

International Conference on Perovskite Thin Film Photovoltaics and Perovskite Photonics and Optoelectronics (NIPHO25)

Cagliari, Italy, 2025 June 9th - 10th

Conference organizers: Giulia Grancini, Daniela Marongiu and Aldo Di Carlo

Conference Program

June 9th - Day 1 (Monday) 1	
08:00 - 08:45	Registration
08:50 - 09:00	Opening
	Session 1.1 Chair: Annalisa Bruno
09:00 - 09:30 1.1-12	<u>Samuel Stranks</u> (<i>Department of Chemical Engineering and Biotechnology, University of Cambridge, Cambridge CB3 0AS, UK.</i>) Fundamental Understanding of the Nanoscale in Halide Perovskite Semiconductors
09:30 - 09:45 1.1-03	<u>Mathias Uller Rothmann</u> (<i>Foshan Xianhu Laboratory</i>) Atomic-scale microstructure of lead halide perovskite thin films
09:45 - 10:00 1.1-02	<u>Orestis Karalis</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie, 14109, Berlin, Germany.</i>), Hannes Hempel, Vincent Le Corre, Igal Levine, Thomas Unold Combining transient photoluminescence and transient surface photovoltage: insights from drift-diffusion modeling
10:00 - 10:15 1.1-01	<u>Miguel Torre Cachafeiro</u> (<i>Zürich University of Applied Sciences ZHAW, Winterthur, Switzerland</i>), Stéphanie Narbey, Beat Ruhstaller, Frank Nüesch, Wolfgang Tress Ionic Screening and its Impact on J-V Curves in Carbon-Based Perovskite Solar Cells
10:15 - 10:45 1.1-11	<u>Robert Hoyer</u> (<i>Inorganic Chemistry Laboratory, University of Oxford, UK</i>) Perovskite-Inspired Materials for Indoor Photovoltaics
10:45 - 11:30	Coffee Break
	Session 1.2 Chair: Daniela Marongiu
11:30 - 12:00 1.2-11	<u>Shuxia Tao</u> (<i>Eindhoven University of Technology, Department of Applied Physics</i>) Materials theory of halide perovskite
12:00 - 12:15 1.2-01	<u>Mariagrazia Fortino</u> (<i>Università "Magna Graecia" di Catanzaro</i>), Adriana Pietropaolo, Alessandro Mattoni Atomistic Insights into Lead- and Tin-Based Chiral Hybrid Perovskites
12:15 - 12:30 1.2-02	<u>Aditya Bhardwaj</u> (<i>Department of Physics, University of Cagliari, Cittadella Universitaria di Monserrato SP Monserrato Sestu km 0.7 09042 Monserrato(CA) Italy</i>), Daniela Marongiu, Valeria Demontis, Ofelia Durante, Antonio Di Bartolomeo, Michele Saba, Francesco Quochi, Andrea Mura, Giovanni Bongiovanni Synthesis and characterization of 2D Sn perovskite single crystal films
12:30 - 12:45 1.2-03	<u>Thomas J. Macdonald</u> (<i>Department of Electronic & Electrical Engineering, Roberts Building, University College London</i>) Crystal Growth Modulation of Tin-Lead Halide Perovskites via Chaotropic Agent
12:45 - 13:15 1.2-12	<u>Elisa Carignani</u> (<i>CNR - ICCOM, Pisa</i>) Atomic-level structure and dynamics of Lead Halide Perovskites: characterizing bulk and surface properties by solid state Nuclear Magnetic Resonance
13:15 - 15:00	Lunch
	Session 1.3 Chair: Aldo Di Carlo
15:00 - 15:30 1.3-11	<u>Tom Aernouts</u> (<i>Imo-imomec, imec, Thor Park 8320, Genk, 3600, Belgium.</i>) Efficient Structures And Processes for Upscaling of Perovskite Modules and Tandems
15:30 - 15:45 1.3-04	<u>Matteo Degani</u> (<i>Department of Chemistry, University of Pavia, Italy</i>) Advanced Interface Passivation in Perovskite Solar Cells via Low-Dimensional Perovskite Engineering
15:45 - 16:00 1.3-05	<u>Christian Perest SONNY TSOTEZEM</u> (<i>ISMO, Université Paris-Saclay, CNRS, 91405, Orsay, France</i>), Aimeric OUVARD, Anouchah MOMENI, Abdelkarim OUERGHI, Elena Magdalena STAIKU CASAGRANDE, Yimin GUAN, Laurent GUILLEMOT, Hocine KHEMLICHE Real-time Characterization of Organizational Dynamics and Optical Properties of Ultrathin MAPbI ₃ Films Deposited on Graphene via Molecular Beam Epitaxy under UHV Conditions
16:00 - 16:15 1.3-03	<u>Mayank Kedia</u> (<i>Institute for Photovoltaics, University of Stuttgart, Stuttgart, Germany</i>), Michael Saliba Mitigating the Amorphization of Perovskite Layers by Using Atomic Layer Deposition of Alumina.
16:15 - 16:30 1.3-02	Carlos E. Puerto Galvis, José G Sánchez, Eugenia Martínez-Ferrero, Emilio Palomares, <u>Wenhui Li</u> (<i>Institute of Chemical Research of Catalonia (ICIQ-CERCA), Avinguda Paisos Catalans 16, Tarragona, 43007, Spain</i>) Improving Perovskite Crystallization through the Anchoring Group Design of Self-Assembled Molecules for Efficient Perovskite Solar Cells
16:30 - 16:45 1.3-01	<u>Diana Elena Tahuilan-Anguiano</u> (<i>ICIQ - Institute of Chemical Research of Catalonia,</i>), Wenhui Li, Eugenia Martínez-Ferrero, Emilio Palomares A Self-assembled molecule based on carboxylic acid and triphenylamine for p-i-n Perovskite Solar Cells
16:45 - 18:30	Poster Session
19:30 - 21:00	Social Dinner

June 10th - Day 2 (Tuesday) 208:50 - 09:00 **Announcement of the day****Session 2.1**

Chair: Sam Stranks

- 09:00 - 09:30
2.1-11 Annalisa Bruno (*School of Physical and Mathematical Science & School of Materials Science Engineering & Energy Research Institute @ NTU Nanyang Technological University, 50 Nanyang Avenue, Singapore, 639798 Singapore*)
Enhancing Perovskite Device Performance through Scalable Thermal Evaporation Methods
- 09:30 - 09:45
2.1-01 Thomas Feeney (*Light Technology Institute (LTI), Karlsruhe Institute of Technology (KIT), Engesserstrasse 13, 76131 Karlsruhe, Germany.*), Aleksandra Miaskiewicz, Julian Petry, Felix Laufer, Roja Singh, Stefanie Severin, Viktor Škorjanc, Alexander Diercks, Suresh Maniyarasu, Lars Korte, Steve Albrecht, Ulrich W. Paetzold, Marcel Roß, Paul Fassl
Deposition rate limitations for FA-based co-evaporated perovskites and how to overcome them
- 09:45 - 10:00
2.1-02 Athina Papadopoulos (*imec Leuven, Belgium*), Maria Isabel Pintor-Monroy, Sreeshma Dayaran, Irina Skvortsova, João Pedro de Sousa Gouveia dos Anjos, Sownder Subramaniam, Wenya Song, Itai Lieberman, Yinghuan Kuang, Johan Hofkens, Maarten B. J. Roeflaers, Sara Bals, Robert Gehlhaar, Jan Genoe
Speed and Reliability Enhancement for Vacuum-Deposited CsPbI₂Br Photodiodes in the Reverse Bias Regime Through Tailored Engineering of the Electron Transport Layer
- 10:00 - 10:15
2.1-03 José G. Sánchez (*Institute of Chemical Research of Catalonia (ICIQ-ICERCA-BIST), Avda. Països Catalans, 16, Tarragona E-43007, Spain.*), José Manuel Ramón, Miriam Más-Montoya, Wenhui Li, Eugenia Martínez-Ferrero, David Curiel, Emilio Palomares
Indolocarbazole SAMs as Hole-Selective Contacts for 22% Efficient Inverted Perovskite Solar Cells
- 10:15 - 10:45
2.1-12 Saverio Russo (*University of Exeter*)
2D perovskites devices and applications

10:45 - 11:30 **Coffee Break****Session 2.2**

Chair: Aldo Di Carlo

- 11:30 - 12:00
2.2-11 Juliane Borchert (*Fraunhofer Institute for Solar Energy Systems ISE, Heidenhofstraße 2, 79110 Freiburg, Germany*)
Evaporation Methods for Scalable Highly Efficient Perovskite-Silicon Tandem Solar Cells
- 12:00 - 12:15
2.2-01 Gennaro Vincenzo Sannino (*Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Portici(NA) 80055, Italy*), Lucia Vittoria Mercaldo, Paola Delli Veneri, Michele Pavone, Antonio Terrasi, Antonio Abate, Martina Zanolini, Annamaria Petrozza, Matteo Degani, Giulia Grancini, Filippo De Angelis, Erica Magliano, Aldo Di Carlo, Cosimo Anichini, Francesco Bonaccorso
GoPV Project: New generation materials for tandem solar cells
- 12:15 - 12:30
2.2-02 Elena Iannibelli (*CHOSE-Centre for Hybrid and Organic Solar Energy, Department of Electronic Engineering, University of Rome "Tor Vergata", Via del Politecnico 1, 00133 Roma, Italy*), Luigi Vesce, Karthikeyan Pandurangan, Maria Laura Parisi, Adalgisa Sinicropi, Aldo Di Carlo
Enhancing the Stability of Printed Carbon Back-Electrode Perovskite Solar Cells
- 12:30 - 12:45
2.2-03 Sonia Rani (*Department of Chemistry, University of Pavia, via Taramelli 16, Pavia, 27100, Italy*), Giulia Grancini
Hybrid Bilayer Anti-Reflective Coating to Boost the Current Density in Perovskite Solar Cells
- 12:45 - 13:00
2.2-04 Marina Ustinova (*CHOSE - Dept. Electronic Engineering University of Rome Tor Vergata, Casale 11, Rome, 00133 Italy*), Erica Magliano, Renhao Zheng, Francesco Toschi, Federico Trezzini, Aldo Di Carlo
Narrow bandgap Pb-Sn Perovskite Solar cells with high Voc via Surface Passivation and Additive Engineering
- 13:00 - 13:15
2.2-05 Daimiota Takhellambam (*1. CHOSE - Centre for Hybrid and Organic Solar Energy, Department of Electronic Engineering, Tor Vergata University of Rome, via del Politecnico 1, 00133, Roma.*), Abhishek Kumar Chauhan, Mariia Tiukhova, Hamed Rahbari Rahbari, Hamed Rahbari Vesce, Aldo Di Carlo, Aldo Di Carlo
Augmenting Green Solvents in Upscaling Flexible Perovskite Solar Cells in Ambient Air

13:15 - 15:00 **Lunch****Session 2.3**

Chair: Daniela Marongiu

- 15:00 - 15:30
2.3-11 Michael Saliba (*Institute for Photovoltaics, University of Stuttgart, Stuttgart, Germany*)
Shedding Light on Wide Bandgap Perovskites
- 15:30 - 15:45
2.3-01 Gyanendra Shankar (*CHOSE-Centre for Hybrid and Organic Solar Energy, Department of Electronic Engineering, University of Rome "Tor Vergata", Via del Politecnico 1, 00133 Roma, Italy*), Daniel Straubinger, Daimiota Takhellambam, Zohair Abbas, Erica Magliano, Sathy Harshvardhan Reddy, Marco Luce, Antonio Crecenti, Zhe Shu, Aldo Di Carlo
Printed metal electrode (PME) as top contact for perovskite solar cells
- 15:45 - 16:00
2.3-02 Uma Kousalya Dangudiviyam (*Light Technology Institute (LTI) at Karlsruhe Institute of Technology (KIT), Karlsruhe, Engesserstr. 13, 76131, Germany*), Raphael Pesch, Ozan Karakaya, Johannes Sutter, Gerardo Hernandez-Sosa, Ulrich Wilhelm Paetzold
Inkjet-Printed Eco-friendly Perovskite Solar Cells
- 16:00 - 16:15
2.3-03 Baptiste Jacquet, Jonathan Parion (*Imec, imo-imomec, Thor Park 8320, 3600 Genk, Belgium*), Dawar Ali, Raju Pusapati, Amit Kumar Harit, Anurag Krishna, Aurora Rizzo, Tom Aernouts, Bart Vermang
In-depth study of degradation in wide bandgap perovskite cells deposited by scalable method
- 16:15 - 16:30
2.3-04 Angelica Simbula (*Dipartimento di Fisica, Università degli Studi di Cagliari, Complesso Universitario, Monserrato, 09042 CA, Italy*), Federico Pitzalis, Riccardo Pau, Emanuele D Cadeddu, Luyan Wu, Fang Liu, Stefano Lai, Selene Matta, Valeria Demontis, Paolo Pintus, Daniela Marongiu, Andrea Mura, Michele Saba, Francesco Quochi, Giovanni Bongiovanni
Amplified Spontaneous Emission in MAPbBr₃ planar waveguides in absence of photon gain
- 16:30 - 16:45
2.3-05 Fanny Amanda Karolina Baumann (*Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, 08193 Barcelona, Catalonia, Spain*)
In-situ characterization of Perovskite Solar Cells
- 16:45 - 17:00
2.3-06 Kenedy Tabah (*Institut Català de Nanociència i Nanotecnologia (ICN2)*), Masoud Karimipour, Fanny Amanda Karolina Baumann, Naji Vahedigharehchopogh, Sonia R. Raga, Gaus Gonzales Sáenz A, Giancarlo Patino Ortega, Monica M. Gomez, Monica Lira-Cantú
Perovskite Solar Cells: Strategies for outdoor stability assessment

17:00 - 17:15 **Closing and Awards Ceremony**

Poster Contribution

005	<u>Abu Bakar Siddik</u> (IMEC, Leuven, Belgium), Wenya Song, Joo Hyoung Kim, Marina Vildanova, Vladimir Pejovic, Tristan Weydts, Isabel Pintor Monroy, Sang Yeon Lee, Luis Moreno Hagelsieb, Arman Uz Zaman, Myung Jin Lim, Gökhan Kara, Myonglae Chu, Pawel E. Malinowski, David Cheyns, Itai Lieberman, Paul Heremans Vision Beyond Visible: Monolithically Integrated Thin-Film Near and Short-Wave Infrared Imagers
006	<u>Deimante Krisiune</u> (Department of Organic Chemistry, Kaunas University of Technology, Kaunas, Lithuania), Yang Yuxuan, Zhang Yi, Kasparas Rakstys, Vytautas Getautis The Art of Attachment: Tailored Anchoring Groups of SAMs for High Efficiency Perovskite Photovoltaics
010	<u>Eugenia Martinez-Ferrero</u> (ICIQ - Institute of Chemical Research of Catalonia,.), Jose G Sanchez, Sarika Kumari, Emilio Palomares CARBAZOLE-BASED SELF ASSEMBLED MOLECULES AS HOLE SELECTIVE CONTACTS IN PEROVSKITE-BASED LIGHT EMITTING DIODES
028	<u>Hamed Rahbari</u> (CHOSE - Dept. Electronic Engineering University of Rome Tor Vergata, Casale 11, Rome, 00133 Italy), Hafez Nikbakht, Fabio Matteocci, Daimiota Takhellambam, Mariia Tiukhova, Abhishek Kumar Chauhan, Luigi Vesce, Aldo Di Carlo Double ETL Architecture for Ambient-Air Fabrication of Green-solvent based FAPbI ₃ Perovskite Solar Cell
041	<u>Ceri Sophia Hommerich</u> (Copernicus Institute of Sustainable Development, Utrecht University, Princeton Av. 8a, 3584 CB Utrecht, the Netherlands.), Wilfried van Sark, Sara Mirbagheri Golroodbari A review of stability of lead-free perovskite solar cell performance
042	<u>Aleksi Kamppinen</u> (Department of Mechanical and Materials Engineering, University of Turku, Vesilinnantie 5, 20500 Turku, Finland), Julianna Varjopuro, Heikki Palonen, Aapo Poskela, Juha A. Karhu, Anders V. Lindfors, Kati Miettunen Absorber Band Gap Affects the Operating Temperature of Solar Cells
043	<u>Samuel Zatta</u> (University of Padova, Department of Chemical Sciences), Claudia Longo, Enzo Menna, Lorenzo Franco ON THE STRUCTURAL AND PHOTOPHYSICAL PROPERTIES OF rGO@P3HT/MAPbI ₃ THIN FILMS
044	<u>Saif Ali</u> (CHOSE-Centre for Hybrid and Organic Solar Energy, Department of Electronic Engineering, University of Rome "Tor Vergata", Via del Politecnico 1, 00133 Roma, Italy), Zohair Abbas, Erica Magliano, Yassine Raoui, Aldo Di Carlo Performance Improvement in Wide Bandgap Semi-Transparent Perovskite Solar Cells for Tandem Applications Through Dual Passivation
045	<u>Silvia Liscia</u> (Dipartimento di Fisica, Università degli Studi di Cagliari, Complesso Universitario, Monserrato, 09042 CA, Italy), Elisa Carignani, Francesca Martini, Elisa Latta, Andrea Scarperi, Noemi Landi, Silvia Borsacchi, Marco Gepi, Giovanni Barcaro, Francesco Quochi, Michele Saba, Daniela Marongiu Isotopic engineering at the surface in hybrid perovskites for advanced NMR characterization
046	<u>Jessica Barichello</u> (ISM-CNR, Istituto di Struttura della Materia, Consiglio Nazionale delle Ricerche, Via del Fosso del Cavaliere 100, 00133, Roma, Italy), Aldo Di Carlo, Fabio Matteocci Wide Band Gap Perovskites: Towards Transparent Solar Windows
047	<u>Amina ALEHYANE</u> (Università "Magna Graecia" di Catanzaro), Mariagrazia FORTINO, Florent BARBAULT, Antonio MONARI, Adriana PIETROPAOLO Probing Chirality-Induced Excitonic Splitting in Tin-Based 2D Hybrid Perovskites via AIMD and TD-DFT Simulations
048	<u>Nan Zhao</u> (Dipartimento di Fisica, Università degli Studi di Cagliari, Monserrato, CA, 09042 Italy), Daniela Marongiu, Angelica Simbula, Valeria Demontis, Aditya Bhardwaj, Selene Matta, Silvia Liscia, Emmanuele Cadeddu, Nicola Sestu, Francesco Mattana, Michele Saba, Andrea Mura, Francesco Quochi, Giovanni Bongiovanni Shaping Hybrid Perovskite Nanowires for Low-threshold lasing
049	<u>Moses Stephen Anyebe</u> (Petroleum trust development Fund), Sagar Jain Advancing Lead-Free Perovskite Materials for Sustainable Optoelectronics, Sensing, and Solar Hydrogen Generation
050	<u>Vittorio Ferrara</u> (Department of Physics and Chemistry - Emilio Segrè), Simone Virga, Giuseppe Arrabito, Michelangelo Scopelliti, Alessandro Longo, Francesco Giannici, Bruno Pignataro Mixed Dimensional 3D/1D Perovskites for Photovoltaic and Piezoresistive Optoelectronics
053	<u>Manuel Pérez-Escribano</u> (Instituto de Ciencia Molecular, Universitat de València), Alberto Fernández-Alarcón, Jesús Cerdá, Juan Aragón, Enrique Ortí, Joaquín Calbo Computational solutions for photovoltaics characterization: from colloidal perovskites to the charge transport layer