

## Materials for Sustainable Development Conference (MAT-SUS) (NFM22)

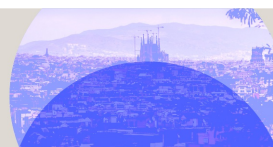
### #PbFreePero - The potential of lead-free perovskites: synthesis, properties, and applications

Barcelona, Spain, 2022 October 24th - 27th

Conference Chairs: Loreta A. Muscarella, Eline Hutter and Henk Bolink

### Conference Program

October 24th - Day 1 (Monday)	
08:55 - 09:00	<b>Room S9 + S10 - Chair Introduction</b>
	<b>Session 1.1</b> Chair: Eline Hutter
09:00 - 09:30	<u>Robert Hoye</u> ( <i>Department of Materials, Imperial College London; London, UK</i> )
1.1-11	Bismuth-based perovskite-inspired materials for energy harvesting and solar fuels
09:30 - 10:00	<u>Lorenzo Malavasi</u> ( <i>University of Pavia and INSTM</i> )
1.1-12	Lead-free perovskites: a materials chemistry perspective from design to applications
10:00 - 10:30	<u>Filippo De Angelis</u> ( <i>Department of Chemistry, University of Perugia, Perugia, Italy</i> )
1.1-13	Water stable tin-halide perovskites and other surprises: Applications to Photovoltaics and Photocatalysis
10:30 - 11:15	<b>Coffee Break</b>
	<b>Session 1.2</b> Chair: Loreta A. Muscarella
11:15 - 11:30	<u>Raisa-Ioana Biegă</u> ( <i>MESA+ Institute for Nanotechnology, University of Twente, Faculty of Science and Technology</i> ), Marina R. Filip, Linn Lepper
Session1.2-T1	Understanding the Impact of Dimensional Reduction on the Optoelectronic Properties of Ag/Bi-based Double Perovskites from First Principles
11:30 - 11:45	<u>Oleksand Stroyuk</u> ( <i>Helmholtz Institute Erlangen-Nürnberg for Renewable Energy (HI ERN)</i> ), Oleksandra Raiveska, Jens Haus, Christoph Brabec
Session1.2-T2	Exploring the versatility of metal(III) substitutions in lead-free double halide perovskites by high-throughput approaches
11:45 - 12:00	<u>Luis Lanzetta</u> ( <i>KAUST Solar Center, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia.</i> ), Luca Gregori, Luis Huerta Hernandez, Anirudh Sharma, Stefanie Kern, Abdul Hamid Emwas, Luis Gutiérrez-Arzaluz, Omar F. Mohammed, Matthew Piggott, David Scurr, Daniele Meggiolaro, Md Azimul Haque, Filippo De Angelis, Derya Baran
Session1.2-T3	The Role of Host-Dopant Dative Bonding in the Molecular Doping of Tin-Lead Perovskites
12:00 - 12:15	<u>Jasmeen Nespoli</u> ( <i>Department of Chemical Engineering, Delft University of Technology Van der Maasweg</i> ), Snigdha Lal, Valentina Caselli, Bahiya Ibrahim, Tom Savenije
Session1.2-T4	Unravelling the Charge-Carriers Dynamics in Multication Mixed Sn-Pb Halide Perovskites
12:15 - 12:30	<u>Aleksander Ulatowski</u> ( <i>Clarendon Laboratory, University of Oxford, Parks Road, Oxford OX1 3PU, United Kingdom</i> ), Michael Farrar, Henry Snaith, Michael Johnston, Laura Herz
Session1.2-T5	Applicability of tin-iodide perovskites for hot-carrier PV devices - ultrafast pump-push-probe study of hot-carrier cooling dynamics
12:30 - 12:45	<u>Huygen Jobsis</u> ( <i>Utrecht University, Debye Institute for Nanomaterials Science, Inorganic Chemistry and Catalysis</i> ), Joost Reinders, Ina Vollmer, Eline Hutter
Session1.2-T6	Iron alloyed double perovskites for improved photochemical activity
12:45 - 13:00	<u>Yasmine Baghdadi</u> ( <i>Department of Chemical Engineering Imperial College London</i> ), Filipp Temerov, Salvador Eslava
Session1.2-T7	Construction of a heterojunction between lead-free halide perovskites and templated g-C <sub>3</sub> N <sub>4</sub> for the photocatalytic reduction of CO <sub>2</sub> into solar fuels



### October 25th - Day 2 (Tuesday)

#### 08:55 - 09:00 Room S9 + S10 Chair Introduction

##### Session 2.1

Chair: Loreta A. Muscarella

09:00 - 09:15

Shanti Maria Liga (ICFO- The Institute of Photonic Sciences), Gerasimos Konstantatos

2.1-T1

Colloidal synthesis of tin- and titanium-based perovskite nanocrystals

09:15 - 09:30

Daniela Marongiu (Department of Physics, University of Cagliari), Fang Liu, Angelica Simbula, Stefano Lai, Luyan Wu, Qingqian Wang, Riccardo Pau, Selene Matta, Federico Pitzalis, Alessio Filippetti, Francesco Quochi, Michele Saba, Andrea Mura, Giovanni Bongiovanni

2.1-T2

Lead-Free Double Perovskites: Cs<sub>2</sub>Na<sub>1-x</sub>Ag<sub>x</sub>In<sub>1-y</sub>Bi<sub>y</sub>Cl<sub>6</sub> as a White Light Emitter with Unit Efficiency

09:30 - 10:00

Iván Mora-Seró (Institute of Advanced Materials (INAM), University Jaume I, Av. Vicent Sos Baynat, s/n, 12071, Castellón de la Plana, Spain.)

2.1-I1

Effect of Additive Engineering and Light Soaking in Sn-based Perovskite Solar Cells and LEDs

10:00 - 10:30

Derya Baran (KAUST Solar Center, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia.), Azimul Haque, Luis Lanzetta, Luis Huerta

2.1-I2

Tunable Charge Transport in Halide Perovskites

10:30 - 11:15

#### Coffee Break

##### Session 2.2

Chair: Lorenzo Malavasi

11:15 - 11:45

Oleksandr Stroyuk, Oleksandra Raievska, Jens Hauch, Christoph Brabec (Helmholtz-Institute Erlangen-Nürnberg (HI ERN),)

2.2-I1

An Automated Platform to Screen Lead-Free Halide Double-Perovskites for Opto-Electronic Applications

11:45 - 12:15

Tom Savenije (Department of Chemical Engineering, Delft University of Technology Van der Maasweg), Valetina Caselli, Jos Thieme, Huygen Jöbssis, Eline Hutter

2.2-I2

Revealing the Complex Charge Carriers Dynamics in double metal Perovskites by Microwave Conductivity Techniques

12:15 - 12:45

Francisco Palazon (Universidad Politécnica de Cartagena)

2.2-I3

Flip the charges: from perovskites to antiperovskites

12:45 - 15:25

#### Lunch

15:25 - 15:30

#### Room S9 + S10 - Chair Introduction

##### Session 2.3

Chair: Eline Hutter

15:30 - 16:00

Monica Morales-Masis (MESA+ Institute for Nanotechnology, University of Twente)

2.3-I1

Pulsed Laser Deposition of Lead-free Halide Perovskites and Double Perovskites

16:00 - 16:30

Laura Herz (Clarendon Laboratory, University of Oxford, Parks Road, Oxford OX1 3PU, United Kingdom)

2.3-I2

Charge-carrier dynamics in lead-free metal halide semiconductors

16:30 - 16:35

Jon Ferrier (Fundació scito)

2.3-S1

Open access energy & sustainability journals at the Royal Society of Chemistry (RSC)

16:35 - 17:05

Teresa Gatti (Center for Materials Research (ZfM), Justus Liebig University Giessen, Germany)

2.3-I3

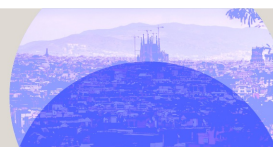
Silver-bismuth double perovskite: variations on a theme

17:05 - 17:10

#### Symposium Closing

17:15 - 20:00

#### Poster Session



### October 26th - Day 3 (Wednesday)

19:30 - 22:00 **Social Dinner**

### October 27th - Day 4 (Thursday)

17:15 - 17:30 **General Closing**

### Poster Contribution

108	<u>Soumen Kundu</u> ( <i>Center for Nanoscience and Engineering (CENSE), Indian Institute of Science, Bengaluru - 560012</i> ), Sushobhan Avasthi New substituted small A cation(Acetamidinium) based Tin perovskite solar cell
237	<u>Paz Sebastia-Luna</u> ( <i>Universidad de Valencia - ICMol (Institute of Molecular Science)</i> ), Unnati Pokharel, Bas Huisman, L. Jan Anton Koster, Francisco Palazon, Henk J. Bolink Tunable Thermoelectric Properties of Vacuum Deposited Cesium Tin Iodide Thin Films
278	<u>Jesus Sanchez-Diaz</u> ( <i>Institute of Advanced Materials (INAM), Universitat Jaume I, Av. Sos Baynat, s/n, 12071 Castelló, Spain</i> ), Rafael S. Sanchez, Ivan Mora-sero Improving the morphological and optical properties of FASnI <sub>3</sub> through the synergistic incorporation of additives
282	<u>Rossella Chiara</u> ( <i>University of Pavia and INSTM</i> ), Lorenzo Malavasi, Massimo Boiocchi, Mauro Coduri, Marta Morana, Francesco Fracassi, Andrea Listorti, Arup Mahata, Paolo Quadrelli, Mattia Gaboardi, Chiara Milanese, Luca Bindi, Filippo De Angelis, Marinella Striccoli ROLE of SPACER CATIONS and STUCTURAL DISTORTION in TWO-DIMENSIONAL GERMANIUM HALIDE PEROVSKITES
292	<u>Ki-Ha Hong</u> ( <i>Hanbat National University</i> ) Theoretical Study to Improve Stability and Efficiency for Tin-based Halide Perovskites
296	<u>Roberto Altieri</u> ( <i>Center for Materials Research (ZFM), Justus Liebig University Giessen, Germany</i> ), Mengjiao Wang, Teresa Gatti Bismuth-based perovskite nanocrystals for photoelectrochemical - photocatalytic applications
301	<u>Costanza Tedesco</u> ( <i>University of Pavia, Italy</i> ), Lorenzo Malavasi, Andrea Speltini Experimental Strategy to Enache the Photocatalytic Activity of Cs <sub>2</sub> AgBiCl <sub>6</sub> Lead-free Double Perovskite Derivative by g-C <sub>3</sub> N <sub>4</sub> Composite Engineering the Size Grain from Bulk to Nanometer Dimension.
323	Łukasz Przypis, Wiktor Żuraw, Robert Kudrawiec, <u>Artur Herman</u> ( <i>Department of Semiconductor Materials Engineering, Wrocław University of Science and Technology, Wyspiańskiego 27, Wrocław 50-370, Poland</i> ) New Bifunctional Additives For Tin Halide Perovskites