

Emerging Light Emitting Materials 2024 (EMLEM24)

La Canea, Greece, 2024 October 15th - 18th

Conference organizers: Grigorios Itskos, Sohee Jeong and Jacky Even

Conference Program

October 15th - Day 1 (Tuesday) 1	
08:30 - 19:30	Social Activity - Gramvousa Balos Boat Cruise
October 16th - Day 2 (Wednesday) 2	
09:00 - 10:00	Registration
09:50 - 10:00	Opening
	Session 1A
10:00 - 10:30	<u>Maksym Kovalenko</u> (<i>ETH Zürich, Department of Chemistry and Applied Biosciences, Switzerland</i>) The first decade of perovskite quantum dots (in our lab)
1A-1I	
10:30 - 10:45	<u>Avijit Saha</u> (<i>Physical Chemistry, Technische Universität Dresden (TU Dresden), 01069 Dresden, Germany</i>) RoHS Compliant, Efficient Short Wave Infrared (SWIR) Quantum Dot Emitters
1A-01	
10:45 - 11:00	<u>Harshita Bhatia</u> (<i>Department of Chemistry, KU Leuven, BE</i>), Nadine J. Schrenker, Sara Bals, Maarten B.J. Roeflaers, Johan Hofkens, Elke Debroye Deciphering the Role of Water in Promoting the Optoelectronic Performance of Surface-Engineered Lead Halide Perovskite Nanocrystals
1A-02	
11:00 - 11:30	Coffee Break
	Session 1B
11:30 - 12:00	<u>Liberato Manna</u> (<i>ISTITUTO ITALIANO DI TECNOLOGIA</i>) Halide Perovskite Nanocrystals: Synthesis, Growth Mechanisms, Superstructures
1B-1I	
12:00 - 12:15	<u>Zhaojun Li</u> (<i>Department of Materials Science and Engineering, Solid State Physics, Uppsala University, Box 35, 75103 Uppsala, Sweden</i>) Defect Passivation in 2D Semiconducting Material for Sustainable Optoelectronic Applications
1B-01	
12:15 - 12:30	<u>Andriy Stelmakh</u> (<i>Laboratory of Inorganic Chemistry, Department of Chemistry and Applied Biosciences, ETH Zürich, Vladimir Prelog Weg 1, CH-8093 Zürich, Switzerland</i>), Ihor Cherniukh, Kseniia Shcherbak, Andriy Baumketner, Maksym Kovalenko Faceting and Equilibrium Shapes of CsPbBr ₃ Nanocrystals
1B-02	
12:30 - 13:00	<u>Jaehoon Lim</u> (<i>Department of Energy Science, Sungkyunkwan University, Suwon, South Korea</i>) Revisiting Reaction Chemistry and Defect Formation in Core/Shell Heterostructured Quantum Dots
1B-12	
13:00 - 13:15	<u>Saar Shaek</u> (<i>Technion - Israel Institute of Technology, Materials Science and Engineering Faculty</i>), Offir Zachs, Emma Massasa, Rachel Lifer, Lotte Kortstee, George Dosovitskiy, Boaz Pokroy, Ivano Castelli, Yehonadav Bekenstein Stability of Emissive Cubic Phase of Double Perovskite Nanocrystals with Li Compositions
1B-03	
13:15 - 13:30	<u>Deepa Thakur</u> (<i>Department of Materials Science and Engineering, Solid State Physics, Uppsala University, Box 35, 75103 Uppsala, Sweden</i>), Zhaojun Li Defect Engineering in Light-Active 2D Transition Metal Dichalcogenides
1B-04	
13:30 - 15:00	Lunch Break
	Session 1C
15:00 - 15:30	<u>Maryna Bodnarchuk</u> (<i>Laboratory for Thin Films and Photovoltaics, Empa - Swiss Federal Laboratories for Materials Science and Technology, CH-8600 Dübendorf, Switzerland</i>) Advancements in the Synthesis and Multicomponent Superlattices of Highly Luminescent Lead Halide Perovskite Nanocrystals
1C-1I	
15:30 - 15:45	<u>Sotirios Christodoulou</u> (<i>Inorganic Nanocrystals Laboratory, Department of Chemistry, University of Cyprus, Nicosia 1678, Cyprus</i>), Marios Stylianou, Eric Bowes, Luca Leoncino, Rossaria Brescia, Andreas Othonos, Jennifer Hollingsworth Synthesis and Optical Characterization of PbS/CdS Colloidal Quantum Dots emitting at telecommunication wavelength
1C-01	
15:45 - 16:00	<u>Simone Bertucci</u> (<i>Photonic Nanomaterials, Istituto Italiano di Tecnologia, 16163, Genova, Italy</i>), Gianluca Bravetti, Andrea Escher, Davide Piccinotti, Christoph Weder, Ullrich Steiner, Francesco Di Stasio, Andrea Dodero Block Copolymer Photonic Microparticles for the Emission Control of Colloidal Semiconductor Nanocrystals
1C-02	
16:00 - 16:30	<u>Marco Califano</u> (<i>University of Leeds</i>) "There's No Place Like... the Surface": The (Nearly) Endless Design Opportunities Afforded by Nanocrystal Surface Engineering
1C-12	
16:30 - 16:45	<u>Janardan Kundu</u> (<i>Indian Institute of Science Education and Research Tirupati</i>) Rational Control on Luminescence and Melting Temperatures of Low Dimensional Metal Halide Hybrids through Structure-Property Correlation
1C-03	
16:45 - 17:00	<u>Oleksandr Kolomiiets</u> (<i>Laboratory of Inorganic Chemistry, Department of Chemistry and Applied Biosciences, ETH Zürich, CH-8093 Zürich, Switzerland</i>), Andriy Stelmakh, Sebastian Sabisch, Amrutha Rajan, Lidiia Dubenska, Andriy Baumketner, Gabriele Raino, Maryna Bodnarchuk, Maksym Kovalenko An Experimental and Computational Assessment of Long-chain Sulfonium Capping Ligands for Perovskite Quantum Dots
1C-04	
17:00 - 17:30	<u>Jooyoung Sung</u> (<i>Department of Physics and Chemistry, DGIST</i>) Ultrafast Charge Carrier Dynamics in Quantum Dot Solids Revealed by fs-Microscopy
1C-13	
18:30 - 20:30	Social Activity - Cultural tour in Chania*

October 17th - Day 3 (Thursday) 3

08:00 - 09:00	Social Activity - Yoga Class*
	Session 2A
10:00 - 10:30	
10:30 - 10:45 2A-01	<u>Tomas Edvinsson</u> (<i>Department of Materials Science and Engineering, Solid State Physics, Uppsala University, Box 35, 75103 Uppsala, Sweden</i>) Electronic and Vibrational Quantum Confinement Effects in ZnO Quantum Dots and 2D Perovskites
10:45 - 11:00 2A-02	<u>Marios Zacharias</u> (<i>Univ Rennes, INSA Rennes, CNRS, Institut FOTON - UMR 6082, F-35000 Rennes, France</i>), George Volonakis, Mikaël Kepenekian, Claudine Katan, Jacky Even Polymorphism in Halide Perovskites: Bridging the Gap Between Theory and Experiment
11:00 - 11:30	Coffee Break
	Session 2B
11:30 - 12:00 2B-11	<u>Jennifer Hollingsworth</u> (<i>Materials Physics and Applications Division: Center for Integrated Nanotechnologies, Los Alamos National Laboratory, Los Alamos 87545, New Mexico, United States</i>) Solution-Processed Quantum Light Sources Based on Ultra-Stable Giant Quantum Dots
12:00 - 12:30 2B-12	<u>George Volonakis</u> (<i>Univ Rennes, ENSCR, INSA Rennes, CNRS, ISCR - UMR 6226, F-35000 Rennes, France.</i>) Ab-Initio Computational Design of Halide Perovskites and Related Materials
12:30 - 13:00 2B-13	<u>Dong Hee Son</u> (<i>Department of Chemistry, Texas A&M University, College Station, Texas 77840, United States</i>) Generation of hot electrons and superradiance from strongly quantum-confined provskite quantum dots and their superlattices
13:00 - 13:15 2B-01	<u>Sunghu Kim</u> (<i>Department of Energy Science, Sungkyunkwan University, Suwon, South Korea</i>), Wookjin Chung, Jooyoung Sung, Sohee Jeong Visualization of Carrier Diffusion in InP Quantum Dot Solids via Surface Passivation
13:15 - 13:30 2B-02	<u>Panagiotis Rodosthenous</u> (<i>Experimental Condensed Matter Physics Laboratory, Department of Physics, University of Cyprus, Nicosia 1678, Cyprus</i>), Grigorios Itskos, Sotirios Christodoulou, Marco Califano Modelling of Surface Defects in InAs Colloidal Quantum Dots
13:30 - 15:00	Lunch Break
	Session 2C
15:00 - 15:30 2C-11	<u>Thilo Stöferle</u> (<i>IBM Research Europe — Zurich, CH-8803 Rüschlikon, Switzerland</i>) Room-Temperature Cavity Exciton-Polariton Condensation in Perovskite Quantum Dots
15:30 - 15:45 2C-01	<u>Dmitriy Dovzhenko</u> (<i>School of Physics and Astronomy, Faculty of Engineering and Physical Sciences, University of Southampton, University Road, Southampton SO17 1BJ, UK</i>), Krzysztof Sawicki, Pavel Kokhanchik, Helgi Sigursson, Luciano Ricco, Dmitry Solnyshkov, Guillaume Malpuech, Wiktor Piecek, Jacek Szczytko Electrically Controlled Interaction of Coupled Photon Lasing States in a Dye-Filled Liquid-Crystal Microcavity
15:45 - 16:00 2C-02	<u>Rafael Araujo</u> (<i>Department of Materials Science and Engineering, Solid State Physics, Uppsala University, Box 35, 75103 Uppsala, Sweden</i>), Mustafa Aboulsaad, Tomas Edvinsson Implications of quantum confinement effects for the electronic and vibrational properties in 2D lead halide materials
16:00 - 16:30 2C-12	<u>Emmanuelle Deleporte</u> (<i>Laboratoire Lumière, Matière et Interfaces, Université Paris-Saclay, ENS Paris-Saclay, CNRS, CentraleSupélec, 91405 Orsay Cedex, France</i>) Hybrid Halide Perovskite Thin Films for Large Surface and Room Temperature Polaritonic Applications
16:30 - 16:45 2C-03	<u>Eleftheria Charalambous</u> (<i>Experimental Condensed Matter Physics Laboratory, Department of Physics, University of Cyprus, Nicosia 1678, Cyprus</i>), Andreas Manoli, Sunghu Kim, Bora Kim, Seongmin Park, Sohee Joeng, Grigorios Itskos Spectroscopic Studies of n-type and p-type Indium Arsenide Quantum Dot Films
16:45 - 17:00 2C-04	<u>Yuliia Kominko</u> (<i>Department of Chemistry and Applied Biosciences, ETH Zürich, Zürich, Switzerland</i>), Sebastian Sabisch, Andrii Kanak, Gabriele Raino, Simon C. Böhme, Gebhard J. Matt, Lidiia Dubenska, Ihor Cherniuk, Frank Krumeich, Matthias Klimpel, Xuqi Liu, Sergey Tsarev, Sergii Yakunin, Maksym V. Kovalenko Stable Room-Temperature Amplified Spontaneous Emission from Single-Source Thermally Evaporated Cesium Lead Halide Perovskites
17:00 - 17:30 2C-13	<u>Nikos Pelekanos</u> (<i>Department of Materials Science & Technology, University of Crete, 70013 Heraklion, Greece</i>), Christina Saitanidou, Violeta Spanou, Nikos Chatzarakis, Katerina Tsagaraki, Costas Stoumpos Dual-wavelength lasing due to a second phase in MAPbCl ₃
20:30 - 22:00	Social Dinner

October 18th - Day 4 (Friday) 4

Session 3A

- 10:00 - 10:30
 3A-I1 Adivya Mohite (*Department of Chemical and Biomolecular Engineering, Rice University, Houston, TX 77005*)
 The Rise of 2D Halide Perovskites for Durable and Efficient Optoelectronic Devices
- 10:30 - 10:45
 3A-O1 Colin Jeanguenat (*Ecole Polytechnique Fédérale de Lausanne (EPFL)*), Kevin Sivula
 Four-fold enhanced energy transfer in perovskite nanostructured scintillators by chemical bonding.
- 10:45 - 11:00
 3A-O2 Chunxiang BAO, Zhongcheng Yuan (*Department of Physics, Chemistry and Biology (IFM), Linköping University, Linköping, SE-58183, Sweden*), Jianpu Wang, Feng Gao
 Multifunctional Display Based on Photo-responsive Perovskite LEDs

11:00 - 11:30 Coffee Break

Session 3B

- 11:30 - 12:00
 3B-I1 Alexandra Ramadan (*Department of Physics and Astronomy, University of Sheffield, Sheffield, S3 7RH, United Kingdom*)
 Understanding quasi-2D perovskite structures and their performance in LEDs
- 12:00 - 12:15
 3B-O1 Andreas Manoli (*Department of Physics, Experimental Condensed Matter Physics Laboratory, University of Cyprus*), Theodosia Giamouki, Modestos Athanasiou, Maryna Bodnarchuk, Maksym Kovalenko, Grigorios Itskos
 Micro-Patterning of Perovskite Nanocrystal Films Using Laser Writer Lithography
- 12:15 - 12:30
 3B-O2 Mustafa M. Aboulsaad (*Department of Materials Science and Engineering, Solid State Physics, Uppsala University, Box 35, 75103 Uppsala, Sweden*), Rafael B. Araujo, Tomas Edvinsson
 Absorption, excitonic emission, and vibrational modes in quantum-confined lead halide 2D nanoplatelets
- 12:30 - 13:00
 3B-I2 Solenn BERSON (*Univ. Grenoble Alpes, CEA, LITEN, INES*), Matthieu MANCEAU, Olivier Dupre, Polyxeni Tsoulka, Noella Lemaitre, Perrine Carroy, Adrien Danel, Malek Benmansour
 Metal Halide Perovskite : a new class of material for the development of highly efficient PK/Si tandem solar cell technology
- 13:00 - 13:15
 3B-O3 Taehee Kim (*ETH Zurich, Laboratory of Inorganic Chemistry, Department of Chemistry & Applied Biosciences*), Mariia Svyrydenko, Ryeong Myeong Kim, Jeong Hyeon Han, Maryna Bodnarchuk, Ki Tae Nam, Gabriele Raino, Maksym Kovalenko
 Chiral Single Photon Emission in Perovskite Nanocrystals
- 13:15 - 13:30
 3B-O4 Aliki Souzou (*Experimental Condensed Matter Physics Laboratory, Department of Physics, University of Cyprus, Nicosia 1678, Cyprus*), Grigorios Itskos, Modestos Athanasiou, Andreas Manoli, Marios Constantinou, Maryna I. Bodnarchuk, Maksym V. Kovalenko, Chrysafis Andreou
 Interactions of Light, Surface Plasmons and Excitons in Bilayers of FAPbI₃ Nanocrystals with Core-Shell Au/SiO₂ Nanoparticles

13:30 - 15:00 Lunch Break

Session 3C

- 15:00 - 15:30
 3C-I1 Francesco Di Stasio (*Photonic Nanomaterials, Istituto Italiano di Tecnologia, 16163, Genova, Italy*)
 Colloidal quantum dots for near-infrared optoelectronics
- 15:30 - 15:45
 3C-O1 Jun Xi (*Xi'an Jiaotong University*)
 Self-Assembled Molecules Fostering Ordered Spatial Heterogeneity for Efficient Ruddlesden-Popper Perovskite Solar Cells
- 15:45 - 16:00
 3C-O2 Alexandr Marunchenko (*Chemical Physics and NanoLund, Lund University, P.O. Box 124, 22100 Lund, Sweden*), Jitendra Kumar, Shraddha M. Rao, Alexander Kiligaridis, Dmitry Tatarinov, Anatoly Pushkarev, Yana Vaynzof, Ivan Scheblykin
 Metal Halide Perovskite Memlumors
- 16:00 - 16:30
 3C-I2 Shai Levy (*Department of Materials Science and Engineering, Solid-State Institute, and Helen Diller Quantum Center, Technion - Israel Institute of Technology, 3200003 Haifa, Israel*), Yehonadav Bekenstein
 Collective Interactions of Excitons in Halide Perovskite Nanocrystal Superlattices
- 16:30 - 16:45
 3C-O3 Alaa Almushaikh (*King Abdullah University of Science and Technology (KAUST), Advanced Membranes and Porous Materials Center, Division of Physical Science and Engineering, Thuwal, 23955, Saudi Arabia*), Omar F. Mohammed
 Manganese Hybrid Halides for High-resolution X-ray Imaging Screen

16:45 - 16:55 Closing