



## International Conference on Hybrid and Organic Photovoltaics (HOPV24)

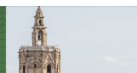
València, Spain, 2024 May 12th - 15th

Conference organizers: Bruno Ehrler and Jovana Milic

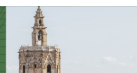
### Conference Program

| May 12th - Day 1 (Sunday) 1 |                                                                                                                                                                                                                                          |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17:30 - 19:30               | <b>Registration</b>                                                                                                                                                                                                                      |
| 18:00 - 19:00               | <b>Welcome drink</b>                                                                                                                                                                                                                     |
| May 13th - Day 2 (Monday) 2 |                                                                                                                                                                                                                                          |
| 08:10 - 09:00               | <b>Registration</b>                                                                                                                                                                                                                      |
| 08:40 - 09:00               | <b>Opening - Noble Room</b>                                                                                                                                                                                                              |
|                             | <b>Session 1A - Emerging materials and technologies (EPV) - Noble Room</b><br>Chair: Giulia Grancini                                                                                                                                     |
| 09:00 - 09:10               | <u>Giulia Grancini</u> ( <i>University of Pavia, Italy</i> )                                                                                                                                                                             |
| Room-T1                     | Emerging materials and technologies (EPV) Chair Opening - Giulia Grancini                                                                                                                                                                |
| 09:10 - 09:40               | <u>Thuc-Quyen Nguyen</u> ( <i>Center for Polymers and Organic Solids and Department of Chemistry and Biochemistry University of California, Santa Barbara</i> )                                                                          |
| Room-K2                     | Insights into Degradation Mechanisms of Bulk Heterojunction Organic Solar Cells                                                                                                                                                          |
| 09:40 - 09:45               | <u>Taro Tanabe</u> ( <i>Tokyo Chemical Industry Co., Ltd. (TCI)</i> )                                                                                                                                                                    |
| Room-S1                     | Tokyo Chemical Industry - Industry Talk                                                                                                                                                                                                  |
| 09:45 - 10:15               | <u>Annamaria Petrozza</u> ( <i>Istituto di Italiano Tecnologia</i> )                                                                                                                                                                     |
| Room-K1                     | Defects Activity in Metal Halide Perovskites                                                                                                                                                                                             |
| 10:15 - 10:45               | <u>David Mitzi</u> ( <i>Department of Mechanical Engineering and Materials Science, Duke University, Durham, NC USA</i> )                                                                                                                |
| Room-I1                     | Structure-Property Tunability Using Chirality and Symmetry Breaking in Hybrid 2D Perovskites                                                                                                                                             |
| 10:45 - 11:30               | <b>Coffee Break</b>                                                                                                                                                                                                                      |
|                             | <b>Session 1B1 - Material design and modelling - Noble Room</b><br>Chair: Virginia Carnevali                                                                                                                                             |
| 11:30 - 11:40               | <u>Virginia Carnevali</u> ( <i>École Polytechnique Fédérale de Lausanne (EPFL)</i> )                                                                                                                                                     |
| Room-T1                     | Material design and modelling: Chair introduction - Virginia Carnevali                                                                                                                                                                   |
| 11:40 - 12:10               | <u>Marina Leite</u> ( <i>UC Davis</i> )                                                                                                                                                                                                  |
| Room-I1                     | Tackling Stability in Halide Perovskites with Machine Learning                                                                                                                                                                           |
| 12:10 - 12:40               | <u>Shuxia Tao</u> ( <i>Computational Materials Physics, Applied Physics, Eindhoven University of Technology, the Netherlands.</i> )                                                                                                      |
| Room-IS1                    | Materials Theory of Halide Perovskites: Insights from Atomistic and Molecular Modeling                                                                                                                                                   |
| 12:40 - 13:10               | <u>Aron Walsh</u> ( <i>Faculty of Engineering, Department of Materials, Imperial College, London</i> )                                                                                                                                   |
| Room-IS2                    | Machine Learning Perovskites                                                                                                                                                                                                             |
|                             | <b>Session 1B2 - Breaking efficiency limits - Room I</b><br>Chair: Nakita Noel                                                                                                                                                           |
| 11:30 - 11:40               | <u>Nakita Noel</u> ( <i>University of Oxford</i> )                                                                                                                                                                                       |
| I-T1                        | Breaking efficiency limits Chair introduction - Nakita Noel                                                                                                                                                                              |
| 11:40 - 12:10               | Colette Sullivan, <u>Lea Nienhaus</u> ( <i>Florida State University, Department of Chemistry and Biochemistry</i> )                                                                                                                      |
| I-I1                        | Replacing Rubrene in Perovskite-Sensitized Photon Upconversion                                                                                                                                                                           |
| 12:10 - 12:25               | <u>Olindo Isabella</u> ( <i>Delft university of technology</i> )                                                                                                                                                                         |
| I-IS1                       | Novel c-Si solar cell architectures exceeding conversion efficiency well above 27%                                                                                                                                                       |
| 12:25 - 12:40               | <u>Akshay Rao</u> ( <i>University of Cambridge</i> )                                                                                                                                                                                     |
| I-IS2                       | Singlet Fission based Photon Multiplication to enhance Si PV efficiency                                                                                                                                                                  |
| 12:40 - 12:55               | <u>Ulrich W. Paetzold</u> ( <i>Light Technology Institute (LTI) at Karlsruhe Institute of Technology (KIT), Karlsruhe, Engesserstr. 13, 76131, Germany</i> )                                                                             |
| I-IS3                       | Will Vapor Phase Deposition of Perovskite Photovoltaics Accelerate Commercialization?                                                                                                                                                    |
| 12:55 - 13:10               | <u>Thomas Hannappel</u> ( <i>Ilmenau University of Technology, Institute of Physics, Germany</i> ), M. A. Zare Pour, S. Shekarabi, A. Paszuk, D. Ostheimer, W. Jaegermann, W.-H. Cheng, O. Romanyuk, E. Runge, F. Dimroth, H. A. Atwater |
| I-IS4                       | Tandem cells for efficient photoelectrochemical solar fuels production                                                                                                                                                                   |
|                             | <b>Session 1B3 - Operational and material stability - Room III</b><br>Chair: Sofia Masi                                                                                                                                                  |
| 11:30 - 11:40               | <u>Sofia Masi</u> ( <i>Universitat Jaume I, Institute of Advanced Materials - Spain</i> )                                                                                                                                                |
| III-T1                      | Operational and material stability Chair introduction - Sofia Masi                                                                                                                                                                       |
| 11:40 - 12:10               | Monica Lira, <u>Sonia Ruiz Raga</u> ( <i>Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Campus UAB, Bellaterra, Barcelona, Catalonia, 08193, Spain</i> )                                                     |
| III-I1                      | Additive Engineering in Halide Perovskite/MXene Perovskite Solar Cells                                                                                                                                                                   |
| 12:10 - 12:25               | <u>Ángela Sastre-Santos</u> ( <i>Área de Química Orgánica, Instituto de Bioingeniería, Universidad Miguel Hernández, Avda. Universidad S/N, 03202, Elche, Spain</i> )                                                                    |
| III-IS1                     | Arylamine Zinc and Copper Phthalocyanines as Outstanding Hole Transporting Materials in Perovskite Solar Cells                                                                                                                           |
| 12:25 - 12:40               | <u>Iván Mora-Seró</u> ( <i>Institute of Advanced Materials (INAM), Universitat Jaume I, Av. De Vicent Sos Baynat, s/n 12071 Castelló, Spain</i> )                                                                                        |
| III-IS2                     | Advances in Sn-Perovskite Solar Cells                                                                                                                                                                                                    |
| 12:40 - 12:55               | <u>Emilio Palomares</u> ( <i>ICREA, Passeig Lluís Companys 23, 08010, Barcelona, Spain</i> )                                                                                                                                             |
| III-IS3                     | Molecular photovoltaic devices: The Central Role of Chemistry.                                                                                                                                                                           |

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| 12:55 - 13:10<br>III-IS4                                                                            | <p>Victoria Ozerova, Marina Ustinova, Nikita Emelianov, Sergey Vasil'ev, Dmitry Kirukhin, Ivan Zhidkov, Sergey Aldoshin, <u>Pavel Troshin</u> (Zhengzhou Research Institute, Harbin Institute of Technology, 26 Longyuan East 7th, Jinshui District, Zhengzhou, Henan Province, 450000, China)</p> <p>Ultrahigh radiation hardness of complex lead halides: where are the limits?</p>                                                                                                                                         |
| <b>Session 1B4 - HOPV Rising Stars: Emerging photovoltaics - Premsa Room</b><br>Chair: Jovana Milic |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 11:30 - 11:40<br>Room-T1                                                                            | <p><u>Jovana Milic</u> (University of Fribourg, Adolphe Merkle Institute)</p> <p>HOPV Rising Stars: Chair introduction - Jovana Milic and Bruno Ehrler</p>                                                                                                                                                                                                                                                                                                                                                                    |
| 11:40 - 11:55<br>Room-O5                                                                            | <p><u>Eline Hutter</u> (Utrecht University, Inorganic Chemistry and Catalysis, Debye Institute for Nanomaterials Science, Netherlands), Huygen Jöbsis, Loreta Muscarella, Kostas Fykouras, Linn Leppert</p> <p>Tuning optical and mechanical properties of Cs<sub>2</sub>AgBiBr<sub>6</sub> double perovskites by controlled alloying</p>                                                                                                                                                                                     |
| 11:55 - 12:10<br>Room-O4                                                                            | <p><u>Loreta Muscarella</u> (Department of Physics and Astronomy, Faculty of Sciences, Vrije Universiteit Amsterdam), Huygen J. Jöbsis, Bettina Baumgartner, P. Tim Prins, D. Nicolette Maaskant, Andrei V. Petukhov, Dmitry Chernyshov, Charles J McMonagle, Eline M. Hutter</p> <p>Exploring Temperature- and Pressure-Dependent Elastic Properties of Halide Perovskites and Elpasolites</p>                                                                                                                               |
| 12:10 - 12:25<br>Room-O1                                                                            | <p><u>Davide Moia</u> (Max Planck Institute for Solid State Research, Physical Chemistry of Solids, Stuttgart, 70569, Germany), Mina Jung, Ya-Ru Wang, Joachim Maier</p> <p>Impedance models addressing ion transport and electron-hole recombination in halide perovskite based devices</p>                                                                                                                                                                                                                                  |
| 12:25 - 12:40<br>Room-O2                                                                            | <p><u>Martin Ledinsky</u> (Institute of Physics of the Czech Academy of Sciences, Cukrovarnicka 10, 16200 Prague, Czech Republic.), Ales Vlk, Robert Hlavac, Lucie Landova, Antonin Fejfar</p> <p>Universal Formation Mechanism of Halide Perovskite Thin Films</p>                                                                                                                                                                                                                                                           |
| 12:40 - 12:55<br>Room-O3                                                                            | <p><u>Sandheep Ravishankar</u> (Forschungszentrum Jülich, Institute of Energy and Climate Research, IEK-5 Photovoltaics)</p> <p>Discerning Rise Time Constants to Quantify Charge Carrier Extraction in Perovskite Solar Cells</p>                                                                                                                                                                                                                                                                                            |
| 12:55 - 13:10                                                                                       | Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 13:10 - 15:20                                                                                       | <b>Lunch Break</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 15:20 - 15:30                                                                                       | <b>Paralel sessions - Chair opening (Room I, III, PREMSA, NOBLE)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Session 1C1 - Material design and modelling - Noble Room</b><br>Chair: Virginia Carnevali        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 15:30 - 16:00<br>Room-IS1                                                                           | <p><u>Saiful Islam</u> (Department of Materials, University of Oxford; Oxford, UK)</p> <p>From Pb to Mixed Pb-Sn Perovskites: Atomic-Scale Insights into Ion Transport and Molecular Passivation</p>                                                                                                                                                                                                                                                                                                                          |
| 16:00 - 16:15<br>Room-IS2                                                                           | <p><u>Alison Walker</u> (Department of Physics University of Bath, BA2 7AY, UK), Samuel McCallum, Jamie Lerpiniere</p> <p>Understanding perovskite solar cell physics through combining modelling and machine learning</p>                                                                                                                                                                                                                                                                                                    |
| 16:15 - 16:30<br>Room-IS3                                                                           | <p><u>George Volonakis</u> (Univ Rennes, ENSCR, INSA Rennes, CNRS, ISCR - UMR 6226, F-35000 Rennes, France.)</p> <p>Materials design of halide perovskites and beyond: Opto-electronic properties, and charge carrier mobilities from first principles.</p>                                                                                                                                                                                                                                                                   |
| 16:30 - 16:45<br>Room-O1                                                                            | <p><u>Maxime Siber</u> (Forschungszentrum Jülich GmbH, Helmholtz-Institute Erlangen-Nürnberg (HI ERN), 91058 Erlangen, Germany), Olivier Ronsin, Jens Harting</p> <p>Simulation of Morphology Formation in Organic Photoactive Layers</p>                                                                                                                                                                                                                                                                                     |
| 16:45 - 17:00<br>Room-O2                                                                            | <p><u>Simon Ternes</u> (CHOSE, Centre for Hybrid and Organic Solar Energy, Department of Electronic Engineering, University of Rome "Tor Vergata", Rome, Italy), Alessio Gagliardi, Aldo Di Carlo</p> <p>Deep-Learning enhanced literature analysis on parameter specification in solution processing of hybrid perovskite solar cells</p>                                                                                                                                                                                    |
| 17:00 - 17:15<br>Room-O3                                                                            | <p><u>Michael Hoffmann</u> (Fraunhofer Institute for Electron Beam and Plasma Technology FEP, Germany), Christian May, May Neidhardt, Patrick Schlenz, Elizabeth von Hauff</p> <p>Vacuum Coating for Next Generation Photovoltaics</p>                                                                                                                                                                                                                                                                                        |
| <b>Session 1C2 - Breaking efficiency limits - Room I</b><br>Chair: Nakita Noel                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 15:30 - 15:45<br>I-IS1                                                                              | <p>Andrea Cordaro, Ralph Muller, Stefan Tabernig, Nico Tucher, Patrick Schygulla, Oliver Hohn, Benedikt Blasi, <u>Albert Polman</u> (Center for Nanophotonics, AMOLF)</p> <p>Integrated near-field/far-field light scattering design creates 36,1% efficient Si/III-V multijunction solar cell</p>                                                                                                                                                                                                                            |
| 15:45 - 16:00<br>I-O1                                                                               | <p><u>Hang Hu</u> (Institute of Microstructure Technology (IMT), Karlsruhe Institute of Technology (KIT), Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany.), David B. Ritzer, Sophie X. An, Yang Li, Alexander Diercks, Roja Singh, Seyedamir Orooji, Qihao Jin, Paul Fassi, Felix Laufer, Thomas Feeney, Ting Pan, Bahram Abdollahi Nejand, Ulrich W. Paetzold</p> <p>Efficient p-i-n-based FAPbI<sub>3</sub> perovskite solar cells for scalable solar modules and triple-junction photovoltaics</p> |
| 16:00 - 16:15<br>I-O2                                                                               | <p><u>Marcel Roß</u> (Helmholtz-Zentrum Berlin für Materialien und Energie, Division Solar Energy, 12489 Berlin, Germany), Stefanie Severin, Aleksandra Miaszkiewicz, Viktor Škorjanc, Lars Korte, Steve Albrecht</p> <p>Analyzing and Optimizing the Composition of Co-Evaporated Wide Band Gap Perovskite-Absorbers</p>                                                                                                                                                                                                     |
| 16:15 - 16:30<br>I-O3                                                                               | <p><u>Klara Suchan</u> (Department of Mechanical Engineering, Stanford University), T. Jesper Jacobsson, Carolin Rehmann, Eva L. Unger, Thomas Kirchartz, Christian Wolff</p> <p>Rationalizing Performance Losses of Wide Bandgap Perovskite Solar Cells Evident in Data from the Perovskite Database</p>                                                                                                                                                                                                                     |
| 16:30 - 16:45<br>I-O4                                                                               | <p><u>Jessica Barichello</u> (ISM-CNR, Istituto di Struttura della Materia, Consiglio Nazionale delle Ricerche, Via del Fosso del Cavaliere 100, 00133, Roma, Italy), Farshad Jafarzadeh, Gyanendra Shank, Paolo Mariani, Francesca Brunetti, Aldo Di Carlo, Fabio Matteocci</p> <p>Bridging the gap: Wide-bandgap perovskite solar cells for transparent and efficient BIPVs</p>                                                                                                                                             |
| 16:45 - 17:00<br>I-O5                                                                               | <p><u>Nicholas Sloane</u> (School of Physics, University of New South Wales, Sydney, New South Wales 2052, Australia), Jianghui Zheng, Christopher G. Bailey, Anita W. Y. Ho-Baillie, Timothy W. Schmidt, Dane R. McCamey</p> <p>Determining the Role of 2D Perovskite Passivation Layer on Bulk Perovskite-Sensitised Photochemical Upconversion</p>                                                                                                                                                                         |
| 17:00 - 17:15<br>I-O6                                                                               | <p><u>Damon de Clercq</u> (UNSW Sydney), Jiale Feng, Parisa Hosseinabadi, Michael Nielsen, Matthew Brett, Shyamal Prasad, Abbas Farahani, Hsiu Li, Samuel Sanders, Jonathon Beves, Ned Ekins-Daukes, Jared Cole, Pall Thordarson, Murad Tayebjee, Timothy Schmidt, Ben Carwithen</p> <p>Resolving the emissive intermediate in singlet fission</p>                                                                                                                                                                            |
| <b>Session 1C3 - Operational and material stability - Room III</b><br>Chair: Sofia Masi             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 15:30 - 15:45<br>III-IS1                                                                            | <p><u>Wolfgang Tress</u> (Institute of Computational Physics, Zurich University of Applied Sciences, Winterthur, Switzerland)</p> <p>Stability - From Perovskite Solar Cells to Memristors</p>                                                                                                                                                                                                                                                                                                                                |



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| 15:45 - 16:00<br>III-O1                                                                            | <u>Jarla Thiesbrummel</u> ( <i>AMOLF</i> ), Sahil Shah, Henry Snaith, Martin Stolterfoht<br>Ion induced field screening governs the early performance degradation of perovskite solar cells                                                                                                                                                                                                                                                           |
| 16:00 - 16:15<br>III-O2                                                                            | Ji-Youn Seo, <u>Sun-Ju Kim</u> ( <i>Department of Nano Fusion Technology, Pusan National University, Busan 46241, Republic of Korea</i> )<br>Interfacial engineering through lead binding using crown ethers in perovskite solar cells                                                                                                                                                                                                                |
| 16:15 - 16:30<br>III-O3                                                                            | <u>Philippe Holzhew</u> ( <i>Department of Physics, University of Oxford, UK</i> ), David McMeekin, Sebastian Furer, Steven Harvey, Laura Schelhas, James Ball, Suhas Mahesh, Seongrok Seo, Nicholas Hawkins, Jianfeng Lu, Michael Johnston, Joseph Berry, Udo Bach, Henry Snaith<br>Intermediate-Phase Engineering via Dimethylammonium Cation Additive for Stable Perovskite Solar Cells                                                            |
| 16:30 - 16:45<br>III-O4                                                                            | <u>Florine Rombach</u> ( <i>Department of Physics, University of Oxford, UK</i> ), Akash Dasgupta, Manuel Kober-Czerny, James Ball, Joel Smith, Heon Jin, Michael Farrer, Henry Snaith<br>Stability of narrow bandgap lead-tin perovskite material and photovoltaic devices                                                                                                                                                                           |
| 16:45 - 17:00<br>III-O5                                                                            | <u>Elnaz Ghahremani Rad</u> ( <i>Laboratory for Solar Energy and Fuels (LSEF) School of Engineering, The University of British Columbia</i> ), Abraha Tadese Gidey, Towhid Chowdhury, Alexander R. Uhl<br>Advancing Operational Stability of Inverted Perovskite Solar Cells Utilizing Parylene-C Encapsulation Techniques                                                                                                                            |
| 17:00 - 17:15<br>III-O6                                                                            | <u>Fredrik Johansson</u> ( <i>Condensed Matter Physics of Energy Materials, Division of X-ray Photon Science, Department of Physics and Astronomy, Uppsala University</i> ), Azmat Ali, Herve Crugel, Erika Giangrisostomi, Ruslan Ovsyanniikov, Mathieu Silly, Lenart Dudy, Ute Cappel, Emmanuel Lhuillier, Nadine Witkowski<br>The Electronic Impact of Light-induced Degradation in CsPbBr <sub>3</sub> Perovskite Nanocrystals at Gold Interfaces |
| <b>Session 1C4 - Emerging photovoltaics - Premsa Room</b><br>Chair: Loreta Muscarella              |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 15:30 - 15:45<br>Room-IS1                                                                          | <u>Tom Savenije</u> ( <i>Department of Chemical Engineering, Technical University Delft, The Netherlands</i> ), Jiashang Zhao, Xiaohui Liu, Bahiya Ibrahim, Jos Thieme, Lara van der Poll, Shuxia Tao, Lars Bannenberg<br>Interplay between Structure and Charge Carrier Dynamics in CsMAFA-based Perovskites                                                                                                                                         |
| 15:45 - 16:00<br>Room-O1                                                                           | <u>Alan Dunbar</u> ( <i>University of Sheffield, Department of Chemical and Biological Engineering</i> ), Adam Urwick, Suleiman Bello, Malin Johansson<br>Dynamics of perovskite synthesis in alcohol                                                                                                                                                                                                                                                 |
| 16:00 - 16:15<br>Room-O2                                                                           | <u>Ana Palacios Saura</u> ( <i>Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Hahn-Meitner-Platz 1, 14109 Berlin, Germany</i> ), Joachim Breternitz, Armin Hoell, Susan Schorr<br>Precrystallisation Arrangement in Halide Perovskites Precursor Solutions                                                                                                                                                                                |
| 16:15 - 16:30<br>Room-O3                                                                           | <u>Aruna Ivaturi</u> ( <i>Smart Materials Research and Device Technology Group, Department of Pure and Applied Chemistry, University of Strathclyde, Glasgow G1 1XL, UK</i> )<br>Indoor light harvesting perovskite solar cells on TCO-free ultrathin deformable substrates                                                                                                                                                                           |
| 16:30 - 16:45<br>Room-O4                                                                           | <u>Heon Jin</u> ( <i>Department of Physics, University of Oxford, UK</i> ), Henry Snaith<br>Highly efficient and stable thermal evaporated lead-tin perovskites                                                                                                                                                                                                                                                                                       |
| 16:45 - 17:00<br>Room-O5                                                                           | <u>Asayil Alsulami</u> ( <i>Material Science and Engineering, KAUST Solar Centre, Physical science and engineering division, King Abdullah University of Science and Technology, 4700 KAUST, Thuwal 23955-6900, Kingdom of Saudi Arabia</i> ), Luis Lanzetta, Derya Baran<br>Illuminating the Degradation Mechanism of Hybrid Tin-Lead Perovskites: A Foundation for Rational Stability Enhancement Strategies                                        |
| 17:00 - 17:15<br>Room-O6                                                                           | <u>Jeffrey Capitão</u> ( <i>LEPABE - Laboratory for Process Engineering, Environment, Biotechnology and Energy, Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal.</i> ), Dzmitry Ivanou, Adélio Mendes<br>Rethinking Dye-Sensitized Solar Cell Design with Carbon Paper Counter Electrodes                                                                                                                |
| <b>Special Session: in the honor of Prof. Michael Graetzel - Noble Room</b><br>Chair: Jovana Milic |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 17:15 - 17:30<br>Room-I1                                                                           | <u>Anders Hagfeldt</u> ( <i>Department of Chemistry - Ångström Laboratory, Uppsala University, Uppsala, Sweden</i> )<br>Brief Overview on the Development of Dye-Sensitized and Perovskite Solar Cells                                                                                                                                                                                                                                                |
| 17:30 - 17:45<br>Room-I2                                                                           | <u>Marina Freitag</u> ( <i>Newcastle University, Newcastle upon Tyne, NE1 7RU, United Kingdom.</i> )<br>Revolutionizing Indoor Energy Harvesting: From Advanced Materials to AI Integration                                                                                                                                                                                                                                                           |
| 17:45 - 18:00<br>Room-I3                                                                           | <u>Udo Bach</u> ( <i>ARC Centre of Excellence for Exciton Science, Monash University</i> )<br>25 years of spiro-OMeTAD                                                                                                                                                                                                                                                                                                                                |
| 18:00 - 18:15<br>Room-I4                                                                           | <u>Michael Graetzel</u> ( <i>Ecole Polytechnique Federale de Lausanne (EPFL)</i> )<br>Special Talk                                                                                                                                                                                                                                                                                                                                                    |
| 18:15 - 19:30                                                                                      | <b>Poster session</b>                                                                                                                                                                                                                                                                                                                                                                                                                                 |

**May 14th - Day 3 (Tuesday) 3**

08:50 - 09:00

**Announcement of the day - Noble Room****Session 2A - Organic photovoltaics (OPV) - Noble Room**

Chair: Derya Baran

09:00 - 09:10

Derya Baran (King Abdullah University of Science and Technology (KAUST) - Saudi Arabia)

Room-T1

Organic photovoltaics (OPV) Chair Opening - Derya Baran

09:10 - 09:40

Natalie Stingelin (School of Materials Science and Engineering Georgia Institute of Technology Atlanta, GA 30332, USA)

Room-K1

Designing solution-processed photonic light- and heat-management structures for solution-processable and printable solar cells

09:40 - 09:45

Royal Society of Chemistry RSC (Royal Society of Chemistry)

Room-S1

Royal Society of Chemistry Industry talk

09:45 - 10:15

Anna Köhler (Soft Matter Optoelectronics and Bayreuth Institute of Macromolecular Research (BIMF), University of Bayreuth, 95440 Bayreuth, Germany)

Room-I2

Identifying role of aggregates in PM6/Y6 organic solar cells by optical spectroscopy

10:15 - 10:45

Jenny Nelson (Department of Physics and Centre for Processable Electronics, Imperial College London, London SW7 2AZ, UK)

Room-I1

Exploring charge pair generation in single-component organic photovoltaic devices

10:45 - 11:30

**Coffee Break****Session 2A1 - Advanced characterization and automation - Noble Room**

Chair: Wiebke Albrecht

11:30 - 11:40

Wiebke Albrecht (AMOLF)

Room-T1

Advanced characterization and automation Chair introduction - Wiebke Albrecht

11:40 - 12:10

Selina Olthof (University of Cologne)

Room-I1

Probing the Electronic Structure of 3D and 2D Halide Perovskites

12:10 - 12:25

Pablo P. Boix (Instituto de Tecnología Química, Universitat Politècnica de València - Consejo Superior de Investigaciones Científicas (UPV-CSIC), Avd. de los Naranjos s/n, Valencia 46022, Spain)

Room-IS1

Device-oriented perovskite crystallization

12:25 - 12:40

Juan Bisquert (Institute of Advanced Materials (INAM), Universitat Jaume I, Av. De Vicent Sos Baynat, s/n 12071 Castellò, Spain)

Room-IS2

Controlling capacitive and inductive hysteresis processes of halide perovskite for solar cell and neuromorphic applications

12:40 - 12:55

Erik Garnett (Center for Nanophotonics, AMOLF, Science Park 104, 1098 XG Amsterdam, The Netherlands)

Room-IS3

Perovskite Plasticity: Exploiting Instability for Self-Optimized Performance

12:55 - 13:10

Dominik Kubicki (School of Chemistry, University of Birmingham, Birmingham, B15 2TT, UK)

Room-IS4

Atomic-level structure of small organic molecules on halide perovskite surfaces

**Session 2B2 - Towards commercialization and applications - Room I**

Chair: Narges Yaghoobi Nia

11:30 - 11:40

Narges Yaghoobi Nia (École Polytechnique Fédérale de Lausanne (EPFL) and Sapienza University of Rome - Aerospace Engineering School)

I-T1

Towards commercialization and applications Chair introduction - Narges Yaghoobi Nia

11:40 - 12:10

Yulia Galagan (TNO, Eindhoven, the Netherlands)

I-I1

Synergizing Sunlight Harvesting: Advancements in Electric and Thermal Energy Technologies

12:10 - 12:25

ANNALISA BRUNO (School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore, 637371 Singapore)

I-IS1

Unlocking Potential: Thermal Evaporation for Quantum Confinement in Perovskite Films

12:25 - 12:40

Juliane Borchert (Fraunhofer Institute for Solar Energy Systems, Freiburg, 79110, Germany.)

I-IS2

Hybrid Deposition - a Route Towards the Scaling of Perovskite-Silicon Tandem Solar Cells

12:40 - 12:55

Joseph Luther (National Renewable Energy Laboratory, NREL, Golden, CO, USA.)

I-IS3

Metal Halide Perovskite Photovoltaics for Electricity in Space

12:55 - 13:10

Henk Bolink (Instituto de Ciencia Molecular, ICMol, Universidad de Valencia)

I-IS4

Vacuum Deposited Perovskite Solar Cells, Benefits and Challenges.

**Session 2B3 - Emerging materials - Room III**

Chair: Eline Hutter

11:30 - 11:40

Eline Hutter (Utrecht University, Debye Institute for Nanomaterials Science)

III-T1

Emerging materials Chair introduction - Eline Hutter

11:40 - 12:10

Paulina Plochocka (Laboratoire National des Champs Magnétiques Intenses, CNRS)

III-I1

Organic Inorganic Halide Perovskite: Exciting Playground for Exciton and Polaron Studies

12:10 - 12:25

Amita Ummadisingu (Chemical Engineering, University College London)

III-IS1

Anomalous charge transport in lead halide perovskite field-effect transistors and mitigation using 3D/2D heterostructures

12:25 - 12:40

Ji-Youn Seo (Department of Nano Fusion Technology, Pusan National University, Busan, Korea)

III-IS2

Controlled growth of hybrid halide perovskites by molecular engineering

12:40 - 12:55

James W. Ryan (Department of Chemistry, Swansea University Singleton Park, Swansea SA2 8PP), Aaron Cookson

III-IS3

Squaraine-Based Memristors and Their Neuromorphic Capabilities

12:55 - 13:10

Filip Podjaski (Department of Chemistry, Imperial College London, UK)

III-IS4

Organic based semiconductors in ionic environments

**Session 2B4 - HOPV Rising Stars: Organic & Hybrid Photovoltaics - Premsa Room**

Chair: Francesca Brunetti

11:30 - 11:40

Francesca Brunetti (University of Rome (Tor Vergata))

Room-T1

HOPV Rising Stars: Chair introduction - Francesca Brunetti

11:40 - 11:55

Sofia Masi (Institute of Advanced Materials (INAM), Universitat Jaume I, Av. De Vicent Sos Baynat, s/n 12071 Castellò, Spain)

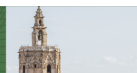
Room-O4

Transparent Electrodes for High Perovskite Solar Cells Light Utilization Efficiency





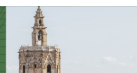
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|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11:55 - 12:10<br>Room-01  | <p><u>Roja Singh</u> (<i>Institute of Microstructure Technology (IMT), Karlsruhe Institute of Technology (KIT), Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany.</i>), Hang Hu, Thomas Feeney, Alexander Diercks, Felix Laufer, Yang Li, The Duong, Fabian Schackmar, Bahram A. Nejjand, Ulrich W. Paetzold</p> <p>Impact of materials stoichiometry and surface morphology on stability of perovskite solar cells</p>                  |
| 12:10 - 12:25<br>Room-02  | <p><u>Paramvir Ahlawat</u> (<i>Yusuf Hamied Department of Chemistry, University of Cambridge, Lensfield Road, CB2 1EW, Cambridge, UK</i>)</p> <p>Molecular details of heterogeneous nucleation and buried interface in metal halide perovskites</p>                                                                                                                                                                                                            |
| 12:25 - 12:40<br>Room-03  | <p><u>Benjamin Gallant</u> (<i>Department of Physics, University of Oxford, Clarendon Laboratory, Parks Road, OX1 3PU, United Kingdom</i>), Philippe Holzhey, Joel Smith, Saqlain Choudhary, Karim Elmostekawy, Henry Snaith</p> <p>From 2D to 3D: A green solvent system for templated sequential deposition of efficient and stable formamidinium lead triiodide</p>                                                                                         |
| 12:40 - 12:55<br>Room-05  | <p><u>Bhumika Chaudhary</u> (<i>Institute for Photovoltaics, University of Stuttgart, Pfaffenwaldring 47, 70569, Stuttgart, Germany</i>)</p> <p>Role of Structural Dimensionality Towards Stability of Multifunctional Hybrid Halide Perovskites</p>                                                                                                                                                                                                           |
| 12:55 - 13:10             | Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 13:10 - 15:20             | <b>Lunch Break</b>                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 15:20 - 15:30             | <b>Paralel sessions - Chair opening (Room I, III, PREMSA, NOBLE)</b>                                                                                                                                                                                                                                                                                                                                                                                           |
|                           | <b>Session 2C1 - Advanced characterization and automation - Noble Room</b><br>Chair: Wiebke Albrecht                                                                                                                                                                                                                                                                                                                                                           |
| 15:30 - 15:45<br>Room-IS1 | <p><u>Omer Yaffe</u> (<i>Weizmann Institute of Science, Herzl St. 234, Rehovot 7610001, Israel</i>)</p> <p>Coupled vibrational modes in organic crystals</p>                                                                                                                                                                                                                                                                                                   |
| 15:45 - 16:00<br>Room-O1  | <p><u>Nada Mrkvykova</u> (<i>Center for Advanced Materials Application, Slovak Academy of Sciences, Dúbravská cesta 9, 845 11 Bratislava, Slovakia</i>), Vladimír Held, Peter Nadazdy, Karol Vegso, Quentin Guesnay, Daming Zheng, Frank Schreiber, Peter Siffalovic</p> <p>In situ Study of Perovskite Thin Film Growth</p>                                                                                                                                   |
| 16:00 - 16:15<br>Room-O2  | <p><u>Mirella Al Katrib</u> (<i>IPVF, Institut Photovoltaïque d'Ile-de-France, 18 Boulevard Thomas Gobert, 91120 Palaiseau, France</i>), Pia Dally, Muriel Bouttemy</p> <p>Advanced Characterization of Perovskite Solar Devices at Buried Interfaces: Innovative Methodology by coupling GD-OES with XPS In-depth Profiling</p>                                                                                                                               |
| 16:15 - 16:30<br>Room-O3  | <p><u>Birgit Kammlander</u> (<i>Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden</i>), Alberto García-Fernandez, Håkan Rensmo, Ute B. Cappel</p> <p>Investigating electron and ion dynamics of lead halide perovskite single crystals via time-resolved photoelectron spectroscopy</p>                                                                                                                                                 |
| 16:30 - 16:45<br>Room-O4  | <p><u>Manuel Kober-Czerny</u> (<i>Department of Physics, University of Oxford, UK</i>), Akash Dasgupta, Seongrok Seo, Heon Jin, Henry Snaith</p> <p>All-Optical Assessment of Perovskite Thin-Films and Half-Stacks by Coupling Time-Resolved PL with Bayesian Inference</p>                                                                                                                                                                                   |
| 16:45 - 17:00<br>Room-O5  | <p><u>Imme Schuringa</u> (<i>Light Management for Photovoltaics, AMOLF, Netherlands</i>), Saskia Fiedler, Bruno Ehrler</p> <p>Correlating Optical and Structural Properties of Halide Perovskite Thin Films at the Nanoscale</p>                                                                                                                                                                                                                               |
| 17:00 - 17:15<br>Room-O6  | <p><u>Tamas Brigancz</u> (<i>Semilab Co. Ltd, 2. Prielle K. str., Budapest, Hungary</i>), Zsombor Santa, Zoltan Kiss, Ferenc Korsos, Levente Illes, Ferenc Steinbach, Sándor Lenk, Alexandros Zachariadis, Christos Kapnopoulos, Vasileios Kyriazopoulos, Evangelos Mekeridis, Argiris Laskarakis, Stergios Logothetidis</p> <p>Photoluminescence characterization of organic photovoltaic structures</p>                                                      |
|                           | <b>Session 2C2 - Towards commercialization and applications - Room I</b><br>Chair: Narges Yaghoobi Nia                                                                                                                                                                                                                                                                                                                                                         |
| 15:30 - 15:45<br>I-IS1    | <p><u>Daniel Ramirez</u> (<i>Centro de Investigación, Innovación y Desarrollo de Materiales—CIDEMAT, Universidad de Antioquia, Medellín, Colombia.</i>)</p> <p>Full solution-processed Perovskite solar cells</p>                                                                                                                                                                                                                                              |
| 15:45 - 16:00<br>I-O1     | <p><u>Andrés Soto</u> (<i>LEPABE - Laboratory for Process Engineering, Environment, Biotechnology and Energy, Faculty of Engineering, University of Porto, Rua Dr. Roberto Frias, 4200-465 Porto, Portugal.</i>), Vera Duarte, Adélio Mendes, Luísa Andrade</p> <p>Boosting Efficiency and Active Area in Inverted Perovskite Modules: Optimization of Geometric Fill Factor using Laser Ablation</p>                                                          |
| 16:00 - 16:15<br>I-O2     | <p><u>Helge Eggers</u> (<i>Light Technology Institute (LTI) at Karlsruhe Institute of Technology (KIT), Karlsruhe, Engesserstr. 13, 76131, Germany</i>), Pesch Raphael, Sutter Johannes, Ulrich W. Paetzold</p> <p>Green Solvents Used in Optimized (Hybrid) Inkjet Printing for Scalable Fabrication of Highly Efficient (&gt;18%) Perovskite Solar Cells</p>                                                                                                 |
| 16:15 - 16:30<br>I-O3     | <p><u>Dimitris Chalkias</u> (<i>Nanotechnology &amp; Advanced Materials Laboratory, Department of Electrical and Computer Engineering, University of the Peloponnese, GR26334 Patras, Greece</i>), Archontoula Nikolakopoulou, Lykourgos Kontaxis, Elias Stathatos</p> <p>Development of 20%-efficient and mechanically robust ambient-air-processed carbon-based flexible perovskite solar cells using green and benign-to-plastics antisolvent quenching</p> |
| 16:30 - 16:45<br>I-O4     | <p><u>Jesus Sanchez-Diaz</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, Av. De Vicent Sos Baynat, s/n 12071 Castellò, Spain</i>), Felipe A. Vinocur Pacheco, Wiktor Zuraw, Senol Oz, Ivan Mora Sero</p> <p>Upscalable and flexible Tin-Based Perovskites solar cells and minimodules by Bladecoating technic</p>                                                                                                                         |
| 16:45 - 17:00<br>I-O5     | <p><u>Alexander Diercks</u> (<i>Light Technology Institute (LTI) at Karlsruhe Institute of Technology (KIT), Karlsruhe, Engesserstr. 13, 76131, Germany</i>), Julian Petry, Thomas Feeney, Roja Singh, Ulrich W. Paetzold, Paul Fassl</p> <p>Understanding Substrate-Dependent Growth of Sequentially Evaporated Perovskite Thin Films</p>                                                                                                                     |
| 17:00 - 17:15<br>I-O6     | <p><u>Dilara Öz</u> (<i>University of Cologne, Institute for Physical Chemistry</i>), Dr. Selina Olthof</p> <p>Do substrates matter? - the impact of hole transport layers on Iodide/Bromide composition in thermally evaporated mixed halide perovskites</p>                                                                                                                                                                                                  |
|                           | <b>Session 2C3 - Emerging materials - Room III</b><br>Chair: Eline Hutter                                                                                                                                                                                                                                                                                                                                                                                      |
| 15:30 - 15:45<br>III-IS1  | <p><u>Sascha Feldmann</u> (<i>Rowland Institute, Harvard University, US</i>)</p> <p>Tracking charge &amp; spin in time and space in halide perovskites</p>                                                                                                                                                                                                                                                                                                     |
| 15:45 - 16:00<br>III-O1   | <p><u>Vera La Ferrara</u> (<i>ENEA - Italian National Agency for New Technologies, Energy and Sustainable Economic Development</i>), Antonella De Maria, Gabriella Rametta</p> <p>Green Anisole as Antisolvent in Planar Triple-Cation Perovskite Solar Cells with Varying Cesium Concentrations</p>                                                                                                                                                           |
| 16:00 - 16:15<br>III-O2   | <p><u>Anna Capitaine</u> (<i>Institut Photovoltaïque d'Ile-de-France (IPVF)</i>)</p> <p>Enhanced efficiency and stability for perovskite inversed architecture based on quasi-2D perovskite passivation</p>                                                                                                                                                                                                                                                    |



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| 16:15 - 16:30<br>III-O3                                                                    | <u>Oscar Zacharias Telschow</u> ( <i>Leibniz-Institut für Festkörper- und Werkstoffforschung Dresden (IFW), Helmholtzstraße 20, 01069, Dresden, Germany.</i> ), Angelika Wrzesińska-Lashkova, Shivam Singh, Jianan Li, Bernd Plietker, Yana Vaynzof<br>Enhancing Moisture Stability in Perovskite Solar Cells through Dual Interfacial Modification                                                                                                                                                                                                   |
| 16:30 - 16:45<br>III-O4                                                                    | <u>Victoria Ozerova</u> ( <i>Federal Research Center for Problems of Chemical Physics and Medicinal Chemistry of the Russian Academy of Sciences, Chernogolovka, Russia</i> ), Nikita Emelianov, Lyubov Frolova, Pavel Troshin<br>Rational design of molecular modifiers for enhancing the intrinsic photochemical stability of complex lead halide perovskites                                                                                                                                                                                       |
| 16:45 - 17:00<br>III-O5                                                                    | <u>Valerio Stacchini</u> ( <i>HySPRINT Innovation Lab, Department Solution-Processing of Hybrid Materials and Devices, Helmholtz Zentrum Berlin, Berlin, Germany.</i> )<br>Challenges and Breakthroughs with Novel Electron Selective Monolayers in Perovskite Solar Cells                                                                                                                                                                                                                                                                            |
| 17:00 - 17:15<br>III-O6                                                                    | <u>Ghewa AlSabeh</u> ( <i>Adolphe Merkle Institute, University of Fribourg, 1700 Fribourg, Switzerland</i> ), Lukas Pfeifer, Ming Ren, Dominik Kubicki, Paul Zimmermann, Lena Merten, Alexander Hinderhofer, Frank Schreiber, Fabiola Faini, Giulia Grancini, Igor Moudrakovski, Davide Moia, Joachim Maier, Michael Grätzel, Jovana V. Milić<br>Enhancing the Functionality of Layered Hybrid Perovskites                                                                                                                                            |
| <b>Session 2C4 - Organic &amp; Hybrid Photovoltaics - Premsa Room</b><br>Chair: Ya-Ru Wang |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 15:30 - 15:45<br>Room-IS1                                                                  | Matteo Bonomo, Gabriele Viada, Davide Gallo, Ana Yancy Segura Zarate, Simone Galliano, Giulio Kock, Luca Bonandini, Nadia Barbero, Alberto Menozzi, Pauline Chotard, Franck Barath, Francesca De Rossi, Fabio Matteocci, Frederic Sauvage, Aldo Di Carlo, Francesca Brunetti, <u>Claudia Barolo</u> ( <i>Univ Torino, NIS Interdept, Dept Chem, I-10125 Turin, Italy, Univ Torino, INSTM Reference Ctr, I-10125 Turin, Italy</i> )<br>Sustainable Thermosetting Polyurethane Resins as interlayers and primary Encapsulants in emerging photovoltaics |
| 15:45 - 16:00<br>Room-O1                                                                   | <u>Gregor Trimmel</u> ( <i>Institute for Chemistry and Technology of Materials (ICTM), NAWI Graz, Graz University of Technology, Stremayrgasse 9, 8010 Graz, Austria</i> ), Robert Saf, Elena Zuccala, Karin Bartl, Thomas Rath<br>Investigations of Impurities and Degradation Products in Organic Solar Cells                                                                                                                                                                                                                                       |
| 16:00 - 16:15<br>Room-O2                                                                   | <u>Julia Hönigsberger</u> ( <i>Institute for Chemistry and Technology of Materials (ICTM), NAWI Graz, Graz University of Technology, Stremayrgasse 9, 8010 Graz, Austria</i> ), Barbara Muhry, Bettina Schlemmer, Thomas Rath, Gregor Trimmel<br>Side Chain Engineering of a Non-Fused Ring Electron Acceptor for Improved Thermal and Photo-Stability                                                                                                                                                                                                |
| 16:15 - 16:30<br>Room-O3                                                                   | <u>Eunchi Kim</u> ( <i>Forschungszentrum Jülich, IEK-5 Photovoltaik, Jülich, North Rhine-Westphalia, Germany</i> ), Thomas Kirchartz<br>Limits to the Superposition Principle and Importance of Photoshunt in Organic Solar Cells                                                                                                                                                                                                                                                                                                                     |
| 16:30 - 16:45<br>Room-O4                                                                   | <u>Abdel-aziz wayzani</u> ( <i>Laboratoire de Chimie Moléculaire et Thio-organique, ENSICAEN, Université Caen-Normandie, UMR CNRS 6507 &amp; FR 3038, 6 boulevard Maréchal Juin, 14050 Caen, France.</i> ), Loïc Le Pluart, Cyprien Lemouchi, Ganesh Sharma, Pierre Harvey<br>LOW BANDGAP METALLOOLIGOMER FOR ORGANIC SOLAR CELLS                                                                                                                                                                                                                     |
| 16:45 - 17:00<br>Room-O5                                                                   | <u>Han Xu</u> ( <i>KAUST: King Abdullah University of Science and Technology</i> ), Jianhua Han, Derya Baran<br>Understanding the Structure-Stability Relationship of Photovoltaic Materials for Outdoor Stable Organic Solar Cells                                                                                                                                                                                                                                                                                                                   |
| 17:00 - 17:15<br>Room-O6                                                                   | <u>Sreelakshmi Chandrabose</u> ( <i>CEA-Paris Saclay</i> ), Ana M Valencia, Nisreen Alshehri, Frederic Laquai, Caterina Cocchi, Dieter Neher<br>Mitigating Triplet Loss in 2D-WSe <sub>2</sub> /Non-fullerene Heterostructures Using Halogenated Acceptors                                                                                                                                                                                                                                                                                            |
| <b>Special Session: Energy Policy and Diplomacy - Noble Room</b><br>Chair: Bruno Ehrler    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 17:15 - 17:30<br>Room-I1                                                                   | <u>Jovana Milic</u> ( <i>University of Fribourg, Adolphe Merkle Institute</i> )<br>Special Session: Energy Policy and Diplomacy participation                                                                                                                                                                                                                                                                                                                                                                                                         |
| 17:30 - 17:45<br>Room-I2                                                                   | <u>Jao van de Lagemaat</u> ( <i>National Renewable Energy Laboratory, NREL, Golden, CO, USA.</i> ), Billy J. Stanbery, Michael Woodhouse<br>Sustainable Manufacturing Pathways to Terawatt-scale Photovoltaic Deployment: The Role of New Technologies and Circular Economy                                                                                                                                                                                                                                                                           |
| 17:45 - 18:00<br>Room-I3                                                                   | <u>Marc Rechter</u> ( <i>H.M. Rechter</i> )<br>Current State of Affairs EU PV Manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 18:00 - 18:15                                                                              | Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 20:30 - 22:00                                                                              | <b>Social Dinner</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

**May 15th - Day 4 (Wednesday) 4**

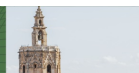
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| 08:50 - 09:00 | <b>Announcement of the day - Noble Room</b>                                                                                                                                                                                                                        |
|               | <b>Session 3A - Hybrid photovoltaics (HPV) - Noble Room</b><br>Chair: Amita Ummadisingu                                                                                                                                                                            |
| 09:00 - 09:10 | <u>Amita Ummadisingu</u> ( <i>University College London</i> )                                                                                                                                                                                                      |
| Room-T1       | Hybrid photovoltaics (HPV) Chair opening - Amita Ummadisingu                                                                                                                                                                                                       |
| 09:10 - 09:40 | <u>Ursula Roethlisberger</u> ( <i>Ecole Polytechnique Fédérale de Lausanne (EPFL)</i> )                                                                                                                                                                            |
| Room-K1       | Computational Insights into the Multifaceted Role of Additives in Perovskite Solar Cells                                                                                                                                                                           |
| 09:40 - 09:45 | <u>Technology Co. Ltd. Enlitech</u> ( <i>Enli Technology Co. Ltd.</i> )                                                                                                                                                                                            |
| Room-S1       | Enlitech - Industry talk                                                                                                                                                                                                                                           |
| 09:45 - 10:15 | <u>Christoph Brabec</u> ( <i>Institute of Materials for Electronics and Energy Technology (i-MEET), Department of Materials Science and Engineering, FAU, Martensstrasse 7, 91058 Erlangen, Germany</i> )                                                          |
| Room-I2       | Discovering molecules and processed with optimized performance for emerging PV Technologies                                                                                                                                                                        |
| 10:15 - 10:45 | <u>Hemamala Karunadasa</u> ( <i>Stanford University</i> )                                                                                                                                                                                                          |
| Room-I1       | Abstract of Hemamala Karunadasa                                                                                                                                                                                                                                    |
| 10:45 - 11:30 | <b>Coffee Break</b>                                                                                                                                                                                                                                                |
|               | <b>Session 3B1 - Device physics and engineering - Noble Room</b><br>Chair: Jarla Thiesbrummel                                                                                                                                                                      |
| 11:30 - 11:40 | <u>Jarla Thiesbrummel</u> ( <i>AMOLF</i> )                                                                                                                                                                                                                         |
| Room-T1       | Device physics and engineering Chair introduction - Jarla Thiesbrummel                                                                                                                                                                                             |
| 11:40 - 12:10 | <u>Maria A. Loi</u> ( <i>Zernike Institute for Advanced Materials, University of Groningen, Netherlands</i> )                                                                                                                                                      |
| Room-I1       | In-situ SnSe deposition as passivation for scalable and stable quasi-2D lead-tin perovskite solar cells                                                                                                                                                            |
| 12:10 - 12:25 | <u>Ute Cappel</u> ( <i>Condensed Matter Physics of Energy Materials, Division of X-ray Photon Science, Department of Physics and Astronomy, Uppsala University</i> )                                                                                               |
| Room-IS1      | Insight into the physics of perovskite solar cells from photoelectron spectroscopy                                                                                                                                                                                 |
| 12:25 - 12:40 | Frédéric Laquai, <u>Christopher Petoukhoff</u> ( <i>King Abdullah University of Science and Technology (KAUST), KAUST Solar Center, Thuwal 23955-6900, Saudi Arabia</i> )                                                                                          |
| Room-IS2      | Interfacial Charge Carrier Recombination Processes in Metal Halide Perovskite Solar Cells                                                                                                                                                                          |
| 12:40 - 12:55 | <u>Michael Saliba</u> ( <i>Institute for Photovoltaics (ipv), University of Stuttgart</i> )                                                                                                                                                                        |
| Room-IS3      | Shedding Light on Wide Bandgap Perovskites                                                                                                                                                                                                                         |
| 12:55 - 13:10 | <u>Thomas Kirchartz</u> ( <i>IEK5-Photovoltaik, Forschungszentrum Jülich GmbH, 52425 Jülich, Germany</i> )                                                                                                                                                         |
| Room-IS4      | Consequences of power-law photoluminescence decays in halide perovskite films                                                                                                                                                                                      |
|               | <b>Session 3B2 - Emerging concepts - Room I</b><br>Chair: Bhumika Chaudhary                                                                                                                                                                                        |
| 11:30 - 11:40 | <u>Bhumika Chaudhary</u> ( <i>University of Stuttgart</i> )                                                                                                                                                                                                        |
| I-T1          | Emerging concepts Chair introduction - Bhumika Chaudhary                                                                                                                                                                                                           |
| 11:40 - 12:10 | <u>Hui-Seon Kim</u> ( <i>Inha University</i> )                                                                                                                                                                                                                     |
| I-I1          | Engineered lattice strain for perovskite solar cells                                                                                                                                                                                                               |
| 12:10 - 12:25 | <u>Lethy Krishnan Jagadamma</u> ( <i>Energy Harvesting Research Group, SUPA, School of Physics and Astronomy, University of St Andrews</i> ), Shaoyang Wang, Sam Miller, Tim Kodalle, Carolin Sutter-Fella                                                         |
| I-IS1         | Halide Perovskites Based Indoor Photovoltaics: Role of Interfacial Layers                                                                                                                                                                                          |
| 12:25 - 12:40 | <u>Diego Solis-Ibarra</u> ( <i>Instituto de Investigaciones en Materiales, UNAM, Mexico City, Mexico</i> )                                                                                                                                                         |
| I-IS2         | Introducing Non-Innocent Organic Molecules into Hybrid Perovskites for Enhanced Functionality                                                                                                                                                                      |
| 12:40 - 12:55 | <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> )                                                                                             |
| I-IS3         | Controlling Doping and Defect Activity Towards Photostable Tin-Halide Perovskites                                                                                                                                                                                  |
| 12:55 - 13:10 | <u>Renaud DEMADRILLE</u> ( <i>Grenoble Alpes University, CNRS, CEA, INP, IRIG/SYMMES, F38000 Grenoble, France</i> ), Samuel FAUVEL, Johan LIOTIER, José-Maria ANDRES CASTAN, Antonio J. RIQUELME, Valid M. MWALUKUKU, Stéphanie NARBÉY, Pascale MALDIVI, Juan ANTA |
| I-IS4         | Push-pull photochromic dyes for use in semitransparent solar cells with dynamic optical properties.                                                                                                                                                                |
|               | <b>Session 3B3 - Hybrid Session: Hybrid Photovoltaics - Room III</b><br>Chair: Imme Schuringa                                                                                                                                                                      |
| 11:30 - 11:40 | <u>Imme Schuringa</u> ( <i>Center for Nanophotonics, AMOLF, The Netherlands</i> )                                                                                                                                                                                  |
| III-T1        | Hybrid Session: Hybrid Photovoltaics Chair introduction - Imme Schuringa & Ghewa AlSabeih                                                                                                                                                                          |
| 11:40 - 12:10 | <u>Anita Ho-Baillie</u> ( <i>School of Photovoltaic and Renewable Energy Engineering, The University of Sydney</i> )                                                                                                                                               |
| III-I1        | Perovskite tandem solar cells and the role of diffusions.                                                                                                                                                                                                          |
| 12:10 - 12:25 | <u>APOORVA SINGH</u> ( <i>Department of Materials Engineering, Indian Institute of Science, Bengaluru, 560012, Karnataka, India</i> ), Praveen C Ramamurthy                                                                                                        |
| III-O1        | Modifications in Perovskite Solar Cells to Explore Performance Enhancement, Stability and Anomalous Effects                                                                                                                                                        |
| 12:25 - 12:40 | <u>Aleš Vlk</u> ( <i>Institute of Physics of the Czech Academy of Sciences, Cukrovarnická 10, 16200 Prague, Czech Republic.</i> ), Robert Hlaváč, Lucie Landová, Julius Vida, Tomáš Homola, Antonín Fejfar, Martin Ledinský                                        |
| III-O2        | Passivation of Bulk Defects in Halide Perovskites thin Films by Plasma Treatment                                                                                                                                                                                   |
| 12:40 - 12:55 | <u>Romain Lavoipierre</u> ( <i>LEPMI/GUIDE, Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP</i> ), Emilie Planès, Lionel Flandin, Lara Perrin                                                                                                    |
| III-O3        | Electrodeposition of perovskite for photovoltaic application: consequences of AVAI additive on electrodeposited MAPbI3                                                                                                                                             |
| 12:55 - 13:10 | <u>Jeffrey Christians</u> ( <i>Department of Engineering, Hope College, Holland, MI, USA</i> ), Josephine Surel, Elizabeth Cutlip, James Mandeville                                                                                                                |
| III-O4        | Photovoltaic Windows and Chromogenic Perovskites                                                                                                                                                                                                                   |
|               | <b>Session 3B4 - HOPV Industry Talks - Premsa Room</b><br>Chair: Andrés Eloy Redondo Soto                                                                                                                                                                          |



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| 11:30 - 11:40<br>Room-T1                                                                      | <u>Andrés Redondo</u> ( <i>University of Porto, LEPABE - Laboratory for Process Engineering, Environment, Biotechnology and Energy, Portugal</i> )<br>HOPV Industry Talks Chair introduction - Andrés Redondo                                                                                                                                                                                                                              |
| 11:40 - 11:55<br>Room-O3                                                                      | <u>Andrés Soto</u> ( <i>University of Porto, LEPABE - Laboratory for Process Engineering, Environment, Biotechnology and Energy, Portugal</i> )<br>HOPV Industry Talks - Chair introduction - Andrés Soto                                                                                                                                                                                                                                  |
| 11:55 - 12:10<br>Room-O4                                                                      | <u>Alessandro Mezzetti</u> ( <i>European Commission, Joint Research Centre (JRC)</i> ), Valentina Larini, Laura Ciammaruchi, Ewan Dunlop, Giulia Grancini, Giacomo Ceccone<br>Acetone as an inexpensive, green solvent for perovskite solar cell recycling                                                                                                                                                                                 |
| 12:10 - 12:25<br>Room-O5                                                                      | <u>Elias Peraticos</u> ( <i>FOSS Research Centre for Sustainable Energy, Department of Electrical and Computer Engineering, University of Cyprus, 75 Kallipoleos Str., Nicosia, 1678, Cyprus</i> ), Vasiliki Paraskeva, Matthew Norton, Aranzazu Aguirre, Anurag Krishna, Tom Aernouts, Maria Hadjipanayi<br>Evolution of Hysteresis Index Based on 2-year Outdoor Testing                                                                 |
| 12:25 - 12:40<br>Room-O1                                                                      | <u>Oliver Salomon</u> ( <i>Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (ZSW) Stuttgart, Germany</i> ), Roland Würz, Tina Wahl, Jonas Hanisch<br>Towards a roll-to-roll production of perovskite solar cells with slot die coating using green solvents.                                                                                                                                                         |
| 12:40 - 12:55<br>Room-O2                                                                      | <u>Estelle Cariou</u> ( <i>IPVF, Institut Photovoltaïque d'Ile-de-France, 18 Boulevard Thomas Gobert, 91120 Palaiseau, France</i> ), Marion Provost, Thomas Guillemot, Javid Hajhemati, Philip Schulz, Jean Rousset<br>Large-Scale Solution Process of Self-Assembled Monolayers as Passivation Layer for Inverted Perovskite Solar Cells                                                                                                  |
| 12:55 - 13:10                                                                                 | Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 13:10 - 15:20                                                                                 | <b>Lunch Break</b>                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 15:20 - 15:30                                                                                 | <b>Paralel sessions - Chair opening (Room I, III, PREMSA, NOBLE)</b>                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Session 3C1 - Device physics and engineering - Noble Room</b><br>Chair: Jarla Thiesbrummel |                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 15:30 - 16:00<br>Room-IS1                                                                     | <u>Juan-Pablo Correa-Baena</u> ( <i>School of Materials Science and Engineering Georgia Institute of Technology Atlanta, GA 30332, USA</i> )<br>Structural Phase Transformations in Halide Perovskites                                                                                                                                                                                                                                     |
| 16:00 - 16:15<br>Room-O1                                                                      | <u>Sergio Galve-Lahoz</u> ( <i>Institute of Advanced Materials (INAM), Universitat Jaume I, Av. De Vicent Sos Baynat, s/n 12071 Castellò, Spain</i> ), Jesus Sanchez-Diaz, Juan Luis Delgado, Iván Mora-Seró, Jorge Marco<br>Enhancing Tin Perovskite Solar Cells Performance through Innovative Fullerene Derivatives for Minimized Interfacial Voc Losses                                                                                |
| 16:15 - 16:30<br>Room-O2                                                                      | <u>Kousumi Mukherjee</u> ( <i>Department of Applied Physics, Eindhoven University of Technology, partner in Solliance, P.O. Box 513, 5600 MB Eindhoven, The Netherlands</i> ), Denise Kreugel, Nga Phung, Cristian van Helvoirt, Valerio Zardetto, Mariadriana Creatore<br>On the VOC Loss in NiO-based Inverted Metal Halide Perovskite Solar Cells                                                                                       |
| 16:30 - 16:45<br>Room-O3                                                                      | <u>Chris Dreesen</u> ( <i>IEK-5 Photovoltaik, Forschungszentrum Jülich GmbH, Germany</i> ), Yuan Ye, Genghua Yan, Toby Rudolph, Markus Hülsbeck, Benjamin Klingebiel, Jiajiu Ye, Uwe Rau, Thomas Kirchartz<br>How Shallow Traps Lead to Long and Variable Charge Carrier Decay Times in Lead Halide Perovskites                                                                                                                            |
| 16:45 - 17:00<br>Room-O4                                                                      | <u>Sarah Gillespie</u> ( <i>AMOLF Institute, Science Park 104, Amsterdam, 1098XG The Netherlands</i> ), Jerome Gautier, Julia van der Burgt, John Anker, Bart Geerligs, Gianluca Coletti, Erik Garnett<br>Silicon-Inspired Analysis of Interfacial Recombination in Perovskite Photovoltaics                                                                                                                                               |
| 17:00 - 17:15<br>Room-O5                                                                      | <u>Sander Heester</u> ( <i>Zernike Institute for Advanced Materials, University of Groningen, The Netherlands</i> ), Federico Ventosinos, Lidón Gil-Escrig, Henk Bolink, Jan Anton Koster<br>Explaining the drop in open-circuit voltage of co-evaporated FACsPbIBrCl perovskites with increased chloride content using drift-diffusion simulations                                                                                        |
| <b>Session 3C2 - Emerging concepts - Room I</b><br>Chair: Bhumika Chaudhary                   |                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 15:30 - 15:45<br>I-IS1                                                                        | <u>Konstantinos Rogdakis</u> ( <i>DDepartment of Electrical Computer Engineering, Hellenic Mediterranean University (HMU), Heraklion 71410, Crete, Greece</i> ), Michalis Loizos, Weifan Luo, Patricia A Gaina, Jovana V. Milić, Emmanuel Kymakis<br>Memristive perovskite solar cells for self-powered IoT edge computing                                                                                                                 |
| 15:45 - 16:00<br>I-O6                                                                         | <u>Antonio J. Riquelme</u> ( <i>Univ. Grenoble Alpes, CEA, CNRS, IRIG-SYMMES, 17 rue des Martyrs, 38000 Grenoble, France</i> ), Valid M. Mwalukuku, Samuel Fauvel, Johan Liotier, Yann Kervella, Quentin Huault, Alix Hureux, José-María Andrés-Castán, Stéphanie Narbey, Juan A. Anta, Renaud Demadrille<br>Insights from Optoelectronic Small Perturbation Techniques on Photovoltaic Process in Photochromic Dye-Sensitized Solar Cells |
| 16:00 - 16:15<br>I-O1                                                                         | <u>Ya-Ru Wang</u> ( <i>Max Planck Institute for Solid State Research, Stuttgart, Germany.</i> ), Marko Mladenović, Rothlisberger Ursula, Milić Jovana V., Moia Davide, Grätzel Michael, Maier Joachim<br>Photo De-Mixing in Mixed Bromide-Iodide Perovskites: Dimensionality and Encapsulation Effects on Ionic & Electronic Transport Properties                                                                                          |
| 16:15 - 16:30<br>I-O2                                                                         | Hye-Ji Bae, <u>Tae-Youl Yang</u> ( <i>Chungnam National University</i> )<br>Interlayer Distance Dictates Ion Transport and Degradation in 2D Perovskites for Optoelectronic Applications                                                                                                                                                                                                                                                   |
| 16:30 - 16:45<br>I-O3                                                                         | <u>Milos Dubajic</u> ( <i>Department of Chemical Engineering and Biotechnology, University of Cambridge, Cambridge CB3 0AS, U.K.</i> ), Sam Stranks, Aron Walsh, James Neilson<br>A-site cation dictates local octahedral tilting and ferroelasticity in lead halide perovskites                                                                                                                                                           |
| 16:45 - 17:00<br>I-O4                                                                         | <u>Esther Yi-Hang Hung</u> ( <i>Department of Physics, University of Oxford, UK</i> ), Harry Sansom, Henry Snaith<br>A novel, lead-free halide perovskite derivative for ferro- and piezo-electric applications                                                                                                                                                                                                                            |
| 17:00 - 17:15<br>I-O5                                                                         | <u>Agustin O. Alvarez</u> ( <i>Center for Nanophotonics, AMOLF, Science Park 104, 1098 XG Amsterdam, The Netherlands</i> ), Jeroen de Boer, Bruno Ehrler<br>Insights into the Operational Mechanisms of Halide Perovskite Memristors                                                                                                                                                                                                       |
| <b>Session 3C3 - Hybrid Session: Hybrid Photovoltaics - Room III</b><br>Chair: Davide Moia    |                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 15:30 - 15:45<br>III-IS1                                                                      | <u>Carolyn Sutter-Fella</u> ( <i>Molecular Foundry, Lawrence Berkeley National Laboratory, 1 Cyclotron Road, Berkeley, 94720 California, USA</i> )<br>2D passivation of 3D halide perovskite films: What is moving at the 2D/3D interface ?                                                                                                                                                                                                |
| 15:45 - 16:00<br>III-IS2                                                                      | <u>david cahen</u> ( <i>Dept. of Molecular Chemistry and Materials Science, Weizmann Institute of Science, Rehovot, 7610015, Israel</i> ), antoine kahn<br>Surface and Interface Defects can Control Bulk Doping in Polycrystalline Pb-Halide Perovskites                                                                                                                                                                                  |

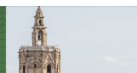


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| 16:00 - 16:15<br>III-O1        | <u>Abhishek Raj</u> ( <i>CSIR-National Environmental Engineering Research Institute (NEERI), Nagpur-440020, India</i> ), Manish Kumar, Avneesh Anshul<br>Strategically grown Cs <sub>2</sub> AgBiBr <sub>6</sub> double perovskite material for lead-free all inorganic perovskite solar cells                                                                                    |
| 16:15 - 16:30<br>III-O2        | <u>Kezia Sasitharan</u> ( <i>Newcastle University, Newcastle upon Tyne, NE1 7RU, United Kingdom.</i> ), Marina Freitag<br>Metal-Organic Nanosheets for Synchronous Harvest and Storage of Solar Energy                                                                                                                                                                            |
| 16:30 - 16:45<br>III-O3        | <u>Povilas Luizys</u> ( <i>Department of Organic Chemistry, Kaunas University of Technology, Kaunas, Lithuania</i> ), Jianxing Xia, Maryte Daskeviciene, Vyngintas Jankauskas, Kasparas Rakstys, Vytautas Getautis, Mohammad Khaja Nazeeruddin<br>Flexible Hole-Transporting Materials With N-Carbazolyl-Based Chromophores Linked Via Aliphatic Chain For Perovskite Solar Cells |
| 16:45 - 17:00<br>III-O4        | <u>Philippe Holzhey</u> ( <i>Adolphe Merkle Institute, University of Fribourg, 1700 Fribourg, Switzerland</i> ), Michael Prettl, Silvia Collavini, Nathan Chang, Michael Saliba<br>Towards commercialisation with lightweight, flexible perovskite solar cells for residential photovoltaics                                                                                      |
| 17:00 - 17:15                  |                                                                                                                                                                                                                                                                                                                                                                                   |
| 15:30 - 17:15                  | <b>Session 3C4 - Networking space: innovative perspectives for HOPV - Premsa Room</b>                                                                                                                                                                                                                                                                                             |
|                                | <b>Special Session: Raising the New Generation of HOPV Scientists</b><br>Chair: Ghewa AlSabeh                                                                                                                                                                                                                                                                                     |
| 17:15 - 17:30<br>Scientists-I1 | <u>Marc Rechter</u> ( <i>H.M. Rechter</i> )<br>Special Session: Raising the New Generation of HOPV Scientists participation                                                                                                                                                                                                                                                       |
| 17:30 - 17:45<br>Scientists-I2 | <u>Juliane Borchert</u> ( <i>University of Freiburg</i> )<br>Special Session: Raising the New Generation of HOPV Scientists participation                                                                                                                                                                                                                                         |
| 17:45 - 18:00<br>Scientists-I3 | <u>Thuc-Quyen Nguyen</u> ( <i>University of California Santa Barbara</i> )<br>Special Session: Raising the New Generation of HOPV Scientists participation                                                                                                                                                                                                                        |
| 18:00 - 18:15<br>Scientists-I4 | <u>Marina Freitag</u> ( <i>School of Natural and Environmental Sciences, Newcastle University, UK</i> )<br>Special Session: Raising the New Generation of HOPV Scientists participation                                                                                                                                                                                           |
| 18:15 - 18:30                  | <b>Closing and Awards ceremony</b>                                                                                                                                                                                                                                                                                                                                                |



## Poster Contribution

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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| 018 | <u>Daphne M. Dekker</u> ( <i>Light Management in New Photovoltaic Materials (LMPV), AMOLF, Amsterdam, The Netherlands</i> ), Moritz C. Schmidt, Agustin O. Alvarez, Bruno Ehrler<br>Comparison of PEDOT:PSS and 2PACz as Hole Transport Layers for Lead-Tin Perovskite Solar Cells                                                                                                                                                                                                                                                                                                       |
| 029 | <u>Fatou Diaw-Ndiaye</u> ( <i>Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP, LEPMI, 38000 Grenoble, France</i> ), Emilie Planes, María Bernechea, Lara Perrin, Lionel Flandin<br>Development of solar cells combining perovskite and quantum dots                                                                                                                                                                                                                                                                                                                    |
| 030 | Eleftherios Christopoulos, <u>Nagia S. Tayara</u> ( <i>Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, 11635 Athens, Greece</i> ), Polycarpus Falaras, Nektarios Nasikas, Andreas Kaltzoglou<br>A Feasibility Study of Perovskite Solar Cells under Peltier Cooling                                                                                                                                                                                                                                                                                 |
| 031 | <u>Jeroen de Boer</u> ( <i>AMOLF, Amsterdam, Netherlands</i> ), Bruno Ehrler<br>Lead halide perovskites for low-energy consumption neuromorphic applications                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 097 | <u>Stefania Riva</u> ( <i>Condensed Matter Physics of Energy Materials, Division of X-ray Photon Science, Department of Physics and Astronomy, Uppsala University</i> ), Soham Mukherjee, Corrado Comparotto, Sergei M. Butorin, Mahmoud Abdel-Hafiez, Jonathan Scragg, Håkan Rensmo, Garima Aggarwal, Abdel Rahman Allan, Evelyn Johannesson, Fredrik O.L. Johansson, Gabriel J. Man, Dibya Phuyal, Konstantin A. Simonov, Justus Just, Konstantin Klementiev<br>Exploring growth mechanism, material chemistry, and electronic structure of chalcogenide perovskite BaZrS <sub>3</sub> |
| 172 | <u>Karen Radetzky</u> ( <i>Department of Physics and Astronomy, Uppsala University, Uppsala, Sweden</i> ), Alberto Garcia Fernandez, Birgit Kammlander, Evelyn Johannesson, Rahul Varma, Håkan Rensmo, Ute Cappel<br>In situ study of a single crystal model system for inverted perovskite solar cells                                                                                                                                                                                                                                                                                  |
| 178 | <u>Zhongjin Shen</u> ( <i>School of Natural and Environmental Sciences, Newcastle University, United Kingdom NE1 7RU</i> )<br>Molecular Engineering of Low-Cost, Efficient and Stable Photosensitizers for Dye-Sensitized Solar Cells                                                                                                                                                                                                                                                                                                                                                    |
| 179 | <u>Gabriela Lewinska</u> ( <i>AGH University of Krakow, Institute of Electronics, 30 Mickiewicza Ave, 30-059 Krakow, Poland</i> ), Katarzyna Ungeheuer, Jerzy Sanetra, Konstanty Marszalek<br>Cuprous oxide thin films as a supporting layer in binary and ternary organic cells                                                                                                                                                                                                                                                                                                         |
| 180 | Hryhorii P. Parkhomenko, <u>Askhat N. Jumabekov</u> ( <i>Department of Physics, School of Sciences and Humanities, Nazarbayev University, Astana 010000, Republic of Kazakhstan</i> )<br>Back-contact perovskite light-emitting diodes                                                                                                                                                                                                                                                                                                                                                   |
| 181 | <u>Elias Stathatos</u> ( <i>Nanotechnology &amp; Advanced Materials Laboratory, Department of Electrical and Computer Engineering, University of the Peloponnese, GR26334 Patras, Greece</i> ), Dimitris Chalkias, Archontoula Nikolakopoulou, Argyroula Mourtzikou<br>Optical amendment of blue semi-transparent photovoltaic glass panes using a Eu <sup>3+</sup> -based down-conversion phosphor for enhanced UV-light protection and power conversion efficiency                                                                                                                     |
| 182 | <u>Yan Wang</u> ( <i>Department of Chemistry, City University of Hong Kong, Hong Kong SAR, P. R. China</i> ), Zonglong Zhu<br>Efficient and Stable Perovskite/Organic Tandem Solar Cells through an All-Polymer Mixture                                                                                                                                                                                                                                                                                                                                                                  |
| 183 | <u>Hryhorii Parkhomenko</u> ( <i>Department of Physics, School of Sciences and Humanities, Nazarbayev University, Astana 010000, Republic of Kazakhstan</i> ), Mykhailo Solovan, Sanjay Sahare, Andrii Mostovyi, Damir Aidarkhanov, Nora Schopp, Taras Kovaliuk, Marat Kaikanov, Annie Ng, Viktor Brus<br>Impact of a Short-Pulse High-Intense Proton Irradiation on High-Performance Perovskite Solar Cells                                                                                                                                                                             |
| 185 | <u>Andrii Mostovyi</u> ( <i>Department of Physics, School of Sciences and Humanities, Nazarbayev University, Astana 010000, Republic of Kazakhstan</i> ), Hryhorii Parkhomenko, Nora Schopp, Mykhailo Solovan, Viktor Brus<br>Organic Solar Cells with Highly Transparent Ternary Bulk-Heterojunctions                                                                                                                                                                                                                                                                                   |
| 186 | <u>Fiona McPartlan</u> ( <i>AMOLF, Amsterdam, Netherlands</i> ), Daphne Dekker, Bruno Ehrler<br>A study of the role of interfaces in degradation of lead-tin perovskite solar cells                                                                                                                                                                                                                                                                                                                                                                                                      |
| 187 | <u>Robert Hlavac</u> ( <i>Institute of Physics of the Czech Academy of Sciences, Cukrovarnická 10, 16200 Prague, Czech Republic.</i> ), Ales Vlk, Zdenek Remes, Lucie Landova, Katarina Pekarkova, Antonin Fejfar, Martin Ledinsky<br>Localization of defects in halide perovskites using photothermal deflection spectroscopy                                                                                                                                                                                                                                                           |
| 188 | <u>Mykhailo Khytko</u> ( <i>Institute of Physics of the Czech Academy of Sciences, Cukrovarnická 10, 16200 Prague, Czech Republic.</i> ), Swarnendu Banerjee, Matěj Hývl, Antonín Fejfar, Martin Ledinský<br>AFM Studies of Perovskite Degradation: A Critical Assessment of Stability and Crystallographic Orientation                                                                                                                                                                                                                                                                  |
| 190 | Ji-youn Seo, Sun-ju Kim, <u>Jong-Min Kim</u> ( <i>Laboratory of Nano Energy Harvesting Materials and Devices, Department of Nano Engineering, Pusan National University, Pusan, Korea</i> )<br>Controlled Growth of Hybrid Halide Perovskites by Crown Ether Complexation for Perovskite Solar Cells                                                                                                                                                                                                                                                                                     |
| 191 | <u>Maryam Choghaei</u> ( <i>University of Cologne</i> ), Viren Tyagi, Shuxia Tao, Selina Olthof<br>Systematic investigation of alkylammonium-based 2D Ruddlesden-Popper perovskites: the impact of varying chain length                                                                                                                                                                                                                                                                                                                                                                  |
| 192 | <u>Manuela Ferrara</u> ( <i>Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Portici Research Centre, Portici (NA), Italy</i> ), Maria Federica Caso, Fausta Loffredo, Giuseppe Nasti, Corinna Ponti, Gennaro V. Sannino, Carmen Serpico, Fulvia Villani, Paola Delli Veneri, Lucia V. Mercaldo<br>Co-evaporation and hybrid approaches for fabrication of MAPbI <sub>3</sub> for perovskite solar cells                                                                                                                                |
| 193 | <u>Giovanni Spinelli</u> ( <i>Newcastle University, Newcastle upon Tyne, NE1 7RU, United Kingdom.</i> ), Marina Fraitaq<br>Conductivity in Thin-Films of Transition Metal coordination Complexes                                                                                                                                                                                                                                                                                                                                                                                         |
| 194 | <u>James Martin</u> ( <i>BCMaterials, Basque Center for Materials, Applications and Nanostructures, UPV/EHU Science Park, 48940 Leioa, Spain</i> ), Samrana Kazim, Shahzada Ahmad, Luis Lezama<br>Synthesis and Opto-electrical properties of Transition metal alloyed Lead-free layered perovskite nanocrystals.                                                                                                                                                                                                                                                                        |
| 196 | <u>Thelma Serrano</u> ( <i>Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, Laboratorio de Materiales I, Av. Pedro de Alba s/n, Ciudad Universitaria, C.P. 66455, San Nicolás de los Garza, Nuevo León, México</i> ), Pedro Hernández, Fernanda Retana, Idalia Gómez<br>Influence of Chemical Composition of Fe <sub>x</sub> Zn <sub>1-x</sub> S on The Efficiency of Organic-Inorganic Hybrid Solar Cells                                                                                                                                                             |
| 197 | <u>Bernadette Ortner</u> ( <i>Institute for Chemistry and Technology of Materials, NAWI Graz, TU Graz, 8010 Graz</i> ), Georg Haberehner, Thomas Rath, Gregor Trimmel<br>Strategies to improve the semitransparency of organic solar cells investigated on different donor/acceptor combinations                                                                                                                                                                                                                                                                                         |
| 199 | <u>Moritz Schmidt</u> ( <i>AMOLF Institute, Science Park 104, Amsterdam, 1098XG The Netherlands</i> ), Bruno Ehrler<br>An updated approach to quantify ion migration in perovskite solar cells based on capacitance transients                                                                                                                                                                                                                                                                                                                                                           |



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| 200 | <u>Joaquín Valdez García</u> (Department of Mechanical and Materials Engineering, Faculty of Technology, University of Turku, FI-20500 Turku, Finland), Joice Jacqueline Kaschuk, Yazan Al Haj, Aleksi Kamppinen, Orlando J. Rojas, Tiffany Abitbol, Jaana Vapaavuori, Kati Miettunen<br>Cellulose in Perovskite Solar Cells: from Substrates to Additives                                                                         |
| 203 | José Martínez, Fernanda Retana, Thelma Serrano, <u>Idalia Gómez</u> (Universidad Autónoma de Nuevo León, Facultad de Ciencias Químicas, Laboratorio de Materiales I, Av. Pedro de Alba s/n, Ciudad Universitaria, C.P. 66455, San Nicolás de los Garza, Nuevo León, México)<br>Polythiophene (PTH) and PTH/GO thin films for potential application in solar cells                                                                  |
| 204 | <u>Alexander Ehm</u> (Institut für Physik, Technische Universität Chemnitz, 09126 Chemnitz, Germany), Rukiya Matsidik, Michael Sommer, Dietrich R. T. Zahn<br>Monitoring the Crystallisation Process of NDI-T2 Based Oligomers Using Spectroscopic Ellipsometry                                                                                                                                                                    |
| 205 | <u>Stefan Moscher</u> (Institute for Chemistry and Technology of Materials (ICTM), NAWI Graz, Graz University of Technology, Stremayrgasse 9, 8010 Graz, Austria), Sebastian Mairinger, Lukas Troi, Fernando Warchomicka, Gregor Trimmel, Thomas Rath<br>Lead-free Tin Halide Perovskite Solar Cells - Refinement of Perovskite Film Crystallization                                                                               |
| 209 | <u>Larissa van de Ven</u> (AMOLF Institute, Science Park 104, Amsterdam, 1098XG The Netherlands), Daphne Antony, Maria Antonietta Loi, Bruno Ehrler<br>Tin-lead Perovskites: Perfect Alloy or Nano-scale Tin-Lead Ratio Inhomogeneity                                                                                                                                                                                              |
| 211 | <u>Jaume-Adrià Alberola-Borràs</u> (Institute of Advanced Materials (INAM), Universitat Jaume I, Av. De Vicent Sos Baynat, s/n 12071 Castellò, Spain), Sofia Masi, Rosario Vidal, Iván Mora-Seró<br>Environmental Impacts of semi-Transparent Evaporation of Electrodes for Colourful Perovskite Solar Cells Obtained with Life Cycle Assessment                                                                                   |
| 212 | <u>Thi Kim Cuc Mai</u> (Microelectronics Research Unit, Faculty of Information Technology & Electrical Engineering, P. O. Box 8000, FI-90014, University of Oulu, Finland.), Jaakko Palosaari, Jari Juuti, Janne Halme<br>Optimization of Hole Transport Layer (HTL)-Free Carbon-Based Perovskite Solar Cells Fabricated in Ambient Conditions                                                                                     |
| 213 | <u>Florine Rombach</u> (Department of Physics, University of Oxford, Clarendon Laboratory, Parks Road, Oxford, OX1 3PU, UK), Luca Gregori, Anika Sidler, Jayne Whitworth, Stefan Zeiske, Heon Jin, Esther Hung, Silvia Motti, Pietro Caprioglio, Daniele Meggiolaro, Henry Snaith<br>Impact of Metal Impurities on Recombination in Lead-Tin Perovskites                                                                           |
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