International Conference on Perovskite Thin Film Photovoltaics and Perovskite Photonics and Optoelectronics (NIPHO20)

Sevilla, Spain, 2020 February 23rd - 25th
Conference Chairs: Hernán Míguez, Maria Antonietta Loi and Anders Hagfeldt

Conference Program

February 23rd - Day 1 (Sunday) 1	
15:30 - 18:15	**Registration**
16:00 - 17:00	**Workshop Prof Saliba**
17:00 - 18:00	**Workshop Editors**
18:00 - 18:30	**Welcome Drink**
February 24th - Day 2 (Monday) 2	
08:00 - 08:45	**Registration**
08:45 - 09:00	**Announcement of the day**
	Session 1 IS Chair: Hernán Míguez Room: Alanda
09:00 - 09:30 IS-I1	Samuel Stranks *(University of Cambridge - UK)* Multi-Modal Approaches to Understand the Nature of Halide Perovskite Defects
09:30 - 10:00 IS-I2	Laura Herz *(University of Oxford, Department of Physics, Clarendon Laboratory, Parks Road, Oxford, OX13PU, UK)* Radiative Recombination and Photon Recycling in Bulk and Quasi-2D Metal Halide Perovskites
10:00 - 10:30 IS-I3	Maryna Bodnarchuk *(Empa - Swiss Federal Laboratories for Materials Science and Technology, Switzerland)* Surface Chemistry of Colloidal Cesium Lead Halides Perovskite Nanocrystals and its Impact on the Characteristics of Blue and Green perovskite LEDs
10:30 - 11:00	**Coffee break**
	Session 2 IS Chair: Maria Antonietta Loi Room: Alanda
11:00 - 11:30 IS-I1	Hugh Hillhouse *(University of Washington, US)*, Ryan Stoddard, Wiley Dunlap-Shohl Quantitative Prediction of Perovskite Degradation over a Broad Range of Humidity, Oxygen, and Temperature Using Machine Learning and Training Data from Photoluminescence, Photoconductivity, and Optical Properties
11:30 - 12:00 IS-I2	Omer Yaffe *(Department of Materials and Interfaces, Weizmann Institute of Science, Rehovoth 76100, Israel.)* Anharmonic Semiconductors - Lessons Learned from Halide Perovskites
12:00 - 12:30 IS-I3	Ivan Scheblykin *(Chemical Physics and NanoLund, PO Box 124, 22100, Lund, Sweden)* Photoluminescence Quenching Goes Digital – View on Defect Dynamics Beyond Ensemble Averaging
	Session A Chair: Laura Herz Room: Alanda
12:30 - 12:45 A-O1	Adrián Francisco-López, Bethan Charles, Ma. Isabel Alonso, Miquel Garriga, Mariano Campoy-Quiles, Mark T. Weller, Alejandro R. Goñi *(Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Campus UAB, 08193 Bellaterra, Spain)* Understanding the Temperature Dependence of Hybrid Lead Halide Perovskite Band Gaps in Terms of the Effects of Thermal Expansion and Electron-Phonon Interaction

12:45 - 13:00	
	Session B Chair: Michael Saliba Room: Almenara
12:30 - 12:45 B-O1	Juan P. Martínez-Pastor *(UMDO, Instituto de Ciencia de los Materiales, Universidad de Valencia)*, Juan Navarro-Arenas, Isaac Suárez, Vladimir Chyrvony, Andrés F. Gualdrón-Reyes, Iván Mora Seró Single-Exciton Amplified Spontaneous Emission in CsPbX3 (X = Br, I) Perovskite Nanocrystals
12:45 - 13:00 B-O2	Paul Bouteyre *(Laboratoire Aimé Cotton, CNRS, Univ. Paris-Sud, ENS Paris-Saclay, Université Paris- Saclay, 91405 Orsay Cedex, France)*, Hai Son Nguyen, Jean-Sébastien Lauret, Gaëlle Trippé-Allard, Géraud Delport, Ferdinand Lédée, Hiba Diab, Ali Belarouci, Christian Seassal, Damien Garrot, Fabien Bretenaker, Emmanuelle Deleporte Directing Random Lasing Emission Using Cavity Exciton-Polaritons
13:00 - 15:00	**Lunch time**
	Session C Chair: Laura Herz Room: Alanda
15:00 - 15:15 C-O1	Ana Flavia Nogueira *(Laboratory of Nanotechnology and Solar Energy, Institute of Chemistry, University of Campinas – UNICAMP)*, Raphael F. Moral, Luiz Gustavo Bonato, José Carlos Germino, Willian Xerxes de Oliveira Coelho, §Rupini Kamat, Junwei Xu, Christopher J. Tassone, Michael F. Toney, Rupini Kamat, Samuel D. Stranks Synthesis of Polycrystalline Ruddlesden-Popper Organic Lead Halides and Their Growth Dynamics
15:15 - 15:30 C-O2	Juan F. Galisteo-López *(Instituto de Ciencia de Materiales de Sevilla (CSIC-US) , 41092, Seville, Spain)*, David O. Tiede, Mauricio E. Calvo, Hernán Míguez Local study on the role of defects in the photophysics of mixed halide perovskites
15:30 - 15:45 C-O3	Karunakara Moorthy Boopathi, Beatriz Martin-Garcia, Aniruddha Ray, Liberato Manna, Ahmed Abdelhady *(Istituto Italiano di Tecnologia - IIT)* Irreversible Lattice Compression Lights Up Perovskites
15:45 - 16:00 C-O4	Mojtaba Abdi Jalebi *(Institute for Materials Discovery, University College London, Torrington Place, London WC1E 7JE, UK)* Highly Luminescent and Stable Metal Halide Perovskite Optoelectronic Devices via Chemical Modifications and Passivation Approaches
16:00 - 16:15 C-O5	Simon Kahmann *(University of Groningen - NL)*, Eelco K. Tekelenburg, Herman Duim, Maria A. Loi Self-Trapped Excitons in Low-Dimensional Perovskites - Do They Exst?
16:15 - 16:30 C-O6	Stuart Macpherson *(Optoelectronics Group, Cavendish Laboratory, University of Cambridge, UK.)*, Andrew Winchester, Tiarnan Doherty, Krzystof Galkowski, Duncan Johnstone, Kyle Frohna, Miguel Anaya, Michael Man, Paul Midgely, Keshav Dani, Samuel Stranks Control of Nanoscale Surface Defects and the Relation to Local Structural Properties in Halide Perovskite Films
16:30 - 16:45 C-O7	Géraud Delport *(Optoelectronics Group, Cavendish Laboratory, University of Cambridge, UK.)*, Samuel D Stranks Probing the diffusion of excitons in 2D perovskites using optical microscopy.
16:45 - 17:00 C-O8	Alicia de Andrés *(Instituto de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Científicas)*, Carlos Redondo-Obispo, Esteban Climent-Pascual, Javier Bartolomé-Vilchez, Carlos Zaldo, Carmen Coya Light Induced Ion Migration in Bi-Doped MAPbI3 for Enhanced Photo-Stability
	Session D Chair: Michael Saliba Room: Almenara
15:00 - 15:15 D-O1	Miguel Anaya *(Optoelectronics Group, Cavendish Laboratory, University of Cambridge, UK.)*, Kyle Frohna, Linsong Cui, Javad Shamsi, Sam Stranks Probing local photophysical properties in perovskite based light-emitting devices

15:15 - 15:30 D-O2	Changsoon Cho *(Optoelectronics Group, Cavendish Laboratory, University of Cambridge, UK.)*, Baodan Zhao, Gregory Tainter, Frederik Nehm, Karl Leo, Jung-Yong Lee, Richard Friend, Dawei Di, Felix Deschler, Neil Greenham Quantification of Photon Recycling Effect in Perovskite Light-Emitting Diodes
15:30 - 15:45 D-O3	Nadja Giesbrecht *(Department Chemie, Ludwig-Maximilians-Universität München, Butenandtstr. 5 – 13, 81377 München, Germany)*, Andreas Weis, Thomas Bein Perovskite-Inspired 2D Antimony-Based Absorber Layers for Optoelectronic Applications
15:45 - 16:00 D-O4	Sergey Makarov *(ITMO University, St. Petersburg, Russia)* Halide perovskites based nanophotonics: from fundamentals to applications
16:00 - 16:15 D-O5	Mauricio Calvo *(Instituto de Ciencia de Materiales de Sevilla, Consejo Superior de Investigaciones Científicas (CSIC), Universidad de Sevilla)*, Laura Caliò, Andrea Rubino, Hernán Míguez Porous metal oxide matrices as templating host of ABX3 perovskite nanocrystals
16:15 - 16:30 D-O6	Juan Jesús Gallardo *(Department of Physical Chemistry. Faculty of Science. University of Cádiz. Spain.)*, María Isabel Rodríguez, Eduardo Blanco, Javier Navas Study of Structural and Optical properties of Perovskites Quantum Dots with complex cation in A-site
16:30 - 16:45 D-O7	Sarthak Jariwala *(University of Washington, US)*, Hongyu Sun, Gede W.P. Adhyaksa, Andries Lof, Loreta Muscarella, Bruno Ehrler, Erik C. Garnett, David S. Ginger Local Crystal Misorientation Influences Non-radiative Recombination in Halide Perovskites
16:45 - 17:00 D-O8	Andrea Rubino, Gabriel Lozano *(Instituto de Ciencia de Materiales de Sevilla (CSIC-Universidad de Sevilla), C/ Americo Vespucio 49, Seville, E-41092, Spain.)*, Mauricio E. Calvo, Hernán Míguez Determination of the optical constants of metal-halide perovskite nanocrystals
17:00 - 19:00	**Poster session**
20:15 - 22:00	**Social Dinner**

February 25th - Day 3 (Tuesday) 3

08:45 - 09:00	**Announcement of the day**
	Session 3 IS Chair: Anders Hagfeldt Room: Alanda
09:00 - 09:30 IS-I2	Michael Graetzel *(Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland)* High Performance Perovskite Solar Cells Based on Amphiphilic Spacer Molecules
09:30 - 10:00 IS-I1	Juan Bisquert *(Universitat Jaume I, Institute of Advanced Materials (INAM) - Spain)* Understanding the physical response of perovskite solar cells by frequency domain and time transient decay methods
10:00 - 10:30 IS-I3	Michael Saliba *(TU Darmstadt, Optoelectronics)* Polyelemental, Multicomponent Perovskite Semiconductor Libraries through Combinatorial Screening
10:30 - 11:00	**Coffe break**
	Session 4 IS Chair: Sam Stranks Room: Alanda
11:00 - 11:30 IS-I1	Monica Lira-Cantu *(Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and The Barcelona Institute of Science and Technology (BIST), Campus UAB, Bellaterra, 08193 Barcelona, Catalonia, Spain)* Defect passivation in halide perovskite materials for highly efficient and highly stable perovskite solar cells
11:30 - 12:00 IS-I2	Giulia Grancini *(University of Pavia, Italy)* 2D/3D Hybrid Perovskite Interfaces and Physics therein for Stable and Efficient Solar Cells
12:00 - 12:30 IS-I3	Marina Leite *(University of Maryland)* Dynamics of Perovskites: from the Nano to the Macroscale
	Industry Room: Alanda
12:30 - 12:45 Industry-S1	Asger Jensen *(NKT Photonics)* Supercontinuum lightsources in optical characterisation of perovskites
	Session E Chair: Giulia Grancini Room: Alanda
12:45 - 13:00	
13:00 - 13:15 E-O1	Alessio Gagliardi, Felix Mayr *(Dept. Electrical and Computer Eng., Technische Universitaet Muenchen)* Machine learning based screening of mixed lead-free double-perovskites
	Session F Chair: Marina Leite Room: Almenara
12:45 - 13:00 F-O2	Pavel A. Frantsuzov *(Voevodsky Institute of Chemical Kinetics and Combustion, SB RAS, Novosibirsk, Russia)*, Alexander Kiligaridis, Aymen Yangui, Sudipta Seth, Jun Li, Yana Vaynzof, Ivan G. Scheblykin Excitation pulse repetition rate variation method for studying carrier recombination kinetics in perovskite thin films
13:00 - 13:15 F-O1	Jia li, Wang Hao, Herilna Dewi, Nripan Mathews, Subodh Mhaisalkar, Annalisa Bruno *(Energy Research Institute @ NTU (ERI@N), Research Techno Plaza, X-Frontier Block, Level 5, 50 Nanyang Drive 637553, Singapore)* Large Area Perovskite Solar Cells and Mini-Modules by Thermal Co-Evaporation
13:15 - 15:00	**Lunch Time**
	Session G Chair: Giulia Grancini Room: Alanda

15:00 - 15:15 G-O1	Selina Olthof *(University of Cologne, Institute for Physical Chemistry)*, Shuxia Tao, Geert Brocks Tuning the Electronic Structure of Perovskites via Composition - A Combined Theoretical and Experimental Approach
15:15 - 15:30 G-O2	Giles Richardson *(Department of Mathematical Sciences, University of Southampton)*, Nicola Courtier, Laurence Bennett, Juan Anta, Antonio Exposito Using Drift-Diffusion Models as a Tool to Probe the Physics of Perovskite Solar Cells
15:30 - 15:45 G-O3	Shuxia Tao *(Center for Computational Energy Research, Applied Physics, Eindhoven University of Technology, The Netherlands)* The Role of Additives in Efficient and Stable Perovskite Solar Cells: Atomistic Insights from Both Experiments and DFT Simulations
15:45 - 16:00 G-O4	Kimberley Savill *(Clarendon Laboratory, Department of Physics, University of Oxford, Parks Road, Oxford, OX1 3PU, United Kingdom)*, Matthew Klug, Rebecca Milot, Henry Snaith, Laura Herz Charge-Carrier Cooling and Polarization Memory Loss in Formamidinium Tin Triiodide
16:00 - 16:15 G-O5	Gustavo de Miguel *(Departamento de Química Física y Termodinámica Aplicada, Instituto Universitario de Investigación en Química Fina y Nanoquímica IUNAN, Universidad de Córdoba, Campus de Rabanales, Edificio Marie Curie, Córdoba, Spain)* Incorporation of the Guanidinium Cation into Two-dimensional Hybrid Perovskites
16:15 - 16:30 G-O6	Svetlana Sirotinskaya *(University of Duisburg-Essen, Faculty of Engineering, Institute of Technology for Nanostructures (NST), Germany)*, Karsten Rojeck, Roland Schmechel, Niels Benson Defect State Investigations in Methylammonium Lead Iodide Using the MIS-TSC Method
16:30 - 16:45 G-O7	Maryam Sajedi *(HELMHOLTZ - ZENTRUM BERLIN FUR MATERIALIEN UND ENERGIE GMBH)*, Maxim Krivenkov, Dmitry Marchenko, Andrei Varykhalov, Anoop Chandran, Irene Aguilera, Jaime Sanchez-Barriga, Oliver Rader Absence of giant Rashba effect in the valence band of CsPbBr3
16:45 - 17:00 G-O8	Iván Mora-Seró *(Universitat Jaume I, Institute of Advanced Materials (INAM) - Spain)* Perovskite Crystalline Phase Stability Beyond the Goldschmidt Tolerance Factor
17:00 - 17:15 G-O9	Michele Sessolo *(Instituto de Ciencia Molecular, Universitat de València)* Vacuum deposition of perovskite films and solar cells

Session H
Chair: Marina Leite
Room: Almenara

15:00 - 15:15 H-O1	Narges Yaghoobi Nia *(1 CHOSE. (Centre for Hybrid and Organic Solar Energy), University of Rome "Tor Vergata", via del Politecnico 1, Rome 00133, Italy.)*, Mahmoud Zendehdel, Luigi Angelo Catriotta, Zhaoxiang Zheng, Aldo Di Carlo Boosting Efficiency and Thermal stability of Large Area Perovskite Solar Modules Beyond 16.5%: The case of Polymeric and Small Molecule Hole Transport Layer
15:15 - 15:30 H-O2	Andrés Fabián Gualdrón-Reyes *(Universitat Jaume I, Institute of Advanced Materials (INAM) - Spain)*, Jhonatan Rodríguez-Pereira, Eliseo Amado-González, Jorge-Enrique Rueda-P, Rogelio Ospina, Sofia Masi, Seog Joon Yoon, Juan Tirado, Franklin Jaramillo, Said Agouram, Vicente Muñoz-Sanjosé, Sixto Giménez, Iván Mora-Seró The role of surface chemical states on the photocatalytic behavior of all-inorganic mixed halide perovskite nanocrystals
15:30 - 15:45 H-O3	Rafael Abargues *(UMDO, Instituto de Ciencia de los Materiales, Universidad de Valencia)*, Iván Sánchez-Alarcón, Jaume Noguera, Vladimir Chirvony, Juan F. Sánchez- Royo, Pedro J. Rodríguez-Canto, M. Aguilar-Frutis, G. Alarcón-Flores, Juan P. Martínez- Pastor Spray-driven Solid-State Halide Exchange in CsPbX3 Nanocrystal Films
15:45 - 16:00 H-O4	Jesus Idigoras, Francsico J. Aparicio, Lidia Contreras-Bernal, Susana Ramos-Terron, Maria Alcaire, Juan R. Sanchez-Valencia, Ana Borras, Juan A. Anta, Angel Barranco *(Instituto de Ciencia de Materiales de Sevilla (CSIC-Universidad de Sevilla), Spain.)* Ultrathin Plasma Polymers: a new family of encapsulants to achieve waterproof perovskite solar cells.

16:00 - 16:15 H-O5	Konrad Domanski *(Fluxim AG, Winterthur, Switzerland)*, Brian Carlsen, Essa Alharbi, Michael Gratzel, Anders Hagfeldt, Wolfgang Tress Performance of Perovskite Solar Cells under Real-World Temperature-Illumination Variations in the Lab
16:15 - 16:30 H-O6	Angel Barranco, Carmen Lopez-Santos, Jesus Idigoras, Francisco J. Aparicio, Jose Obrero, Javier Castillo-Seoane, Victor Lopez-Flores, Lidia Contreras-Bernal, Victor Rico, Javier Ferrer, Juan P. Espinos, Ana Borras, Juan A. Anta, Juan R. Sanchez-Valencia *(Instituto de Ciencia de Materiales de Sevilla (CSIC-Universidad de Sevilla), C/ Americo Vespucio 49, Seville, E-41092, Spain.)* Vacuum sublimation of Dopant-Free Crystalline Spiro-OMeTAD films to enhance the Stability of Perovskite Solar Cells
16:30 - 16:45 H-O7	Lidia Contreras-Bernal *(Pablo de Olavide University, Sevilla, Spain)*, Antonio Riquelme, Juan Jesús Gallardo, Javier Navas, Jesús Idígoras, Juan Antonio Anta Water Vapour Pressure as Main Lab Parameter to Fabricate High Efficiency Perovskite Solar Cells at Ambient Conditions
16:45 - 17:00 H-O8	Sandy Sanchez *(Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland)*, Anders Hagfeldt Rapid Processing for Perovskite Solar Cells: Control of the Perovskite Intermediate Phases from Solution to Crystal Growth
17:00 - 17:15 H-O9	Aldo Di Carlo *(CHOSE - Centre for Hybrid and Organic Solar Energy, University of Rome "Tor Vergata")*, Antonio Agresti, Sara Pescetelli, Anna Pazniak, Danila Saranin, Daniele Rossi, Matthias Auf der Maur, Alessia Di Vito, Alessandro Pecchia, Andrea Liedl, Rosanna Larciprete Two-dimensional MXenes for interface engineering in Perovskite solar cells