

International Conference

nanoGe September Meeting 2017 (SeptemberMeeting17)

SE1: Fundamental Processes in Semiconductor Nanocrystals

Barcelona, Spain, 2017 September 6th - 8th

Conference Chairs: Arjan Houtepen and Zeger Hens

Conference Program

September 6th - Day 3 (Wednesday)	
16:30 - 18:05	Registration 7-8 Sept
September 7th - Day 4 (Thursday)	
07:30 - 08:45	Registration
08:45 - 09:00	Opening
	SE1.1 Chair: Jonathan Owen
09:00 - 09:35 SE1.1-I1	<u>Dmitri Talapin</u> (<i>University of Chicago</i>) Synthetic methodology for semiconductor nanomaterials: challenges and opportunities
09:35 - 09:45	Discussion
09:45 - 10:20 SE1.1-I2	<u>Sandrine Ithurria</u> (<i>ESPCI, Laboratory of Physics and Study of Materials</i>) 2D nanoplatelets of II-VI semiconductors: from material synthesis to optoelectronic devices
10:20 - 10:30	Discussion
10:30 - 11:05 SE1.1-I3	<u>Maksym Kovalenko</u> (<i>Department of Chemistry and Applied Biosciences, Institute of Inorganic Chemistry, ETH Zürich</i>) Colloidal APbX ₃ nanocrystals [A=Cs ⁺ , CH ₃ NH ₃ ⁺ , CH(NH ₂) ₂ ⁺ , X=Cl, Br, I] with bright photoluminescence spanning from ultraviolet to near-infrared spectral regions

11:05 - 11:15	Discussion
11:15 - 11:45	Coffee Break
11:45 - 12:20 SE1.1-I4	<u>Christopher B. Murray</u> (<i>University of Pennsylvania</i>), Yaoting Wu, Blaise Fleury, Stan Najmr, Davit Jishkariani, Katherine C Elbert, Cherie R. Kagan, Da Wang, Alfons van Blaaderen Design and assembly of coupled multicomponent nanocrystal superlattices and quasicrystalline assemblies and superparticles
12:20 - 12:30	Discussion
12:30 - 12:45 SE1.1-O1	<u>Anne Berends</u> (<i>Molecular Catalysis, Department of Chemical Engineering and Chemistry, Eindhoven University of Technology</i>), Ward van der Stam, Jan Philipp Hofmann, Eva Bladt, Johannes Meeldijk, Sara Bals, Celso de Mello Donega Surface chemistry determines fate of shell overgrowth or alloying reactions in CuInS ₂ nanocrystals
12:45 - 13:00 SE1.1-O2	<u>Jakub Jagielski</u> (<i>Institute for Chemical & Bioengineering, Department of Chemistry & Applied Biosciences, ETH Zurich</i>), Sudhir Kumar, Chih-Jen Shih Colloidal Quantum Confined Perovskites for Ultrapure Green Optoelectronics: Synthesis and Applications
13:00 - 13:15 SE1.1-O3	<u>Youngjin Jang</u> (<i>Schulich Faculty of Chemistry, Russell Berrie Nanotechnology Institute, Solid State Institute, Technion-Israel Institute of Technology</i>), Arthur Shapiro, Aldona Sashchiuk, Efrat Lifshitz Colloidal synthesis of SnTe nanocrystals and SnTe-based core/shell nanocrystals by cation exchange combined with Kirkendall effect
13:15 - 15:00	Lunch
	SE1.2 Chair: Maksym Kovalenko
15:00 - 15:35 SE1.2-I1	<u>Jonathan Owen</u> (<i>Department of Chemistry, Columbia University</i>) The coordination chemistry of colloidal quantum dots.
15:35 - 15:45	Discussion
15:45 - 16:20 SE1.2-I2	<u>Ivan Infante</u> (<i>Vrije Universiteit Amsterdam</i>) Trap States in Colloidal II-VI and IV-VI Semiconductor Nanocrystals
16:20 - 16:30	Discussion

16:30 - 16:45 SE1.2-O1	<u>Jun Pan</u> (<i>Division of Physical Sciences and Engineering, Solar and Photovoltaic Engineering Research Center (SPERC), King Abdullah University of Science & Technology (KAUST)</i>), Osman Bakr Surface passivation of perovskite quantum dots for high photo-stability and efficient light emitting diodes
16:45 - 17:00 SE1.2-O2	<u>Stephanie ten Brinck</u> (<i>Vrije Universiteit Amsterdam</i>), Ivan Infante Surface Termination, Morphology and Bright Photoluminescence of Cesium Lead Halide Perovskite Nanocrystals

17:00 - 18:30 **Poster exhibition**

20:00 - 22:00 **Social Dinner**

September 8th - Day 5 (Friday)

SE1.3

Chair: Vanessa Wood

09:00 - 09:35 SE1.3-I1	<u>Marcus Scheele</u> (<i>University of Tübingen</i>) Living on the Edge: Excitons at the Quantum Dot/Organic Semiconductor Interface
09:35 - 09:45	Discussion
09:45 - 10:20 SE1.3-I2	<u>Cherie Kagan</u> (<i>University of Pennsylvania</i>) Role of Surface Chemistry on Charge Carrier Transport in Quantum Dot Solids
10:20 - 10:30	Discussion
10:30 - 11:05 SE1.3-I3	<u>Joey Luther</u> (<i>NREL</i>) Perovskite Quantum Dot Solar Cells—Stable Cubic CsPbI ₃ Films for High-Efficiency Photovoltaics
11:05 - 11:15	Discussion
11:15 - 11:45	Coffee Break
11:45 - 12:20 SE1.3-I4	<u>Frank Wise</u> (<i>Cornell University US</i>) Properties of Lead-Salt Nanosheets
12:20 - 12:30	Discussion
12:30 - 12:45 SE1.3-O1	<u>marcel bohmer</u> (<i>Lumileds, Device Architecture, Netherlands</i>), jacques heuts, stefan grabowski, sumit gangwal, danielle chamberlin, daniel estrada, ken shimizu On chip quantum dots for efficient white LEDs

12:45 - 13:00 SE1.3-O2	<u>Ward van der Stam</u> (<i>Chemical Engineering, Optoelectronic Materials, TU Delft</i>), Solrun Gudjonsdottir, Wiel Evers, Arjan Houtepen Electrochemically Tuning the Doping Density, Crystal Structure and Radiative Recombination of Cu _{2-x} S Nanocrystals
13:00 - 13:15 SE1.3-O3	<u>Mahdi Samadi Khoshkhoo</u> (<i>University of Tübingen</i>), Santanu Maiti, Frank Schreiber, Thomas Chassé, Marcus Scheele Tunable Charge Transport by Multiple Inelastic Cotunneling in ITO Nanocrystal Superlattices
13:15 - 15:00	Lunch
	SE1.4 Chair: Frank Wise
15:00 - 15:35 SE1.4-I1	<u>Patanjali Kambhampati</u> (<i>McGill University</i>) On the nature of the surface of semiconductor nanocrystals
15:35 - 15:45	Discussion
15:45 - 16:20 SE1.4-I2	<u>Vanessa Wood</u> (<i>Laboratory for Nanoelectronics, Department of Information Technology and Electrical Engineering, ETH Zurich</i>) Nanocrystal Surface Engineering
16:20 - 16:30	Discussion
16:30 - 16:45 SE1.4-O1	<u>Freddy Rabouw</u> (<i>ETH Zurich</i>), Felipe Antolinez, David Norris Trapping and charging in individual quantum dots studied using fluorescence correlation analysis
16:45 - 17:00 SE1.4-O2	<u>Carlo Giansante</u> (<i>Istituto di Nanotecnologia CNR-Nanotec</i>) On How Surface Chemistry Affects the Ground State Optoelectronic Properties of Colloidal Quantum Dots
17:00 - 17:15	Closing

Poster Contribution

003	<u>Klaus Boldt</u> (<i>University of Konstanz</i>), Florian Enders, Peng Zeng, Trevor A. Smith Ultrafast Carrier Relaxation and Extraction in Semiconductor Nanoheterostructures
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006	<u>Yarimeth A. Alarcón</u> (<i>Instituto de Energías Renovables - UNAM</i>), Oscar A. Jaramillo-Quintero, Marina E. Rincón Thermographic Analysis of Perovskite Solar Cells Degradation Induced by Light
037	<u>Rotem Strassberg</u> (<i>Technion – Israel Institute of Technology</i>), Yahel Barak, Svas Delikanli, Efrat Lifshitz, Hilmi Volkan Demir Optically Detected Magnetic Resonance studies of CdSe/CdMnS core/shell colloidal nanoplatelets
060	<u>Itay Meir</u> (<i>Technion – Israel Institute of Technology</i>), Joanna Dehnel, Efrat Lifshitz Optical properties of alloyed CdSe/CdS CQDs heterostructure
068	<u>Juan Ignacio Climente</u> , Josep Planelles, Fernando Rajadell Quantum Mechanical Origin of Linearly Polarized Emission in CdSe/CdS Dot-in-Rod Heterostructures
083	<u>Jannika Lauth</u> (<i>Delft University of Technology, Department of Chemical Engineering</i>), Francisco Manteiga Vázquez, Ryan W. Crisp, Sachin Kinge, Arjan J. Houtepen, Laurens D. A. Siebbeles Tuning the Photoluminescence and Carrier Multiplication Properties in Ultrathin 2D PbS Nanoplatelets
104	<u>Satria Zulkarnaen Bisri</u> (<i>RIKEN Center for Emergent Matter Science</i>), Daiki Shin, Sunao Shimizu, Maria Ibanez, Maksym V. Kovalenko, Yoshihiro Iwasa Charge Carrier Doping Control and Thermoelectricity of Colloidal Nanocrystal Assemblies
110	<u>Ivan Mora-Sero</u> (<i>Institute of Advanced Materials, Universitat Jaume I, Spain</i>), Bruno Clasen Hames Perovskite Quantum Dots for LED applications
151	<u>Nicholas Kirkwood</u> (<i>Chemical Engineering, Optoelectronic Materials, TU Delft</i>), Francesca Pietra, Luca De Trizio, Anne Hoekstra, Lennart Kleibergen, Rolf Koole, Patrick Baesjou, Nicolas Renaud, Liberato Manna, Arjan Houtepen Preferential gallium for zinc cation exchange in InZnP nanocrystals leads to photoluminescence enhancement
154	<u>Solrun Gudjonsdottir</u> (<i>Chemical Engineering, Optoelectronic Materials, Delft University of Technology, Van der Maasweg 9, 2629 HZ Delft, The Netherlands</i>), Ward van der Stam, Nick Kirkwood, Wiel Evers, Arjan Houtepen The role of ion diffusion in electrochemical doping of ZnO Nanocrystal assemblies



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| 155 | <u>Laura Piveteau</u> (<i>Department of Chemistry and Applied Biosciences, Institute of Inorganic Chemistry, ETH Zürich</i>), Ta-Chung Ong, Brennan J. Walder, Aaron J. Rossini, Dmitry Dirin, Lindon Emsley, Christophe Copéret, Maksym V. Kovalenko
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| 158 | <u>Fabio Gabelloni</u> (<i>Department of Physics and Astronomy, University of Florence and LENS, via G. Sansone 1, Sesto Fiorentino (FI), Italy</i>), Giulia Andreotti, Francesco Biccari, Massimo Gurioli, Marco Pagliai, Alessio Milanese, Nicola Calisi, Stefano Caporali, Anna Vinattieri
Anomalous increase of the photoluminescence decay time with the temperature in CsPbBr ₃ nanocrystals: role of the thermally activated transfer from the surface states |
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Surface chemistry of molybdenum disulfide nanosheets |
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In-gap Minibands in Epitaxial Quantum Dot Superlattices |
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Surface-engineered cationic nanocrystals stable in high ionic strength solutions |
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Auger Recombination and Charge Transfer in CdSe/CdS Core/Shell Quantum Dot/Quantum Rod ensembles |
| 177 | <u>Valeriia Grigel</u> (<i>Physics and Chemistry of Nanostructures, Ghent University, Ghent, Belgium.</i>), Laxmi Kishore Sagar, Kim De Nolf, Jonathan De Roo, Qiang Zhao, Andre Vantomme, Zeger Hens
The surface chemistry of HgSe Quantum Dots |



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Hot electron transfer in bi-component Quantum-Dot solids</p> |
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A Study of the Device Performance and Light Characteristics Stability of Quantum Dot Based White Light Emitting Diodes</p> |