

## International Conference on Perovskite Thin Film Photovoltaics and Perovskite Photonics and Optoelectronics (NIPHO24)

Sardinia, Italy, 2024 June 17th - 18th

Conference organizers: Giulia Grancini, Francesca Brunetti and Maria Antonietta Loi

### Conference Program

June 17th - Day 1 (Monday) 1	
08:30 - 09:45	<b>Registration</b>
09:45 - 10:00	<b>Opening</b>
	<b>Session 1.1</b> Chair: Maria Antonietta Loi
10:00 - 10:30	<u>Nitin Padture</u> ( <i>Brown University</i> )
1.1-11	Making high-efficiency halide-perovskite solar photovoltaics more durable: challenges and opportunities
10:30 - 11:00	<u>Aldo Di Carlo</u> ( <i>CHOSE - Centre for Hybrid and Organic Solar Energy, Department of Electronic Engineering, University of Rome "Tor Vergata", Via del Politecnico 1, 00133 Roma, Italy</i> )
1.1-12	Wide Band-Gap Halide Perovskites: from Tandem Solar Cells to X-ray detectors
11:00 - 11:30	<b>Coffee Break</b>
	<b>Session 1.2</b> Chair: Giulia Grancini
11:30 - 12:00	<u>Mahshid Ahmadi</u> ( <i>Institute for Advanced Materials and Manufacturing Department of Materials Science and Engineering, University of Tennessee Knoxville, Knoxville, TN 37996, USA</i> ), Jonghee Yang, Sheryl Sanchez, Elham Foadian
1.2-11	We must go small and fast to go big: Accelerating the Transition from Lab to Fab via High Throughput Automated Synthesis and Characterization
12:00 - 12:30	<u>Letian Dou</u> ( <i>Purdue University, West Lafayette, IN, 47907, USA</i> )
1.2-12	Understanding and Quantifying Ion Diffusion in Two-Dimensional Halide Perovskite Heterostructures
12:30 - 13:00	<u>Paola Vivo</u> ( <i>Hybrid Solar Cells, Faculty of Engineering and Natural Sciences, Tampere University, P.O. Box 541, FI-33014 Tampere University, Finland</i> )
1.2-13	Composition engineering in pnictogen-based perovskite-inspired materials
13:00 - 13:30	<u>Annalisa Bruno</u> ( <i>Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University</i> )
1.2-14	Versatility of Vacuum-processed Halide Perovskites
13:30 - 15:30	<b>Lunch</b>
	<b>Session 1.3</b> Chair: Francesca Brunetti
15:30 - 15:45	<u>Lijun Chen</u> ( <i>Zernike Institute for Advanced Materials, University of Groningen, The Netherlands</i> )
1.3-01	Efficient Half-tin-half-lead perovskite solar cells processed with blade coating
15:45 - 16:00	<u>Zahra Loghman Nia</u> ( <i>Department Novel Materials and interfaces for photovoltaic solar cells (SE-AMIP)</i> ), Artem Musiienko, Antonio Abate
1.3-02	Achieving Over 3000 Hours of Stability in Perovskite Solar Cells Through Nickel Oxide Treatment and Balanced Charge Extraction
16:00 - 16:15	Giulia Grancini, <u>Matteo Degani</u> ( <i>Department of Chemistry, University of Pavia, Italy</i> ), Mattia Ragni, fabiola faini, Sam Teale, Bin Chen,
1.3-03	Edward Sargent, Ian Postuma On the use of Machine Learning for the smart selection of surface passivant in efficient perovskite solar cells
16:15 - 16:30	<u>Thomas Stergiopoulos</u> ( <i>Institute of Nanoscience and Nanotechnology, NCSR Demokritos, 15341, Aghia Paraskevi, Athens, Greece</i> )
1.3-04	Surface Passivation of Lead Halide Perovskites by TFSI--based Solutions
16:30 - 16:45	<u>Daniele Catone</u> ( <i>Istituto di Struttura della Materia (ISM), CNR, Italy</i> ), Giuseppe Ammirati, Patrick O'Keeffe, Stefano Turchini, Francesco Toschi, Alessandra Paladini, Barbara Paci, Amanda Generosi, Faustino Martelli, Fabio Matteocci, Jessica Barichello, Paolo Moras, Polina Sheverdyayeva, Valeria Milotti, Olivier Fournier, Jean-Francois Guillemoles, Philippe Baranek, Stefania Cacovich, Daniel Ory, Aldo Di Carlo
1.3-05	Effect of chlorine inclusion in formamidinium lead bromide perovskites
16:45 - 17:00	<u>Łukasz Przypis</u> ( <i>Department of Semiconductor Materials Engineering, Wrocław University of Science and Technology, Wybrzeże Wyspińskiego 27, 50-370 Wrocław, Poland</i> ), Wiktor Żuraw, Miłosz Grodzicki, Mateusz Ścigaj, Robert Kudrawiec, Artur Herman
1.3-06	Facile Preparation of Large-Area, Ultrathin, Flexible Semi-Transparent Perovskite Solar Cells via Spin-Coating
17:00 - 18:30	<b>Poster Session</b>
20:30 - 22:30	<b>Social Dinner</b>

June 18th - Day 2 (Tuesday) 2	
08:30 - 10:00	<b>Registration</b>
	<b>Session 2.1</b> Chair: Maria Antonietta Loi
10:00 - 10:30 2.1-11	Jeroen J. de Boer, Agustin O. Alvarez, <u>Bruno Ehrler</u> ( <i>AMOLF Institute, Science Park 104, Amsterdam, 1098XG The Netherlands</i> ) Ultralow-energy Computation with Metal Halide Perovskites
10:30 - 11:00 2.1-12	<u>Daniela Marongiu</u> ( <i>Dipartimento di Fisica, Università degli Studi di Cagliari, Monserrato (CA), I-09042, Italy</i> ), Selene Matta, Valeria Demontis, Silvia Liscia, Angelica Simbula, Federico Pitzalis, Riccardo Pau, Stefano Lai, Ruirui Wu, Francesco Quochi, Michele Saba, Andrea Mura, Giovanni Bongiovanni Growth of single crystal hybrid-perovskite thin films
11:00 - 11:30	<b>Coffee Break</b>
	<b>Session 2.2</b> Chair: Giulia Grancini
11:30 - 12:00 2.2-11	<u>Filippo De Angelis</u> ( <i>Department of Chemistry, Biology and Biotechnology and INSTM, University of Perugia, Via Elce di Sotto 8, I-06123, Perugia, Italy</i> ) Controlling Doping and Defect Activity Towards Photostable Tin-Halide Perovskites
12:00 - 12:30 2.2-12	<u>Alessandro Mattoni</u> ( <i>CNR-Istituto Officina dei Materiali (IOM), Unità di Cagliari</i> ) Classical Molecular Dynamics Simulations of Hybrid Perovskites: Towards the Modeling of Crystal-Growth and Complex Interfaces
12:30 - 13:00 2.2-13	<u>Anurag Krishna</u> ( <i>Imec, imo-imomec, Thin Film PV Technology, Thor Park 8320, 3600 Genk, Belgium</i> ) Materials and processes for efficient and stable large-scale perovskite solar modules
13:00 - 13:30 2.2-14	<u>Adriana Pietropaolo</u> ( <i>University of Catanzaro</i> ) Merging chirality theories in soft and hybrid materials
13:30 - 15:30	<b>Lunch</b>
	<b>Session 2.3</b> Chair: Francesca Brunetti
15:30 - 15:45 2.3-01	<u>Giovanni Pica</u> ( <i>Università Degli Studi Di Pavia, Department of Chemistry &amp; INSTM, Via T. Taramelli 14, 27100 Pavia, Italy.</i> ), Giulia Grancini, Lorenzo Pancini, Christopher Petoukhoff, Badri Vishal, Francesco Toniolo, Changzeng Ding, Mirko Prato, Young-Kwang Jung, Stefaan De Wolf, Chang-Qi Ma, Frederic Laquai, Aron Walsh Bulk versus Surface Passivation: a comparative analysis for High-Efficiency p-i-n Perovskite Solar Cells
15:45 - 16:00 2.3-02	<u>Mariagrazia Fortino</u> ( <i>Dipartimento di Scienze della Salute, Università di Catanzaro, Catanzaro, CZ, Italy</i> ), Alessandro Mattoni, Adriana Pietropaolo Exploring Chirality Transfer and Chiroptical Properties in Chiral Hybrid Perovskites
16:00 - 16:15 2.3-03	<u>Tzu-Sen Su</u> ( <i>National Taiwan University of Science and Technology (TW)</i> ), Nideesh Perumbalathodi, Tzu-Chien Wei Modification of CuSCN as a hole transport layer for highly efficient and stable perovskite solar cells
16:15 - 16:30 2.3-04	<u>Philippe Lang</u> ( <i>ITODYS University of Paris Cité</i> ), Yahya Yahya Hami, Balkis Nasraoui, Faiza Mameche, Philippe Decorse, Sarra Sarra Gam Derouich, Mahamadou Seydou Grafting and Orientation of Carbazole-based Phosphonic acid Monolayers on conductive metallic oxides ; Template for the Growth of Hybrid Perovskite used in solar cells.
16:30 - 16:45 2.3-05	<u>Zafar Iqbal</u> ( <i>Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Hahn-Meitner-Platz 1, 14109 Berlin, Germany.</i> ), Antonio Abate Beyond Spiro-OMeTAD: Utilizing Dipoles for Interface Modification of CsPbI3 and P3HT for Enhanced Charge Extraction.
16:45 - 17:00 2.3-06	<u>Huiyuan Cheng</u> ( <i>Australian Institute for Bioengineering and Nanotechnology, The University of Queensland, St Lucia, QLD 4072, Australia</i> ), Mengmeng Hao, Shanshan Ding, Donxu He, Bowei Zhang, Qishuo Yang, Miaoqiang Lyv, Peng Chen, Zitong Wang, Hongzhe Xu, Julian Steele, Lianzhou Wang Organometallic Compound Resurfacing Stabilizes all-inorganic Tin-based Perovskite Nanocrystals Against Antisolvents Treatment
17:00 - 17:15 2.3-07	Bao Chunxiong, <u>Yuan Zhongcheng</u> ( <i>Department of Physics, Chemistry and Biology (IFM), Linköping University, Linköping, SE-58183, Sweden</i> ), Gao Feng Multifunctional display based on photo-responsive perovskite LEDs
17:15 - 17:30	<b>Closing</b>

## Poster Contribution

001	<u>Yahya HAMI</u> ( <i>University Paris Diderot, Sorbonne Paris Cité, ITODYS UMR 7086 CNRS</i> ), Philippe LANG, Balkis Nasraoui Epitaxial effect using amino terminal group in phosphonic acid carbazole based SAM for perovskite solar cells with improved stability.
024	<u>Simona Fantacci</u> ( <i>Istituto di Scienze e Tecnologie Chimiche "Giulio Natta" (SCITEC), Consiglio Nazionale delle Ricerche - via Elce di Sotto 8, 06123 Perugia, Italy</i> ), Tommaso Moretti, Edoardo Mosconi, Filippo De Angelis Perovskite Solar Cells Improved by 2D Materials and 2D/3D Interfaces: a Computational Study
027	<u>Paul Hänsch</u> ( <i>Photophysics and OptoElectronics Group, Zernike Institute for Advanced Materials, University of Groningen, Nijenborgh 4, 9747 AG Groningen, The Netherlands</i> ), Jacopo Pinna, Maria Loi Impact of metal halide perovskite dimensionality on 1-propanol gas sensing
028	<u>Riccardo Pau</u> ( <i>Dipartimento di Fisica, Università di Cagliari - Cittadella Universitaria SP Monserrato-Sestu km 0.700, 09042 (CA) Italy</i> ), Matteo Pitaro, Lorenzo Di Mario, Qianshan Feng, Michele Saba, Maria Antonietta Loi Solution-Processed CuI as Hole Transport Layer for Improved Efficiency and Stability of Sn-Pb Perovskite Solar Cells
029	<u>Selene Matta</u> ( <i>Dipartimento di Fisica, Università degli Studi di Cagliari, Monserrato (CA), I-09042, Italy</i> ), Silvia Liscia, Valeria Demontis, Daniela Marongiu, Angelica Simbula, Federico Pitzalis, Stefano Lai, Riccardo Pau, Rui Rui Wu, Emanuele Domenico Cadeddu, Luyan Wu, Francesco Quochi, Michele Saba, Andrea Mura, Giovanni Bongiovanni Space-Confined 2D and Quasi-2D Halide Perovskite Single Crystals
030	<u>Matteo Pitaro</u> ( <i>Zernike Institute for Advanced Materials, University of Groningen, Netherlands</i> ), Lorenzo Di Mario, Jacopo Pinna, Diego A. Acevedo-Guzmán, Marios Neophytou, Mindaugas Kirkus, Thomas Anthopoulos, Giuseppe Portale, Petra Rudolf, Maria Antonietta Loi Highly efficient solar cells by bulk passivation of Tin halide perovskite by Tin Thiocyanate
031	<u>Simone Argiolas</u> ( <i>Istituto Officina dei Materiali (CNR-IOM Cagliari), Consiglio Nazionale delle Ricerche</i> ), Alessandro Mattoni Kinetics and Growth Mechanisms of Methylammonium Lead Iodide at the (001) Crystalline Surfaces by Large Scale Molecular Dynamics
032	<u>Karolina Opała</u> ( <i>Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland</i> ), Marta Chmielniak, Marcin Saski, Janusz Lewiński Exploring Mechanochemistry of Halide Perovskites Based on Oversized Cations
034	<u>giulio koch</u> ( <i>CHOSE, Dep. of Electronic Engineering, University of Rome Tor Vergata 00133, Italy</i> ), Daniel Augusto Machado de Alencar, Cullen Chosy, Samyuktha Noola, Farshad Jafarzadeh, Kyle Frohna, Matteo Bonomo, Pierluigi Quagliotto, Paolo Rech, Carlo Cazzaniga, Marco Ottavi, Francesca De Rossi, Samuel Stranks, Claudia Barolo, Francesca Brunetti Flexible Perovskite solar cells employing in-house engineered hole transport material irradiated under atmospheric neutrons