

nanoGe International Conference on Perovskite Solar Cells, Photonics and Optoelectronics (NIPHO19)

International Conference on Perovskite Thin Film Photovoltaics

Jerusalem, Israel, 2019 February 25th - 26th

Conference Chairs: Lioz Etgar and Kai Zhu

Conference Program

February 25th - Day 1 (Monday)	
07:30 - 08:45	Registration ABXPV
08:45 - 09:00	Announcement of the day
08:45 - 09:00	OPENING ABXPV
Session 1	
09:00 - 09:30	<u>Mohammad Nazeeruddin</u> (EPFL)
1-I1	t.b.a.
09:30 - 10:00	<u>Sang Il Seok</u> (Ulsan National Institute of Science and Technology (UNIST), KR)
1-I2	t.b.a.
10:00 - 10:30	<u>jacky even</u> (Univ Rennes, INSA Rennes, CNRS, Institut FOTON - UMR6082, F-35000 RENNES)
1-I3	Recent results on the optoelectronic properties of layered halide perovskites
10:30 - 11:00	Coffee break
Session 2	
11:00 - 11:30	<u>Prashant Kamat</u> (Department of Chemistry & Biochemistry, University of Notre Dame)
2-I1	Understanding Halide Ion Mobility in Lead Halide Perovskite Solar Cells
11:30 - 12:00	<u>Aditya Mohite</u> (Rice University, US)
2-I2	From room temperature field effect transistors to tailoring phase purity, crystallinity and orientation in 2D perovskites
12:00 - 12:30	<u>Qingbo Meng</u> (Beijing Key Laboratory for New Energy Materials & Devices, Key Laboratory for Renewable Energy (CAS), Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences (CAS), Beijing 100190, China Center of Materials Science and Optoelectronics Engineering University of Chinese Academy of Sciences, Beijing 100049, China), Dongmei Li, Jiangjian Shi, Yanhong Luo, Yanhong Wu
2-I3	Investigation on stability of perovskite solar cells: from Materials to Devices
Industrial Talk	
12:30 - 12:45	Industry talk
12:45 - 14:45	Lunch
Session 3	
14:45 - 15:00	<u>Iris Visoly-Fisher</u> (Department of Solar Energy and Environmental Physics, Swiss Institute for Dryland Environmental and Energy Research, Jacob Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev,), Mark V. Khenkin, K.M. Anoop, Yulia Galagan, Stav Rahmany, Lioz Etgar, Eugene A. Katz
3-O1	Bias-Dependent Stability of Perovskite Solar Cells: Degradation Mechanisms Reconsidered
15:00 - 15:15	<u>Bat-El Cohen</u> (Lioz Etgar*)
3-O2	LOW-DIMENSIONAL PEROVSKITE for HIGH EFFICIENCY and HIGH VOLTAGE SOLAR CELLS

15:15 - 15:30 3-O3	<u>Florian Mathies</u> (<i>Young Investigator Group Hybrid Materials Formation and Scaling, Helmholtz-Zentrum Berlin, Berlin, Germany</i>), Katrin Hirselandt, Oleksandra Shargaieva, Ulrich W. Paetzold, Uli Lemmer, Eva Unger Insights into scalable inkjet printing for perovskite solar cells
15:30 - 15:45 3-O4	<u>Stav Rahmany</u> (<i>The Hebrew University of Jerusalem, Institute of Chemistry, Casali Center for Applied Chemistry, Jerusalem 91904, Israel.</i>), Lioz Etgar Halide Exchange in Solid State Mixed Cation Hybrid Perovskite
15:45 - 16:00 3-O5	<u>María C. Gélvez-Rueda</u> (<i>Optoelectronic Materials Section, Department of Chemical Engineering, Delft University of Technology, Van der Maasweg 9, 2629 HZ Delft, The Netherlands</i>), Ferdinand C. Grozema Extending the functionality of the organic layer in 2D hybrid perovskites
16:00 - 16:15 3-O6	<u>Fabian Ruf</u> (<i>Institute of Applied Physics, Karlsruhe Institute of Technology (KIT), Wolfgang-Gaede-Str. 1, 76131 Karlsruhe, Germany</i>), Pascal Rietz, Meltem F. Aygüler, Pablo Docampo, Heinz Kalt, Michael Hetterich Reversible Bandgap Instabilities in Multiple-Cation Mixed-Halide Perovskite Solar Cells
16:15 - 16:30 3-O7	<u>Wing Chung Tsoi</u> (<i>SPECIFIC IKC, College of Engineering, Swansea University, Bay Campus, Fabian Way, Swansea SA1 8EN, U.K.</i>), Harrison K H Lee, Jeremy Barbe, Simone Meroni, Tian Du, Chieh-Ting Lin, Adam Pockett, Joel Troughton, Sagar Jain, Francesca De Rossi, Jennifer Baker, Matthew Carnie, Martyn McLachlan, Trystan Watson, James Durrant Outstanding Indoor Performance of Perovskite Photovoltaic Cells – Effect of Device Architectures and Interlayers

Session 4

14:45 - 15:00 4-O1	<u>Aboma Merdasa</u> (<i>Young Investigator Group Hybrid Materials Formation and Scaling, Helmholtz-Zentrum Berlin, Berlin, Germany</i>), Alexandros Kiligaris, Carolin Rehmann, Mojtaba Abdi-Jalebi, Jonas Stöber, Boris Louis, Marina Gerhard, Samuel D. Stranks, Eva L. Unger, Ivan G. Scheblykin The Impact of Lead Iodide on the Recombination Kinetics in Metal Halide Perovskite Films
15:00 - 15:15 4-O2	<u>Philipp Brenner</u> (<i>Light Technology Institute, Karlsruhe Institute of Technology, Karlsruhe, 76131, Germany</i>), Ofer Bar-On, Marius Jakoby, Isabel Allegro, Bryce S. Richards, Ulrich W. Paetzold, Ian A. Howard, Jacob Scheuer, Uli Lemmer Mixed Cation Perovskites Enabling Continuous Wave Amplified Spontaneous Emission in a Single Phase
15:15 - 15:30 4-O3	Thomas Dittrich, Qin Tan, Karsten Hinrichs, Steffen Fengler, <u>Jörg Rappich</u> (<i>Helmholtz-Zentrum für Materialien und Energie, Institut für Si-Photovoltaik</i>), Pongthep Prajongtat, Norbert H. Nickel Temperature Dependent DMSO Diffusion during CH ₃ NH ₃ PbI ₃ Layer Formation
15:30 - 15:45 4-O4	<u>Arun Singh Chouhan</u> (<i>Centre for Nanoscience and Engineering, Indian Institute of Science, Bangalore, INDIA</i>), Naga Prathibha Jasti, Sushobhan Avasthi Surface Modification of Aluminum Doped Zinc Oxide by Ozone-Gas Treatment for Perovskite Solar Cells
15:45 - 16:00 4-O5	<u>Çagla Odabasi Ozer</u> (<i>Boğaziçi Üniversitesi</i>), Ramazan Yildirim Machine Learning Approach to Performance Analysis of Perovskite Solar Cells
16:00 - 16:15 4-O6	<u>Adva Shpatz Dayan</u> (<i>Casali Center for Applied Chemistry, The Institute of Chemistry, The Hebrew University of Jerusalem</i>) Enhancing Stability and Photostability of CsPbI ₃ by Reducing Its Dimensionality
16:15 - 16:30 4-O7	<u>Jeremy Barbe</u> (<i>SPECIFIC IKC, College of Engineering, Swansea University, Bay Campus, Fabian Way, Swansea SA1 8EN, U.K.</i>), Harry Lakhiani, Francesca De Rossi, Tom Dunlop, Michael Newman, Samuele Lilliu, Vikas Kumar, Harrison Ka Hin Lee, Cecile Charbonneau, Cornelia Rodenburg, Trystan Watson, David Lidzey, Wing Chung Tsoi Investigation of Perovskite Solar Cells Homogeneity and Defects by Complementary High-Resolution Mapping Techniques

February 26th - Day 2 (Tuesday)

Session 5

09:00 - 09:30 5-I1	<u>Tsutomu Miyasaka</u> (<i>Toin University of Yokohama</i>) Enhancing photovoltaic performance and stability of all-inorganic and lead-free absorbers
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09:30 - 10:00 5-I2	<u>Filippo De Angelis</u> (<i>Computational Laboratory for Hybrid/Organic Photovoltaics (CLHYO), CNR-ISTM, Perugia, Italy</i>) Defects, surfaces and surface defects in metal-halide perovskites
10:00 - 10:30 5-I3	<u>David Cahen</u> (<i>Department of Materials and Interfaces, Weizmann Institute of Science, Rehovoth 76100, Israel.</i>) How can Halide Perovskites have such low defect densities?
10:30 - 11:00	Coffee Break
Session 6	
11:00 - 11:30 6-I1	<u>Nam-Gyu Park</u> (<i>Sungkyunkwan University, Suwon 16419, Korea</i>) D-bar Coating and Bi-facial Stamping Approaches for Scalable Perovskite Solar Cells
11:30 - 12:00 6-I2	<u>Michael Saliba</u> (<i>Adolphe Merkle Institute, University of Fribourg, CH-1700 Fribourg, Switzerland</i>) The versatility of polyelemental perovskite compositions
12:00 - 12:30 6-I3	<u>Iván Mora-Seró</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, 12071 Castelló, Spain</i>) Application of Perovskite Nanoparticles in Photovoltaic Devices: Advantages and Limitations
12:30 - 13:00 6-I4	<u>Ana Flavia Nogueira</u> (<i>Laboratory of Nanotechnology and Solar Energy, Institute of Chemistry, University of Campinas – UNICAMP</i>) Synchrotron radiation applied to the characterization of perovskite films: morphology, structure and composition
13:00 - 14:45	Lunch
Session 7	
14:45 - 15:00 7-O1	<u>Nir Tessler</u> (<i>Technion – Israel Institute of Technology</i>), Yana Vaynzof Prof
15:00 - 15:15 7-O2	<u>Stylianios Choulis</u> (<i>Molecular Electronics and Photonics Research Unit, Department of Mechanical Engineering and Materials Science and Engineering, Cyprus University of Technology, Limassol, 3603, Cyprus</i>) Materials Interface Engineering for High Performance Inverted Perovskite Photovoltaics
15:15 - 15:30 7-O3	<u>Monika Rai</u> (<i>Nanyang Technological University (NTU), Singapore</i>), Stav Rahmany, Shlomo Magdassi, Lioz Etgar, Lydia Helena Wong, Swee Sien Lim Hot dipping post treatment for improved efficiency in micro patterned semitransparent perovskite solar cell
15:30 - 15:45 7-O4	<u>Jonathan Lehr</u> (<i>Light Technology Institute, Karlsruhe Institute of Technology, Karlsruhe, 76131, Germany</i>), Malte Langenhorst, Raphael Schmager, Uli Lemmer, Bryce Richards, Ulrich Paetzold Energy Yield Modelling of Textured Perovskite/Silicon Two-Terminal Tandem Photovoltaic Modules
Session 8	
14:45 - 15:00 8-O1	Renjun Guo, Mark V. Khenkin, Georgios Arnaoutakis, Nataliya Samoylova, Ambrose A. Melvin, Jeremy Barbe, Harrison Ka Hin Lee, Wing Chung Tsoi, Iris Visoly-Fisher, <u>Eugene A. Katz</u> (<i>Dept. of Solar Energy and Environmental Physics, J. Blaustein Institutes for Desert Research, Ben-Gurion University of the Negev, Midreshet-Ben-Gurion, Israel</i>) INITIAL STAGES OF PHOTODEGRADATION OF MAPBI3 PEROVSKITE: ACCELERATED STUDY BY CONCENTRATED SUNLIGHT
15:00 - 15:15 8-O2	<u>Felix Lang</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Institut für Silizium Photovoltaik</i>), Marko Jost, Jürgen Bundesmann, Andrea Denker, Steve Albrecht, Giovanni Landi, Jörg Rappich, Heinz-Christoph Neitzert, Norbert H. Nickel In-situ Monitoring of the Stability of Triple-Cation Perovskites under High Energetic Proton Irradiation
15:15 - 15:30 8-O3	<u>N. H. Nickel</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, 12489 Berlin, Germany</i>), F. Lang, S. Kilian Kilian, J. Rappich Improved stability of organic-inorganic halide perovskites
15:30 - 15:45 8-O4	Olga Yamilova, Sergey Luchkin, Mayuribala Mangrulkar, Yuri Fedotov, Sergey Bredikhin, Keith Stevenson, <u>Pavel Troshin</u> (<i>Skoltech</i>) TOWARDS UNDERSTANDING THE ELECTROCHEMICAL DEGRADATION PATHWAYS OF LEAD HALIDE BASED PEROVSKITES
15:45 - 16:00	Closing ceremony ABXPV

16:00 - 18:00	Poster Session
18:00 - 18:15	Poster prize ceremony
19:00 - 21:30	Social Dinner ABXPV and PEROPTO

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International Conference on Perovskite Photonics and Optoelectronics

Jerusalem, Israel, 2019 February 26th - 27th

Conference Chairs: Lioz Etgar and Paul Meredith

Conference Program

February 26th - Day 2 (Tuesday)	
16:00 - 18:00	Poster Session
18:00 - 18:15	Poster prize ceremony
19:00 - 21:30	Social Dinner ABXPV and PEROPTO
February 27th - Day 3 (Wednesday)	
08:15 - 08:45	Registration PEROPTO
08:45 - 09:00	Announcement of the day
08:45 - 09:00	OPENING PEROPTO
Session A	
09:00 - 09:30 A-I1	<u>Maksym Kovalenko</u> (<i>Laboratory of Inorganic Chemistry, Department of Chemistry & Applied Biosciences, ETH Zurich</i>) Highly Luminescent Nanocrystals of Cesium and Formamidinium Lead Halide Perovskites: From Discovery to Applications
09:30 - 10:00 A-I2	<u>Efrat Lifshitz</u> (<i>Technion – Israel Institute of Technology, Haifa, Israel</i>), Maya Isarov, Alyssa Kostadinov, Maryna Bodnarchuk, Maksym Kovalenko, Liang Tan, Andrew Rappe Spin properties in halide-perovskite nanocrystal and bulk structures
10:00 - 10:30 A-I3	<u>Hernán Míguez</u> (<i>Multifunctional Optical Materials Group, Instituto de Ciencia de Materiales de Sevilla, Consejo Superior de Investigaciones Científicas-Universidad de Sevilla</i>), David O. Tiede, Andrea Rubino, Mauricio E. Calvo, Juan F. Galisteo-López Photoemission Properties of Perovskite Thin Films, Microcrystals and Nanocrystals
10:30 - 11:00	Coffee Break
Session B	
11:00 - 11:30 B-I1	<u>Samuel Stranks</u> (<i>Cavendish Laboratory, Department of Physics, University of Cambridge, JJ Thomson Avenue, Cambridge CB3 0HE, UK.</i>) Strain-related power losses in perovskite solar cells
11:30 - 12:00 B-I2	<u>Sandford Ruhman</u> , Tufan Ghosh, Sigalit Aharon, Adva Shpatz, Lioz Etgar Ultrafast investigation of lead halide perovskite nanocrystals and thin films
12:00 - 12:30 B-I3	<u>David Fenning</u> (<i>University of California, San Diego</i>) Probing Defects in Perovskites and their Impact on Optoelectronic Performance using Nanoprobe Microscopy
Industrial talk	
12:30 - 12:45	Industry talk
12:45 - 14:45	Lunch
Session C	
14:45 - 15:00 C-O1	<u>Juan Bisquert</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, 12071 Castelló, Spain</i>) Electrical Switching of Photoluminescence by Ion Displacement in Metal Halide Perovskite

15:00 - 15:15	<u>Ayala Cohen</u> (<i>Department of Materials and Interfaces, Weizmann Institute of Science, Rehovoth 76100, Israel.</i>)
C-O2	Breakdown of the static picture of defect energetics in halide perovskites: the case of the Br vacancy in CsPbBr ₃
15:15 - 15:30	<u>Sigalit Aharon</u> (<i>Institute of Chemistry, Casali Center for Applied Chemistry, The Hebrew University of Jerusalem, Jerusalem 91904, Israel</i>), Lioz Etgar
C-O3	The synthesis and characterization of Highly emissive, tunable Zero dimensional perovskite materials
15:30 - 15:45	<u>Miri Kazes</u> (<i>Department of physics of Complex Systems, Weizmann Institute of Science, Rehovot 76100, Israel</i>),
C-O4	Thumu Udayabhaskararao, Dan Oron
	Ligand mediated phase and habit transformations of perovskite nanocrystals

Session D

14:45 - 15:00	<u>Christiane Becker</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, 12489 Berlin, Germany</i>), Sven
D-O1	Burger, Carlo Barth, Phillip Manley, Klaus Jäger, David Eisenhauer, Grit Köppel, Pavel Chabera, Junsheng Chen, Kaibo Zheng, Tõnu Pullerits
	Nanophotonic Enhanced Multiphoton-Excited Photoluminescence of Perovskite Quantum Dots
15:00 - 15:15	<u>SWAYANDIPTA DEY</u> (<i>Department of Physics of Complex Systems, Weizmann Institute of Science, Rehovot 76100, Israel</i>), MIRI KAZES, HAGAI COHEN, IDDO PINKAS, DAN ORON
D-O2	Influence of molecular linkers on photoinduced charge transfer dynamics in CsPbBr ₃ -CdSe nanoplatelet hybrids
15:15 - 15:30	Ibrahim Dursun, Yangzi Zheng, <u>Yuri Gartstein</u> (<i>The University of Texas at Dallas, Department of Physics</i>),
D-O3	Osman Bakr, Omar Mohammed, Anton Malko
	Direct Time-Resolved Spectroscopic Probes of Photon Reabsorption in Lead Halide Perovskite Microwires
15:30 - 15:45	<u>Grigorios Itskos</u> (<i>Experimental Condensed Matter Physics Lab, Department of Physics, University of Cyprus, 1678 Cyprus</i>), Paris Papagiorgis, Andreas Manoli, Andreas Othonos, Maryna Bodnarchuk, Maksym Kovalenko
D-O4	Stimulated Emission in Formamidinium Lead Iodide Perovskite Nanocrystals
15:45 - 16:00	Closing PEROPTO