. Du^{1,2}, and K. Hirakawa^{1,3}
¹*Institute of Industrial Science, University of Tokyo, Japan,* ²*2020 X-Lab, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China,* ³*Institute for Nano Quantum Information Electronics, University of Tokyo, Japan*
Kinetic energy transfer process in electromigration of metal nanocontact
- Tu P-4 H. Ghannadi Maragheh, J.C. Bayer, R.J. Haug
Institute for Solid State Physics, Leibniz University Hannover, Germany
Temperature dependence of nonequilibrium system of quantum dot
- Tu P-5 N. Holle¹, S. Walfort¹, R. Mazzarello² and M. Salinga¹
¹*Institute of Materials Physics, University of Münster, Germany,* ²*Department of Physics, Sapienza Università di Roma, Italy*
Electronic and optical properties of phase-change materials under strong confinement
- Tu P-6 Y. Murakami, S. Nagamizo, H. Tanaka, and N. Mori
Graduate School of Engineering, Osaka University, Japan
Analysis of Tunneling Probability Using Complex Bands Considering Barrier Potential
- Tu P-7 F. Meng¹, Z. Tang², J. Hazarika¹, S. Suzuki², and H.G. Roskos¹
¹*Physikalisches Institut, Goethe-University, Frankfurt am Main, Germany,* ²*Department of Electrical and Electronic Engineering, Tokyo Institute of Technology, Japan*
Coherent emission from a linear array of RTDs
- Tu P-8 C. Ramírez, R.Y. Díaz and M.J. Rodríguez
Departamento de Física, Facultad de Ciencias, Universidad Nacional Autónoma de México
Bound States in the Continuum in Nanoribbons with Width Variations
- Tu P-9 K. Krötzsch, C.H. Sharma, P. Loreth, L. Tiemann and R.H. Blick
Center for Hybrid Nanostructures, University of Hamburg, Germany
Electronic Properties of Twisted Bilayer MoS₂ Devices
- Tu P-10 H. Ostovar¹, M. Hentschel², H. Giessen², U. Wurstbauer^{1,3}
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Interfacing excitons in atomically thin membranes with confined-light at Mie-voids

- Tu P-11 D. Zambrano, L. Rosales and C. Nunez
Departamento de Física, Universidad Técnica Federico Santa María, Valparaíso, Chile
Effects of random vacancies on the spin-dependent thermoelectric properties of Silicene nanoribbon
- Tu P-12 C. Elsässer, V. Strenzke, K. Murat, P. Zhao, L. Tiemann and R.H. Blick
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Optimization of Coplanar Waveguides for Electron Spin Resonance Studies
- Tu P-13 E.D.S. Nysten¹, M. Weiß¹, B. Mayer¹, T. Petzak², C. Strobl¹, U. Wurstbauer¹, and H.J. Krenner¹
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Acousto-Optoelectric Spectroscopy on Transition Metal Dichalcogenide Monolayer with Surface Acoustic Waves
- Tu P-14 S. You^{1,2}, H. Kim^{1,2}, S. Yang¹, and N. Kim¹
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Tuning the Electric Characteristics of MoS₂-based Devices via Strain Engineering and Vacancy Doping
- Tu P-15 H. Lambers¹, N. Saigal¹, F. Sigger², L. Sigl², M. Troue², J. Figueiredo², A.W. Holleitner² and U. Wurstbauer¹
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Strong Exciton-Phonon Coupling in WSe₂/MoSe₂ Heterobilayers at Cryogenic Temperatures
- Tu P-16 G. Ammirati^{1,2}, D. Ory³, D. Catone¹, P. O’Keeffe¹, S. Turchini¹, F. Toschi¹, F. Martelli⁴, A. Paladini¹, S. Cacovich⁵, F. Matteocci², B. Paci¹, P. Moras⁶, P.M. Sheverdyaeva⁶, V. Milotti⁶, P. Baranek³, A. Di Carlo^{1,2}
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Effect of Chlorine inclusion in Wide Band Gap FAPb(Br_{1-x}Cl_x)₃ Perovskites
- Tu P-17 L. Nimmegern¹, A. Völkel², A. Mielnik-Pyszczorski^{1,3}, T. Wirth², G. Herink², V.M. Axt¹
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Analysis of Raman-Induced Soliton Interactions
- Tu P-18 T.K. Bracht^{1,2}, F. Kappe³, Y. Karli³, V. Remesh³, V.M. Axt⁴, G. Weihs³ and D.E. Reiter²
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Theoretical Description of Time-Bin Entangled Photons from a Semiconductor Quantum Dot
- Tu P-19 M. S. Alam¹, D. Wigger² and P. Machnikowski¹
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Sensing of Strain Waves with a Spin-1 Defect System in diamond

- Tu P-20 J. Henz¹, P.-M. Piel¹, W. He³, M. Lassaunière¹, S. Rajabpour², A. Vera², S.-Y. Quek³, J. Robinson² and U. Wurstbauer¹
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 Temperature-Dependent Phase Transition of 2D polar Gallium Revealed by Cryogenic Spectroscopic Ellipsometry
- Tu P-21 M. Kuniej, M. Gawełczyk, and P. Machnikowski
Institute of Theoretical Physics, Wrocław University of Science and Technology, Poland
 Hybrid Acousto-Optical Control of Electron Spin in a Quantum Dot
- Tu P-22 M. Kim¹, I. Kim² and K. Kyhm²
¹*Smart Gym-based Translational Research Center for Active Senior's Healthcare, Pukyong National University, Busan, Republic of Korea,* ²*Department of Optics & Cogno-Mechatronics Engineering, Pusan National University, Busan, Republic of Korea*
 Elliptical Polarization of Localized States in an Anisotropic Single Quantum Ring
- Tu P-23 V. Jindal¹, T. Deilmann² and S. Ghosh¹
¹*Dept. of Condensed Matter Physics, Tata Institute of Fundamental Research, Mumbai, India,* ²*Institut für Festkörperteorie, Westfälische Wilhelms-Universität Münster, Germany*
 Giant electric dipole moments of excited state excitons in bulk 2H-MoS₂
- Tu P-24 R. Kaji, S. Yamamoto, Z.-R. Li, H. Sasakura, and S. Adachi
Graduate School of Engineering, Hokkaido University, Sapporo, Hokkaido, Japan
 Emergence of the third stable nuclear state due to the reaction of electron spin relaxation via hyperfine interaction
- Tu P-25 O. Chiatti¹, J. Boy¹, C. Heyn³, W. Hansen³ and S.F. Fischer^{1,2}
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 In-Plane Electric-Field-induced Shift of Spin-Dependent Resistivity at Transitions between Quantum Hall Plateaus in an InAs-based Quantum Well
- Tu P-26 O. Chiatti¹, B. Düzel¹, C. Riha¹, K. Graser¹, E. Golias³, J. Sánchez-Barriga³, O. Rader³ and S.F. Fischer^{1,2}
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 Low-Temperature Magnetoresistance Hysteresis in Vanadium-doped Bi₂Te_{2.4}Se_{0.6} Bulk Topological Insulators
- Tu P-27 Y. Yang¹, R. Chikkaraddy², Q. Lin³, D.D.A. Clarke¹, D. Wigger¹, J.J. Baumberg³, and O. Hess^{1,4}
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 Electrochemical Switching of Strong Light-Matter Coupling in Plasmonic Nanocavities

- Tu P-28 R. A. Bogaczewicz¹, D. Wigger², H. Krenner³ and P. Machnikowski¹
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 Mutual coherence of resonance fluorescence sidebands from an acoustically modulated quantum dot
- Tu P-29 A. Asatryan¹, A. Movsisyan¹, L. Vardanyan² and A. Vartanian¹
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 Exciton Resonant Raman Scattering in Colloidal Quantum Dots: The Role of the Frohlich-Type Interaction
- Tu P-30 D. Wigger¹, M. Weiß^{2,3}, T. Hahn⁴, D. Groll⁴, E. Nysten^{2,3}, M. Nägele³, M. Lienhart^{2,3}, M. Choquer⁵, G. Moody⁵, K. Müller⁶, J.J. Finley⁶, T. Kuhn⁴, P. Machnikowski⁷ and H.J. Krenner^{2,3}
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 Recent Progress in Phonon-Based Hybrid Quantum Technology with Surface Acoustic Waves and Single Quantum Dots