

nanoGe Fall Meeting19 (NGFM19)

#NCFun19. Fundamental Processes in Semiconductor Nanocrystals

Berlin, Germany, 2019 November 7th - 8th

Conference Chairs: Ivan Infante and Jonathan Owen

Conference Program

November 7th - Day 5 (Thursday)	
NCFun 1.1 Room: Breakout 4	
09:00 - 09:30	<u>Brandi Cossairt</u> (<i>University of Washington, Department of Chemistry, Seattle, WA 98195-1700</i>)
1.1-11	Understanding and Directing the Structure and Properties of Indium Phosphide Nanocrystals through Chemistry
09:30 - 10:00	<u>Zeger Hens</u> (<i>Department of Chemistry, Ghent University, Krijgslaan 281 - S3, 9000 Gent, Belgium</i>)
1.1-12	Properties of the Bright Exciton in InP Quantum Dots
10:00 - 10:30	<u>Sohee Jeong</u> (<i>Sungkyunkwan University (SKKU)</i>)
1.1-13	III-V Colloidal Nanocrystals: Control over the Covalent Surfaces
10:30 - 11:00	Coffee Break
NCFun 1.2 Room: Breakout 4	
11:00 - 11:30	<u>Nathan Neale</u> (<i>Chemical and Nanoscale Sciences Center, National Renewable Energy Laboratory</i>), Michael Carroll, Rens Limpens, Lance Wheeler, Gregory Pach
1.2-11	Surface Chemistry Effects on Quantum Confinement in Group IV Nanocrystals
11:30 - 12:00	<u>Heather Kulik</u> (<i>Department of Chemical Engineering, Massachusetts Institute of Technology</i>)
1.2-12	Electronic Structure Origins of Surface-Dependent Growth in III-V Quantum Dots
12:00 - 12:30	<u>Alina Schimpf</u> (<i>University of California San Diego</i>), Alexander Rachkov
1.2-01	Synthesis of Monodisperse and Size-Tunable Colloidal Copper Phosphide Nanocrystals by Redox Disproportionation of Aminophosphine
12:30 - 14:00	Lunch
NCFun19 1.3 Room: Breakout 4	
14:00 - 14:30	<u>Arjan Houtepen</u> (<i>Delft University of Technology (TU Delft)</i>)
1.3-11	Electrochemical Control over Semiconductor Nanomaterials: Doping and Surface Reduction
14:30 - 15:00	<u>Celso de Mello Donega</u> (<i>Debye Institute for Nanomaterials Science, Utrecht University, The Netherlands</i>), Chenghui Xia, Wentao Wang, Liang Du, Freddy Rabouw, Dave van den Heuvel, Hans C. Gerritsen, Hedi Mattoussi
	Förster Resonance Energy Transfer between Colloidal CuInS ₂ /ZnS Quantum Dots and Dark Quenchers
15:00 - 15:15	<u>Solrun Gudjonsdottir</u> (<i>Technical University of Delft</i>), Ward van der Stam, Christel Koopman, Bob Kwakkenbos, Arjan Houtepen
1.3-02	On the Stability of Permanent Electrochemical Doping of Quantum Dot, Fullerene and Conductive Polymer Films in Frozen Electrolytes for Use in Semiconductor Devices
15:15 - 15:30	<u>Felix Thiel</u> (<i>Institute of Physical Chemistry, University of Hamburg</i>), Cristina Palencia Ramirez, Horst Weller
1.3-03	Cation Exchange Reactions in Nanorods: Vacancy-Mediated Diffusion in Cu-deficient Cu(2-x)S Nanorods during the Formation of a Ternary System
15:30 - 16:00	Coffee Break
NCFun19 1.4 Room: Breakout 4	

16:00 - 16:15	<u>Anumol s</u> (<i>Solid State and Structural Chemistry Unit, Indian Institute of Science (IISc)</i>), Biswajit Bhattacharyya, V. V. R. Kishore, Abhinav Kumar, Guru Pratheep Rajasekar, D. D. Sarma, Anshu Pandey
1.4-O1	Spectroscopic Insights into the Electronic Structure of Copper Iron Sulfide Nanocrystals
16:15 - 16:30	<u>Cristina Palencia Ramírez</u> (<i>Institute of Physical Chemistry, University of Hamburg</i>), Robert Seher, Jan Krohn, Felix Thiel, Felix Lehmkuhler, Horst Weller
1.4-O2	Formation Dynamics of Nanocrystals: In-situ Observation of the Growth of CdSe NCs Via Magic-sized Clusters Intermediates.
16:30 - 17:00	<u>Oleksandr Voznyy</u> (<i>University of Toronto Scarborough</i>)
1.4-I1	Ab Initio Studies of Surface Chemistry and Exciton Fine Structure in Semiconductor Nanocrystals

17:00 - 19:00 Poster Session

November 8th - Day 6 (Friday)

Plenary Session

Room: Plenum / Breakout 4

09:00 - 09:30	<u>Dmitri Talapin</u> (<i>Department of Chemistry, University of Chicago, Chicago, Illinois 60637, USA</i>)
Session-K1	Self-organization of Electrostatically and Sterically Stabilized Colloidal Nanocrystals: The Roles of Topology, Image Charges and Non-classical Nucleation
09:00 - 09:30	<u>Xiaoyang Zhu</u> (<i>Department of Chemistry, Columbia University, New York, New York 10027, United States</i>)
Session-K2	Ferroelectric Polarons in Lead Halide Perovskites

NCFun 2.1

Room: Breakout 4

09:30 - 10:00	<u>Raquel Galian</u> (<i>Institute of Molecular Science, University of Valencia, c/ Cat. José Beltrán 2, Paterna, 46980, Valencia, Spain</i>), Soranyel Gonzalez Carrero, Ignacio Rosa-Pardo, Julia Pérez-Prieto
2.1-I1	Critical Role of Ligands on the Photoluminescence and Morphology of Colloidal Perovskite Nanocrystals

10:00 - 10:30

10:30 - 11:00 Coffee Break

NCFun19 2.2

Room: Breakout 4

11:00 - 11:15	<u>Valeria Mantella</u> (<i>Laboratory of Nanochemistry for Energy, EPFL, Switzerland</i>), Silviya Ninova, Seryio Saris, Anna Loiudice, Ulrich Aschauer, Raffella Buonsanti
2.2-O2	Synthesis and Size-dependent Optical Properties of Intermediate Band Gap Cu ₃ VS ₄ Nanocrystals
11:15 - 11:30	<u>Evert Dhaene</u> (<i>Department of Chemistry, Ghent University</i>), Jonas Billet, Ellie Bennett, Isabel Van Driessche, Jonathan De Roo
2.2-O3	The Trouble With 1-Octadecene: Polymerization During Nanocrystal Synthesis
11:30 - 12:00	<u>Iván Mora-Seró</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I</i>)
2.2-I1	Phase Segregation in Perovskite Nanoparticles and Applications of these Materials in Photocatalytic Processes
12:00 - 12:30	<u>Anna Loiudice</u> (<i>Laboratory of Nanochemistry for Energy, EPFL, Switzerland</i>), Seryio Saris, Raffaella Buonsanti
2.2-O1	Metal Oxide Shell to Study Nanoscale Phenomena in Perovskite Quantum Dots

12:30 - 14:00 Lunch

NCFun 2.3

Room: Breakout 4

14:00 - 14:30	<u>Maryna Bodnarchuk</u> (<i>EMPA - Swiss Federal Laboratories for Materials Science and Technology</i>), Simon Boehme, Caterina Bernasconi, Maksym Kovalenko, Ivan Infante
2.3-I1	Surface Chemistry of Colloidal Cesium Lead Halides Nanocrystals
14:30 - 15:00	<u>Daniel Gamelin</u> (<i>University of Washington, Department of Chemistry, Seattle, WA 98195-1700</i>)
2.3-I2	Solar Quantum Cutting and Spectral Downconversion using Ytterbium-Doped Metal-Halide Perovskites
15:00 - 15:30	<u>Liberato Manna</u> (<i>Istituto Italiano di Tecnologia (IIT), Genova, Italy</i>)
2.3-I3	Beyond Lead Halide Perovskite Nanocrystals

15:30 - 16:00 **Coffee Break**

CNFun 2.4

Room: Breakout 4

- 16:00 - 16:15
2.4-O1 Marcello Righetto (*Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University 637371 Singapore*), Swee Sien Lim, David Giovanni, Melvin Lim, Tze Chien Sum
Cooling and Trapping. A Complete Map of Hot Carrier Processes in Hybrid Perovskite Nanocrystals
- 16:15 - 16:30
2.4-O2 M. Yenal Yalcinkaya (*Department of Materials Science and Engineering, Izmir Institute of Technology, Turkey*), C. Meric Guvenc, Sercan Ozen, Hasan Sahin, Mustafa M. Demir
Enhanced stability and optical properties of Gd³⁺ doped CsPbI₃ nanocrystals

Poster Contribution

- 097 Servio Saris (*Laboratory of Nanochemistry for Energy, EPFL, Switzerland*), Anna Loiudice, Raffaella Buonsanti
Driving Chemical Reactions with a Metal/perovskite Nanocrystal Energy Transfer Photosystem
- 190 Christian Dieleman (*AMOLF*), Weiyl Ding, Biplap Patra, Harshal Agrawal, Erik Garnett, Sonia Castellanos, Bruno Ehrler
Direct Patterning of Nanocrystals by E-beam Lithography
- 249 Dima Bederak (*Zernike Institute for Advanced Materials, University of Groningen, Nijenborgh 4, Groningen 9747 AG, The Netherlands*), Nataliia Sukharevksa, Dmitry N. Dirin, Maksym V. Kovalenko, Maria A. Loi
Novel S-rich PbS QDs as a promising material for p-type layer in PbS QD solar cells
- 341 Eric Hansen (*Massachusetts Institute of Technology - USA*), Yun Liu, Hendrik Utzat, Sophie Bertram, Jeffrey Grossman, Mounji Bawendi
Blue Light Emitting Defective Nanocrystals Composed of Earth-Abundant Elements
- 342 Bapi Pradhan (*Department of Chemistry, KU Leuven, Celestijnenlaan 200F, Leuven, 3001, Belgium*)
2D Hybrid Organic-Inorganic Metal Halide Perovskite Nanowires
- 343 Manoj Sharma (*LUMINOUS! Centre of Excellence for Semiconductor Lighting and Displays, School of Electrical and Electronic Engineering, Nanyang Technological University, 50 Nanyang Avenue, 639798 Singapore*), Ashma Sharma, Kivanc Gungor, Junhong Yu, Mingjie Li, Tze-Chien Sum, Cuong Dang, Hilmi Volkan Demir
Copper-Doped Colloidal Quantum Wells: synthesis, solar light harvesting, lasing, and mutual energy transfer