

nanoGe Fall Meeting 2018 (FallMeeting18)

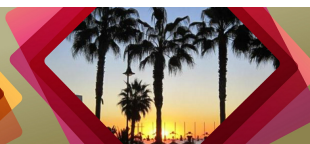
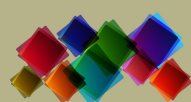
S5 Charge Carrier Dynamics at the Nanoscale

Torremolinos, Spain, 2018 October 22nd - 24th

Conference Chairs: David Egger, Arjan Houtepen and Freddy Rabouw

Conference Program

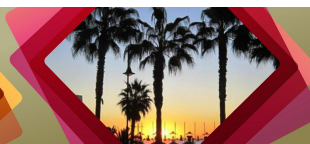
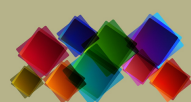
October 22nd - Day 1 (Monday)	
Plenary session 1 Chair: Mischa Bonn	
09:00 - 09:30 1-K1	<u>Victor Klimov</u> (<i>Los Alamos National Laboratory, Los Alamos, New Mexico 87545, USA</i>) Colloidal Quantum Dot Lasing: Historical Perspective and Recent Progress
Plenary Session 2 Chair: Kevin Sivula	
09:00 - 09:30 2-K1	<u>Yun Jeong Hwang</u> (<i>Korea Institute of Science and Technology (KIST)</i>), Byoun Koun Min, Hyeong-Suk Oh Electrochemical Conversion of CO ₂ toward Valuable Chemicals for Solar-to-Chemical Conversion Application
Dyman S5.1 Chair: Enrique Cánovas	
09:30 - 10:00 S5.1-O1	<u>Maryam Alimoradi Jazi</u> (<i>Condensed Matter and Interfaces, Debye Institute for nanomaterials science, Utrecht University</i>), Wiel Evers, Thomas Altantzis, Christophe Delerue, Sara Bals, Laurens Sibbeles, Arjan Houtepen, Daniel Vanmaekelberg Band Occupation and Charge Transport in CdSe Nanocrystal Superlattices
10:00 - 10:30 S5.1-O2	<u>Willem Walravens</u> (<i>Physics and Chemistry of Nanostructures, Ghent University, 9000 Ghent, Belgium</i>), Filip Geenen, Eduardo Solano, Jolien Dendooven, Athmane Tadjine, Nayyera Mahmoud, Gunther Roelkens, Christophe Delerue, Christophe Detavernier, Zeger Hens Setting Carriers Free – Healing Faulty Interfaces Promotes Delocalization and Transport in Nanocrystal Solids
10:30 - 11:00	Coffee Break
Dyman S5.2 Chair: Vanessa Wood	
11:00 - 11:30 S5.2-O1	<u>Federico Montanarella</u> (<i>Universiteit Utrecht</i>), Margherita Biondi, Stijn Hinterding, Daniel Vanmaekelbergh, Freddy Rabouw Reversible Charge Carrier Trapping Slows Down Förster Energy Transfer in CdSe/CdS Quantum-Dot Solids
11:30 - 12:00 S5.2-I1	<u>Ivan Infante</u> (<i>Department of Chemistry and Pharmaceutical Sciences, Division of Theoretical Chemistry, Vrije Universiteit Amsterdam, De Boelelaan 1081, 1081 HV Amsterdam, The Netherlands</i>) Size- and Temperature- Dependent Hot Carrier Cooling in CsPbBr ₃ Nanocrystals
12:00 - 12:30 S5.2-I2	<u>Matthew Beard</u> (<i>National Renewable Energy Laboratory, Golden, Colorado, USA</i>) Controlling the Properties of Colloidal Quantum Dots for Solar Energy Applications
12:30 - 14:30	Lunch
Dyman S5.3 Chair: Ivan Infante	
14:30 - 15:00 S5.3-O1	<u>Emmanuel Lhuillier</u> (<i>Sorbonne Universités, UPMC Univ. Paris 06, CNRS-UMR 7588, Institut des NanoSciences de Paris, 4 place Jussieu, 75005 Paris, France</i>), Bertille Martinez, Clement livache, nicolas goubet Dynamics in Narrow Band Gap Nanocrystals
15:00 - 15:30 S5.3-O2	<u>P. Tim Prins</u> (<i>Debye Institute for Nanomaterials Science, Utrecht University</i>), Pieter Geiregat, Dirk A. W. Spruijt, Zeger Hens, Freddy T. Rabouw, Celso de Mello Donega, Daniel A. M. Vanmaekelbergh Doping InP Quantum Dots with Cu ⁺ slows down Hot Electron Cooling



15:30 - 16:00 S5.3-O3	<u>Aparajita Das</u> (<i>Department of Chemistry, Indian Institute of Technology Hyderabad</i>), Ankita Kolay, Deepa Melepurath Poly(3,4-ethylenedioxyppyrole) Counter Electrode and an Electrolyte Additive for Quantum Dot Solar Cells
16:00 - 16:30 S5.3-I1	<u>Emily Weiss</u> (<i>Department of Chemistry, Northwestern University, Evanston, Illinois 60208, USA</i>), Ofer Kedem, Mohamad Kodaimati Room Temperature Electron Ratchets
16:30 - 17:00 S5.3-I2	<u>Enrique Canovas</u> (<i>IMDEA Nanoscience</i>) Band-Like Charge Transport in a Semiconducting Metal-Organic Framework

October 23rd - Day 2 (Tuesday)

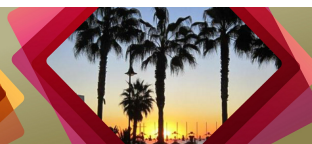
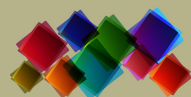
Dyman S5.4 Chair: Stefano Sanvito	
09:00 - 09:30 S5.4-O1	<u>Xiaoping Chen</u> (<i>Department of Chemistry, National University of Singapore</i>), Harshini Annadata, David Egger, Christian Nijhuis Tuning the Tunnelling Decay Coefficient Using Single Polarizable Atoms via Energy Level Engineering of the Frontier Orbitals
09:30 - 10:00 S5.4-O2	<u>José Manuel Vicent Luna</u> (<i>Department of Physical, Chemical and Natural Systems, Universidad Pablo de Olavide, 41013 Sevilla, Spain</i>), Azaceta Eneko, Said Hamad, José Manuel Ortiz Roldán, Ramón Tena Zaera, Sofía Calero, Juan Antonio Anta Molecular Dynamics Analysis of Charge Transport in Ionic Liquid Electrolytes containing added salt with Mono, Di, and Trivalent Metal Cations
10:00 - 10:30 S5.4-O3	<u>Jaime Colchero</u> (<i>Universidad de Murcia</i>), Miguel Ortuño, Maria Fernandez M.F. Orihuela, Andres Somoza, Emin Istif, Sandra Víctor-Roman, Thierry Grenet, Julien Delahaye, Ana Maria Benito, Wolfgang Maser, Elisa E. Palacios-Lidón Slow Charge Relaxation in Highly Disordered Electronic Systems studied by Electrostatic Scanning Force Microscopy
10:30 - 11:00	Coffee Break
Dyman S5.5 Chair: Leeor Kronik	
11:00 - 11:30 S5.5-I1	<u>Stefano Sanvito</u> (<i>School of Physics and CRANN, Trinity College Dublin</i>) Different Flavours of Constrained Density Functional Theory for Charge Dynamics in Organic Materials
11:30 - 12:00 S5.5-I2	<u>Johannes V. Barth</u> (<i>Physics Department, Technical University of Munich, D-85748 Garching, Germany</i>), Hai Bi, Carlos-Andres Palma, Yuxian Gong, Peter Hasch, Mark Elbing, Marcel Mayor, Joachim Reichert Vibrational Excitations & Conformational Switching in Single-Molecule Junctions
12:00 - 12:30 S5.5-I3	<u>David Cahen</u> (<i>Weizmann Institute of Science & Bar Ilan University</i>) Proteins as Optoelectronic Materials...
12:30 - 14:30	Lunch
Dyman S5.6 Chair: Thomas Kirchartz	
14:30 - 15:00 S5.6-O1	<u>Daniel Hernangomez-Perez</u> (<i>Institute of Theoretical Physics, University of Regensburg, D-93050 Regensburg, Germany</i>), Suman Gunasekaran, Iryna Davydenko, Seth Marder, Ferdinand Evers, Latha Venkataraman Quantum Transport Properties of Pi-Conjugated Linear Molecular Junctions
15:00 - 15:30 S5.6-O2	<u>Felix J. Hofmann</u> (<i>Institut für Experimentelle und Angewandte Physik, Universität Regensburg, Universitätsstraße 31, 93053 Regensburg, Germany</i>), Maryna I. Bodnarchuk, Loredana Protesescu, Maksym V. Kovalenko, John M. Lupton, Jan Vogelsang Exciton Gating and Triplet Deshelving in Single Dye Molecules Excited by Perovskite Nanocrystal FRET Antennae



15:30 - 16:00 S5.6-O3	<u>Selina Olthof</u> (<i>Institute of Physical Chemistry, University of Cologne, Germany</i>), Kai Brinkmann, Ting Hu, Klaus Meerholz, Thoams Riedl Metal Oxide Layers in Perovskite Solar Cells: a Double-Edged Sword
16:00 - 16:30 S5.6-I1	<u>Laura Herz</u> (<i>Clarendon Laboratory, Department of Physics, University of Oxford, Parks Road, Oxford, OX1 3PU, United Kingdom</i>) Effect of Nanoscale Phenomena on Charge Conduction and Recombination Mechanisms in Hybrid Perovskites
16:30 - 17:00 S5.6-I2	<u>Leeor Kronik</u> (<i>Department of Materials and Interfaces, Weizmann Institute of Science, Rehovoth 76100, Israel.</i>) Structural Dynamics in Lead-Halide Perovskites from First-Principles
17:30 - 19:00	Poster Session

October 24th - Day 3 (Wednesday)

Plenary session 3 Chair: Shannon Boettcher	
09:00 - 09:30 3-K1	<u>Francesca Maria Toma</u> (<i>Chemical Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, California 94720, United States</i>) A New Portrait of Functional Complex Interfaces for Solar Fuel Devices
Plenary Session 4 Chair: David Egger	
09:00 - 09:30 4-K1	<u>Vanessa Wood</u> (<i>Laboratory for Interfacial Chemistry, ETH Zurich</i>) Charge Transport in Nanocrystal Solids
Dyman S5.7 Chair: Laura Herz	
09:30 - 10:00 S5.7-I1	<u>Artem Bakulin</u> (<i>Department of Chemistry, Imperial College London, South Kensington, London, SW7 2AZ, UK</i>) Ultrafast Intraband Spectroscopy of Hot-Carrier Cooling in Lead-Halide Perovskites
10:00 - 10:30 S5.7-I2	<u>Thomas Kirchartz</u> (<i>IEK5-Photovoltaics, Forschungszentrum Jülich, 52425 Jülich, Germany</i>) Long Lifetimes and Small Phonon Energies in Metal-Halide Perovskite Solar Cells
10:30 - 11:00	Coffee Break
Dyman S5.8 Chair: Artem Bakulin	
11:00 - 11:30 S5.8-O1	Christian Gehrman, David Egger, <u>Robert Lovrincic</u> (<i>Institute for High Frequency Technology, TU Braunschweig</i>) Optical Phonons in Halide Perovskites and Implications for Charge Transport
11:30 - 12:00 S5.8-O2	<u>Felix Deschler</u> (<i>Cavendish Laboratory, University of Cambridge, JJ Thomson Avenue, Cambridge CB3 0HE, United Kingdom</i>), Sascha Feldmann, Stuart MacPherson, Satyaprasad Senanayak, Jasmine Rivett, Mojtaba Abdi Jalebi, Guangjun Nan, David Beljonne, Sam Stranks, Michael Salia Origin of High Photoluminescence in Mixed-Cation Perovskites: Photodoping from energetic disorder
12:30 - 14:30	Lunch



Poster Contribution

315	<u>Gianluca Grimaldi</u> (<i>Opto-electronic materials section, Department of Chemical Engineering, Faculty of Applied Sciences, Delft University of Technology</i>), Ryan Crisp, Nicholas Kirkwood, Sachin Kinge, Laurens Siebbeles, Arjan Houtepen Ligand-Induced Control of Energy Level Alignment in QD Heterostructures
318	<u>Kaspars Malnieks</u> (<i>Research Laboratory of Functional Materials Technology, Faculty of Materials Science and Applied Chemistry, Riga Technical University, Paula Valdena 3/7, Riga, LV1048, Latvia</i>), Andris Sutka, Linards Lapcinskis Enhanced Performance of Triboelectric Nanogenerators Based on Ferroelectric Nanoparticles
322	<u>Jaco Geuchies</u> (<i>Optoelectronic Materials Section, Department of Chemical Engineering, Delft University of Technology, Julianalaan 136, 2628 BL Delft, The Netherlands.</i>), gianluca grimaldi, nicholas kirkwood, ward van der stam, arjan houtepen Measuring and Modelling the Build-up of Optical Gain in Semiconductor Quantum Dots
331	Sven-Hendrik Lohmann, <u>Christian Strelow</u> (<i>Institut für Physikalische Chemie, Universität Hamburg</i>), Alf Mews, Tobias Kipp Spectral Diffusion: A Monitor for the Electron and Hole Localization in Colloidal Semiconductor DotRod Nanocrystals