

International Conference on Hybrid and Organic Photovoltaics (HOPV22)

València, Spain, 2022 May 19th - 25th

Conference organizers: Pablo Docampo, Eva Unger and Elizabeth Gibson

Conference Program

May 19th - Day 1 (Thursday) 1	
10:00 - 10:05	nanoGe Introduction
10:05 - 10:15	Opening - Introduction by Organizers
	Keynote Chair: Pablo Docampo
10:15 - 10:45 Keynote-K1	<u>Mingzhen Liu</u> (<i>University of Electronic Science and Technology of China</i>) Highly Efficient and Stable Perovskite Solar Cells by Vapour Deposition
10:45 - 10:55	Discussion
	Session G1 Chair: Pablo Docampo
10:55 - 11:15 G1-I1	<u>Yana Vaynzof</u> (<i>Technical University (TU) Dresden, DE</i>) A Hybrid Approach to Efficient All-Inorganic Perovskite Solar Cells
11:15 - 11:35 G1-I2	<u>Antonio Abate</u> (<i>Helmholtz-Zentrum Berlin</i>) Tin-based perovskite solar cells
11:35 - 11:55 G1-I3	Paulina Plochocka, <u>Michał Baranowski</u> (<i>Wrocław University of Science and Technology</i>) Excitons and Phonons in 2D perovskites
11:55 - 12:10	Discussion
12:10 - 12:40	Break
12:40 - 12:45	Chair Introduction
	Keynote Chair: Elizabeth Gibson
12:45 - 13:15 Keynote-K1	<u>Edward Sargent</u> (<i>Department of Electrical and Computer Engineering, University of Toronto, Canada</i>) Progress in inverted perovskite photovoltaics for stability
13:15 - 13:25	Discussion
13:25 - 13:30	nanoGe Announcement
	Session A1 - DSC Chair: Edward Sargent
13:30 - 13:40 DSC-T1	<u>Ana Lucia Pinto</u> (<i>LAQV-REQUIMTE, Chemistry Department, NOVA School of Science and Technology, Campus de Caparica, 2829-516, Caparica, Portugal.</i>), Patrícia Máximo, João Pina, Giuseppe Calogero, César A. T. Laia, A. Jorge Parola, J. Carlos Lima Amino-based Anthocyanin Dyes: Exploring the Relation Between Structural Rigidification and Back-Electron Transfer
13:40 - 13:50 DSC-T2	<u>Marco Giordano</u> (<i>Dipartimento di Chimica, NIS Interdepartmental and INSTM Reference Centre, Università di Torino, Torino, Italy</i>), G Renno, N. Barbero, S. M. Zakeeruddin, M. Grätzel, C. Barolo, A. Fin, G. Viscardi Effect of Out-of-Plane Alkyl Chains in Dye-Sensitized Solar Cell Efficiency: a Structure-Property Relationship in Novel Perimidine-Based Squaraine Dyes
13:50 - 14:00 DSC-T3	<u>Agustín O. Alvarez</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, 12071, Castelló de la Plana, Spain</i>), Sandheep Ravishankar, Elena Más Marza, Francisco Fabregat-Santiago Improving optoelectronic characterization by combining modulated techniques
14:00 - 14:10 DSC-T4	<u>Paula Hartnagel</u> (<i>Institut für Energie und Klimaforschung (IEK-5), Forschungszentrum Jülich GmbH, D-52425 Jülich, Deutschland</i>), Benjamin Klingebiel, Oliver Thimm, Thomas Kirchartz Comparing Methods of Characterizing Energetic Disorder in Organic Solar Cells
14:10 - 14:40	Discussion
	Session B1 - Manufacturing I Chair: Jinzhao Li
13:30 - 13:40 I-T1	<u>Luigi Vesce</u> (<i>CHOSE (Centre for Hybrid and Organic Solar Energy), Department of Electronic Engineering, University of Rome "Tor Vergata", via del Politecnico 1, 00133 Rome, Italy</i>), Maurizio Stefanelli, Luigi Angelo Castriotta, Bowen Yang, Afshin Hadipour, Stijn Lammar, Jiajia Suo, Tom Aernouts, Anders Hagfeldt, Aldo Di Carlo Interfacial Defects Passivation of High Efficiency Perovskite Solar Modules
13:40 - 13:50 I-T2	<u>Adriano Marques</u> (<i>ONINN</i>), Barbara H. S. Miranda, Luiza de Q. Corrêa, Gabriela de A. Soares, Sílvia L. Fernandes, Izabela S. Bicalho, Fernanda Guimarães, Maria Luiza Vilela, Jair Rodrigues, Rodrigo Vilaça, Diego Bagnis Towards Perovskite Solar Cells Full Production: Main Upscale Challenges
13:50 - 14:00 I-T3	<u>Alexey Tarasov</u> (<i>Laboratory of New Materials for Solar Energetics, Department of Materials Science, Lomonosov Moscow State University (MSU)</i>), Andrei Tutantsev, Ekaterina Marchenko, Natalia Udalova, Sergey Fateev, Eugene Goodilin Structural disorder and stability issues – two heels of Achilles of layered hybrid halide perovskites
14:00 - 14:10 I-T4	<u>Anthony Maho</u> (<i>CESAM-GREENMAT, University of Liège, Allée du Six-Août 13, Sart-Tilman, 4000 Liège, Belgium</i>), Nathan Daem, Michaël Lobet, Pierre Piron, Alexandre Mayer, Pierre Colson, Jérôme Loicq, Catherine Henrist, Rudi Cloots, Jennifer Dewalque Photonic Structuration of Perovskite Solar Cells Towards Enhanced Light Absorption
14:10 - 14:40	Discussion
14:40 - 15:00	Break
15:00 - 16:00	ePoster session

May 20th - Day 2 (Friday) 2	
10:00 - 10:05	nanoGe Introduction
10:05 - 10:15	Opening - Organizers
	Session G2 Chair: Eva Unger
10:15 - 10:35 G2-I1	<u>Qing Shen</u> (<i>The University of Electro-Communications, Japan</i>), Yusheng Li, Hua Li, Chao Ding Optical property, photoexcited carrier dynamics and application to solar cells of perovskite nanocrystals
10:35 - 10:55 G2-I2	<u>Giulia Grancini</u> (<i>Dipartimento di Chimica, Università di Pavia</i>) 2D or not 2D Perovskite Passivation? Strategies behind high Efficient Perovskite Solar Cells.
10:55 - 11:15 G2-I3	<u>Jacinto Sa</u> (<i>Department of Chemistry-Angstrom, Uppsala University</i>) Plasmonics photophysics basics and their photovoltaic application
11:15 - 11:30	Discussion
11:30 - 11:35	nanoGe Announcement
11:35 - 12:00	Break
	Session A2.1 - Light management Chair: Susana Iglesias Porras
12:00 - 12:10 management-T1	<u>Carlos Romero-Pérez</u> (<i>Instituto de Ciencia de Materiales de Sevilla (ICMS), Consejo Superior de Investigaciones Científicas (CSIC), Universidad de Sevilla</i>), Andrea Rubino, Laura Calì, Mauricio Calvo, Hernán Míguez Template-assisted synthesis of optically active CsPbI ₃ quantum dots
12:10 - 12:20 management-T2	<u>Arghanoon Moeini</u> (<i>Universidad de Valencia - ICMol (Institute of Molecular Science)</i>) Optimization of low band-gap perovskite for photovoltaics
12:20 - 12:30 management-T3	<u>Suer Zhou</u> (<i>University of Oxford, Department of Physics, Clarendon Laboratory, UK</i>), Maryte Daskeviciene, Matas Steponaitis, Giedre Bubniene, Vyngintas Jankauskas, Kelly Schutt, Philippe Holzhey, Ashley Marshall, Pietro Caprioglio, Grey Christoforo, James Ball, Tadas Malinauskas, Vytautas Getautis, Henry Snaith Improving n-i-p Perovskite Solar Cells Stability through Transport Layers
12:30 - 12:50	Discussion
	Session B2.1 - Organic semiconductor physics Chair: Joshua Karlsson
12:00 - 12:10 physics-T1	<u>Enas Moustafa</u> (<i>Department of Electronic, Electric and Automatic Engineering, Universitat Rovira i Virgili, 43007 Tarragona, Spain</i>), Josep Pallarès, Lluís Marsal Dependency of the PM6:Y7 Binary Organic Photovoltaics Performance on the role of Solvent Additive and Thermal Treatment
12:10 - 12:20 physics-T2	<u>Yakun He</u> (<i>Institute of Materials for Electronics and Energy Technology (i-MEET), Friedrich-Alexander-Universität Erlangen-Nürnberg, Martensstrasse 7, 91058 Erlangen, Germany</i>), Ning Li, Thomas Heumüller, Jonas Wortmann, Benedict Hanisch, Anna Aubele, Sebastian Lucas, Guitao Feng, Xudong Jiang, Weiwei Li, Peter Bäuerle, Christoph Brabec Ultrastable single-component organic solar cells: the next frontier towards industrial viability
12:20 - 12:30 physics-T3	<u>Junjun Guo</u> (<i>University College London UCL</i>) interfacial triplet formation as a function of morphology in organic solar cell
12:30 - 12:50	Discussion
	Session A2.2 - Manufacturing II: Slot-die coating Chair: Namrata Pant
12:50 - 13:00 coating-T1	<u>Janardan Dagar</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, aYoung Investigator group Hybrid Materials Formation and Scaling, Kekuléstr. 5, Berlin 12489, Germany</i>), Jinzhao Li, Oleksandra Shargaieva, Markus Fenske, Christof Schultz, Florian Mathies, Kari Sveinbjörnsson, Hans Köbler, Sergei Trofimov, Boris Naydenov, Karunanantharajah Prashanthan, Rowan MacQueen, Gopinath Parmasivam, Igal Levine, Ivo Zizak, Rutger Schlatmann, Bert Stegemann, Antonio Abate, Steve Albrecht, Emil List- Kratochvil, Eva Unger Slot-die coated perovskite solar cell with 22% power conversion efficiency and minimodules via grain boundaries passivation
13:00 - 13:10 coating-T2	<u>Alejandra Florez Velasquez</u> (<i>Centro de Investigación y Desarrollo de Materiales (CIDEMAT), Universidad de Antioquia</i>), Daniel Ramirez Zora, Franklin Jaramillo Isaza Improving the reproducibility of hybrid perovskite film deposition by Slot-Die Coating
13:10 - 13:20 coating-T3	<u>Jinzhao Li</u> (<i>HySPRINT Innovation Lab, Department Solution-Processing of Hybrid Materials and Devices, Helmholtz Zentrum Berlin, Berlin, Germany</i>), Eva Unger, Janardan Dagar Efficient inverted perovskite solar cells by slot die coating
13:20 - 13:40	Discussion
	Session B2.2 - Stability and interfaces Chair: Antonio Abate
12:50 - 13:00 interfaces-T1	<u>Mehmet Derya Özeren</u> (<i>Wigner Research Centre for Physics</i>), Bea Botka, Áron Pekker, Katalin Kamarás In-situ Evaluation of Water Interactions with Large Organic Cation Passivated MAPbX ₃ by Using Photoluminescence Spectroscopy
13:00 - 13:10 interfaces-T2	<u>Salvatore Valastro</u> (<i>Institute for Microelectronics and Microsystems (CNR-IMM), Zona Industriale - VIII Strada 5, Catania 95121, Italy</i>), Giovanni Mannino, Emanuele Smecca, Corrado Bongiorno, Salvatore Sanzaro, Ioannis Deretzis, Antonino La Magna, Ajay Jena, Tsutomu Miyasaka, Alessandra Alberti Black-Yellow Bandgap Trade-off during Thermal Stability Tests in Low-Temperature Eu-doped CsPbI ₃
13:10 - 13:20 interfaces-T3	<u>Juliana Morbec</u> (<i>School of Chemical and Physical Sciences, Keele University, UK</i>) Organic molecules meets transition metal dichalcogenides for solar energy conversion
13:20 - 13:40	Discussion
	Keynote Chair: Pablo Docampo
13:40 - 14:10 Keynote-K1	<u>Yiyang Wu</u> (<i>The Ohio State University</i>) From Dye Sensitization to Halide Perovskite Solar Cells: My Personal Struggle with Transitions

May 22nd - Day 4 (Sunday) 4	
17:30 - 19:00	Registration
19:00 - 21:00	Welcome drink
May 23rd - Day 5 (Monday) 5	
07:45 - 08:45	Registration
08:45 - 08:55	nanoGe Introduction and opening
08:55 - 09:00	RSC - Announcement
	Keynote Chair: Pablo Docampo
09:00 - 09:45 Keynote-K1	<u>Samuel Stranks</u> (<i>University of Cambridge</i>) Nanoscale heterogeneity in halide perovskites: the good, the bad and the ugly
	Session G1.1 Chair: Pablo Docampo
09:45 - 10:15 G1.1-I1	<u>Emilio Palomares</u> (<i>ICIQ-BIST. Avda. Països Catalans, 16. Tarragona. E-43007. Spain</i>) Molecular Approaches to Energy Conversion
10:15 - 10:45 G1.1-I2	<u>Piers Barnes</u> (<i>Imperial College London, Physics Department and Center for Processable Electronics</i>), William Fisher, Davide Moia, Phil Calado How much mobile ionic charge makes a difference to perovskite solar cells?
10:45 - 11:15	Coffee Break
	Session G1.2 Chair: Sam Stranks
11:15 - 11:45 G1.2-I1	<u>Filippo De Angelis</u> (<i>Computational Laboratory for Hybrid/Organic Photovoltaics (CLHYO), Istituto CNR di Scienze e Tecnologie Chimiche "Giulio Natta" (CNR-SCITEC), Perugia, 06123 Italy</i>) From Perovskite Photovoltaics to Perovskite Photocatalysis: New challenges for modeling (and some exciting result)
11:45 - 12:15 G1.2-I2	<u>Petra Cameron</u> (<i>Department of Chemistry, University of Bath, Claverton Down, Bath BA2 7AY, UK</i>), Kaya Davies Brencchley, Ulrich Hintermair, Jenny Baker Running Perovskite Solar Cells Underwater - Light Driven Water Oxidation using Caesium Lead Bromide Solar Cells
	LayTec AG - Industrial talk
12:15 - 12:20 talk-O1	<u>Christian Camus</u> (<i>LayTec AG</i>) In-situ monitoring of perovskite formation during spin-coating and evaporation processes
	Session G1.3 Chair: Sam Stranks
12:20 - 12:50 G1.3-I1	<u>Claudia Barolo</u> (<i>Dipartimento di Chimica, NIS Interdepartmental and INSTM Reference Centre, Università degli Studi di Torino, Via Pietro Giuria 7, 10125 Torino, Italy</i>), Nadia Barbero, Matteo Bonomo, Marco Giordano, Ana Yancy Segura Zarate, Simone Galliano, Waad Naim, Fionnuala Grifoni, Raffaele Borrelli, Fabio Matteocci, Pauline Chotard, Sylvain Ceurstemont, Franck Barath, Aldo DI Carlo, Frederic Sauvage Toward non-intrusive BIPV: strategies for NIR-selective DSSCs
12:50 - 13:20 G1.3-I2	<u>Feng Gao</u> (<i>Linköping University</i>) A new doping strategy of Spiro-OMeTAD: towards Instantly Efficient and Stable Perovskite Solar Cells
13:20 - 15:00	Lunch break
	Session A1 - Advanced Characterisation I Chair: Rebecca Milot
15:00 - 15:30 I-HS1	<u>Iván Mora-Seró</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, Castelló de la Plana, Castelló 12006, Spain</i>) New perspectives in outdoors tracking and characterization of perovskite solar cells
15:30 - 15:45 I-O1	<u>Bas van Gorkom</u> (<i>Molecular Materials and Nanosystems, Institute for Complex Molecular Systems, Eindhoven University of Technology, The Netherlands</i>), Tom van der Pol, Kunal Datta, Martijn Wienk, René Janssen Revealing Defective Interfaces in Perovskite Solar Cells from Highly Sensitive Sub-bandgap Photocurrent Spectroscopy Using Optical Cavities
15:45 - 16:00 I-O2	<u>Tomi Baikie</u> (<i>Department of Physics, Cavendish Laboratory, University of Cambridge; Cambridge, UK</i>), Philip Calado, Krzysztof Galkowski, Zahra Andaji-Garmaroudi, Akshay Rao, Sam Stranks, Jenny Nelson, Piers Barnes Understanding Surface Photovoltage Measurements on Metal Halide Perovskite Bilayers
16:00 - 16:15 I-O3	<u>Parth Raval</u> (<i>Univ. Lille, CNRS, Centrale Lille Institut, Univ. Artois, UMR 8181-UCSC-Unité de Catalyse et Chimie du Solide, F-59000 Lille, France</i>), Rhiannon Kennard, Eugenia Vasileiadou, Clayton Dahlman, Margot Dhennin, Tomasz Pawlak, Mohammad Ali Akhavan Kazemi, Olivier Lafon, Laurent Delevoye, Frédéric Sauvage, Ioannis Spanopoulos, Pascal Roussel, Hervé Vezin, Micheal Chabiny, Thuc-Quyen Nguyen, Mercouri Kanatzidis, G N Manjunatha Reddy Understanding morphology, microstructure, and stability of photovoltaic materials using solid-state NMR spectroscopy
16:15 - 16:30 I-O4	<u>Folusho Helen Balogun</u> (<i>Department of Physics, University of Warwick, Coventry CV4 7AL.</i>), Dumitru Sirbu, Nathaniel P. Gallop, Jake D. Hutchinson, Nathan Hill, Jack M. Woolley, Michael Staniforth, Pablo Docampo, Rebecca L. Milot Untangling Free Carrier and Exciton dynamics in Layered Hybrid Perovskites using Time-Resolved Terahertz Spectroscopy
16:30 - 16:45 I-O5	<u>Himanshu Phirke</u> (<i>University of Luxembourg, Scanning Probe Microscopy Laboratory, Department of Physics and Materials Science</i>), Ajay Singh, Jeremy Hieulle, Alex Redinger, Anurag Krishna Inhomogeneities in lead halide perovskite absorbers revealed by quantitative Photoluminescence Imaging
16:45 - 17:00 I-O6	Zubair Ahmad, <u>Ehsan Raza</u> (<i>Qatar University Young Scientists Center (QUYSC), Qatar University, 2713, Doha, Qatar</i>) Electrochemical impedance spectroscopy technique for 2D/3D n-i-p structured perovskite solar cells
	Session B1 - Defects I Chair: Piers Barnes

15:00 - 15:30 I-IS1	<u>Lioz Etgar</u> (<i>The Hebrew University of Jerusalem, The Institute of Chemistry, Casali Center for Applied Chemistry, Jerusalem, Israel</i>) Bifacial Fully printable low dimensional perovskite solar cells
15:30 - 15:45 I-O1	<u>Daniel Jacobs</u> (<i>Photovoltaics and Thin Film Electronics Laboratory, École polytechnique fédérale de Lausanne</i>), Christian Wolff, Xin Yu Chin, Christophe Ballif, Quentin Jeangros Degradation due to Transverse Ion Migration in Perovskite Devices
15:45 - 16:00 I-O2	<u>Francisco Peña-Camargo</u> (<i>Universität Potsdam, Soft Matter Physics, Karl-Liebknecht-Straße 24-25, 14476 Potsdam, Germany</i>), Jarla Thiesbrummel, Hannes Hempel, Artem Musienko, Vincent M. Le Corre, Jonas Diekmann, Jonathan Warby, Thomas Unold, Felix Lang, Dieter Neher, Martin Stollerfoht Revealing the Doping Density in Perovskite Solar Cells and Its Impact on Device Performance
16:00 - 16:15 I-O3	<u>Kyle Frohna</u> (<i>Cavendish Laboratory, University of Cambridge, Cambridge, UK</i>), Miguel Anaya, Stuart Macpherson, Jooyoung Sung, Tiarnan A.S. Doherty, Yu-Hsien Chiang, Andrew J. Winchester, Kieran W.P. Orr, Julia E. Parker, Paul D. Quinn, Keshav M. Dani, Akshay Rao, Samuel D. Stranks Nanoscale Chemical Landscape Dominates Optoelectronic Response in Alloyed Halide Perovskites
16:15 - 16:30 I-O4	<u>Bowen Yang</u> (<i>Department of Chemistry-Angstrom, Uppsala University</i>), Jiajia Suo, Anders Hagfeldt Interfacial Passivation Treatment towards High-efficiency and Operational Stable Perovskite Solar Cells
16:30 - 16:45 I-O5	<u>Ales Vlk</u> (<i>Laboratory of Thin Films, Institute of Physics, ASCR, Cukrovarnická 10, 162 00 Prague, Czech Republic</i>), Nada Mrkyvkova, Vladimir Held, Peter Nadazdy, Riyas Subair, Eva Majkova, Matej Jergel, Martin Ledinsky, Antonin Fejfar, Jianjun Tian, Peter Siffalovic Defect Formation During the Halide Perovskite Growth: Timing is the Way to Effective Passivation
16:45 - 17:00 I-O6	<u>Alan Dunbar</u> (<i>Chemical and Biological Engineering, The University of Sheffield</i>), Kostas Tsevas, Maria Vasilopoulou, Mohammad Nazeeruddin, David Lidzey, Connie Rodenburg The importance of lead iodide stoichiometry when preparing perovskite solar cells
Session C1 - Perovskites Water Chair: Francesca Brunetti	
15:00 - 15:30 Water-IS1	Mohammad Ali Akhavan Kazemi, Nicolas Folastre, Parth Raval, Michel Sliwa, Olivier Lafon, Laurent Delevoye, Arash Jamali, G.N. Manjunatha Reddy, Arnaud Demortiere, <u>Frédéric Sauvage</u> (<i>Laboratoire de Réactivité et Chimie des Solides (LRCS) UMR CNRS 7314 - Université de Picardie Jules Verne 33 rue Saint Leu, FR-80039 Amiens Cedex, France</i>) Live Observations of Non-equilibrium Moisture-induced Phase Segregation in CsMAFA-type Perovskite Revealed by In situ X-ray Diffraction and Operando Liquid-cell Transmission Electron Microscopy
15:30 - 15:45 Water-O1	<u>Manuel Vasquez-Montoya</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie</i>), Eva Unger Stabilization of halide perovskites in water solutions
15:45 - 16:00 Water-O2	<u>Cynthia Farha</u> (<i>Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP, LEPMI, 38000 Grenoble, France</i>), Emilie Planes, Lara Perrin, David Martineau, Lionel Flandin Complementary characterizations of 2d/3d perovskite Solar cells aged under damp heat conditions: Effect of the maturation process
16:00 - 16:15 Water-O3	<u>Andres F. Gualdrón-Reyes</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, 12071 Castelló de la Plana, Spain</i>), Camilo A. Mesa, Sixto Giménez, Iván Mora Seró Defect- and interfacial-engineering strategies to synthesize CsPbX ₃ perovskite nanocrystals for efficient photo(electro)catalysis
16:15 - 16:30 Water-O4	<u>Waldemar Kaiser</u> (<i>Computational Laboratory for Hybrid/ Organic Photovoltaics (CLHYO), Istituto CNR di Scienze e Tecnologia Chimiche "Giulio Natta" (CNR-SCITEC)</i>), Damiano Ricciarelli, Edoardo Mosconi, Asma A Allothman, Francesco Ambrosio, Filippo De Angelis (In-)Stability of Tin Halide Perovskites: Ab Initio Molecular Dynamics Simulations of Perovskite/Water Interfaces
16:30 - 16:45 Water-O5	<u>Juanita Hidalgo</u> (<i>School of Materials Science and Engineering, Georgia Institute of Technology</i>), Juan-Pablo Correa-Baena, Yu An, Susan Schorr, Joachim Breternitz Water and oxygen induce undesired phase transitions in cesium-formamidinium lead halide perovskites
16:45 - 17:00 Water-O6	<u>Osbel Almora</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, Castelló de la Plana, Castelló 12006, Spain</i>), Gebhard J. Matt, Marisé García-Batlle, Germà García-Belmonte Long term Surface and Bulk Currents with Space-Charge Effects in Lead Halide Perovskites
Session D1 - Organic Semiconductor Physics Chair: Emilio Palomares	
15:00 - 15:30 Physics-IS1	<u>Akshay Rao</u> (<i>Cavendish Laboratory University of Cambridge, JJ Thomson Avenue, Cambridge CB3 0HE, UK</i>) Singlet Fission Enhanced Inorganic Photovoltaics
15:30 - 15:45 Physics-O1	<u>Cleber Marchiori</u> (<i>Department of Engineering and Physics, Karlstad University, SE-65188 Karlstad, Sweden</i>), Leandro Franco, Ellen Moons, C. Moyses Araujo Thermodynamics aspects of charge transfer processes in organic photovoltaics materials: Insights from atomic scale modelling
15:45 - 16:00 Physics-O2	<u>Marios Maimaris</u> (<i>Department of Chemistry, Imperial College London, London W12 0BZ, UK</i>), Allan J. Pettipther, Mohammed Azzouzi, Daniel J. Walke, Xijia Zheng, Andrei Gorodetsky, Yifan Dong, Pabitra Shakya Tuladhar, Helder Crespo, Jenny Nelson, John W. G. Tisch, Artem A. Bakulin How Fast Can Bound Exciton Formation Be? Sub-10-fs!
16:00 - 16:15 Physics-O3	<u>Vishal Bechaj</u> (<i>High Field Magnet Laboratory, HFML-EMFL, Radboud University, The Netherlands</i>), Koen van den Hoven, Peter Christianen, Hans Engelkamp Direct Observation of Exchange-Coupled Triplet-Pair Emission in TIPS-Tetracene Crystals
16:15 - 16:30 Physics-O4	<u>Paula Hartnagel</u> (<i>Institut für Energie und Klimaforschung (IEK-5), Forschungszentrum Jülich GmbH, D-52425 Jülich, Deutschland</i>), Benjamin Klingebiel, Oliver Thimm, Thomas Kirchartz Comparing Methods of Characterizing Energetic Disorder in Organic Solar Cells
16:30 - 16:45 Physics-O5	<u>Dmitry Maslennikov</u> (<i>Imperial College London, Chemistry Department, UK</i>), Marios Maimaris, Navendu Mondal, Haoqing Ning, Shawn Zheng, Yifan Dong, Vitaly Podzorov, Vladimir Bruevich, Artem Bakulin Singlet fission dynamics in high quality rubrene single crystals
16:45 - 17:00 Physics-O6	<u>David Francisco Macías Pinilla</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, Av. Sos Baynat s/n, 12071 Castelló, Spain</i>), Josep Planelles, Iván Mora Seró, Juan I. Clemente Excitons, Trions and Biexcitons in Colloidal Nanoplatelets: The Influence of the Dielectric Environment
Session E1 - Structure Chair: Sanjay Mathur	

15:00 - 15:30 Structure-IS1	<u>jacky even</u> (<i>Univ Rennes, INSA Rennes, CNRS, Institut FOTON (Fonctions Optiques pour les Technologies de l'information) - UMR 6082, F-35000 Rennes, France</i>), siraj sidhik, wenbin li, hao zhang, boubacar traoré, claudio quarti, alia Skorokhod, nicolas mercier, wei li, mercouri kanatzidis, jean-christophe blancon, aditya mohite, claudine katan Influence of Chemical Engineering, Photodoping and Lattice Distortions on the Optoelectronic Properties of Multilayered Perovskites
15:30 - 15:45 Structure-O1	<u>Klara Suchan</u> (<i>Chemical Physics and Nano Lund, Lund University, P.O. Box 124, Lund 22100, Sweden</i>), Justus Just, Pascal Becker, Carolin Rehermann, Aboma Merdasa, Roland Mainz, Ivan G. Scheblykin, Eva L. Unger Two Step Phase-Segregation Process Revealed in Mixed Halide MHPs by Simultaneous In-Situ X-ray Diffraction and Photoluminescence Spectroscopy.
15:45 - 16:00 Structure-O2	<u>Tiarnan Doherty</u> (<i>Department of Chemical Engineering and Biotechnology, University of Cambridge; Cambridge, UK</i>), Satyawan Nagane, Dominik Kubicki, Young-Kwang Jung, Duncan Johnstone, Affan Iqbal, Dengyang Guo, Kyle Frohna, Mohsen Danaie, Elizabeth Tennyson, Stuart Macpherson, Anna Abfalterer, Miguel Anaya, Yu-Hsien Chiang, Phillip Crout, Francesco Simone Ruggeri, Sean Collins, Clare Grey, Aron Walsh, Paul Midgley, Samuel Stranks Tilted-octahedra stabilize FA rich halide perovskites
16:00 - 16:15 Structure-O3	<u>Rebecca Belisle</u> (<i>Department of Physics, Wellesley College</i>) Structural Observations of Carrier Induced Degradation in Mixed-Halide Perovskites
16:15 - 16:30 Structure-O4	<u>David Otto Tiede</u> (<i>Institute of Materials Science of Seville, (Spanish National Research Council (CSIC) - Univ. Seville), Seville, Spain</i>), Juan F. Galisteo-López, Mauricio E. Calvo, Hernán Miguez Iodide Nanodomain Formation as Local Rearrangement Process during Phase Segregation in Mixed Halide Perovskites
16:30 - 16:45 Structure-O5	<u>Silvia Ferro</u> (<i>AMOLF</i>) Pressure-induced bandgap shift and phase transition in 2D perovskites with varying organic spacers
16:45 - 17:00 Structure-O6	<u>Susana Ramos Terrón</u> (<i>Department of Physical Chemistry and Applied Thermodynamics, University of Cordoba, Spain</i>), Cristóbal Verdugo Escamilla, Luis Camacho Delgado, Gustavo de Miguel Rojas A-site Cation Engineering in Two-Dimensional Hybrid Perovskites
17:15 - 20:00	Poster Session

May 24th - Day 6 (Tuesday) 6

08:55 - 09:00	nanoGe Introduction
	Keynote Chair: Elizabeth Gibson
09:00 - 09:45 Keynote-K1	<u>Jenny Nelson</u> (<i>Imperial College London, Physics Department and Center for Processable Electronics</i>) Luminescence and molecular modelling as tools to probe structure-property-performance relationships at molecular heterojunctions
	Session G2.1 Chair: Elizabeth Gibson
09:45 - 10:15 G2.1-I1	<u>Marina Freitag</u> (<i>Newcastle University</i>) Zombie Solar Cells for Ambient Applications
10:15 - 10:45 G2.1-I2	<u>Francesca Brunetti</u> (<i>CHOSE, Department of Electronic Engineering, University of Rome Tor Vergata, via del Politecnico 1, 00133 Rome, Italy</i>), Francesca De Rossi, Matteo Bonomo, Babak Taheri, Giacomo Renno, Vishal Gupta, Narghes Yaghoobi Nia, Paolo Rech, Chris Frost, Carlo Cazzaniga, Pierluigi Quagliotto, Aldo Di Carlo, Marco Ottavi, Claudia Barolo Perovskite films and solar cells on PET substrates for space applications: stability study under neutron irradiation
10:45 - 11:15	Coffee Break
	Session G2.2 Chair: Jenny Nelson
11:15 - 11:45 G2.2-I1	<u>Peter Holliman</u> (<i>College of Engineering, Bay Campus, Swansea University, Swansea, SA1 8EN, UK</i>), Christopher Kershaw, Diana Meza-Rojas, Eurig Jones, Anthony Lewis, Dawn Geatches, Kakali Sen, Ya-Wen Hsiao Linking theory and experiment to surface engineer environmentally sustainable solar cells
11:45 - 12:15 G2.2-I2	<u>Bruno Ehrler</u> (<i>Center for Nanophotonics, AMOLF, Amsterdam, The Netherlands</i>) The Effect of Strain on Ion Migration in Metal Halide Perovskites
12:15 - 12:20	Sciprios GmbH - Industrial talk
	Session G2.3 Chair: Jenny Nelson
12:20 - 12:50 G2.3-I1	<u>Alexander Urban</u> (<i>Ludwig Maximilians University (LMU) Munich</i>) Halide Perovskite Nanoplatelets: Fundamentals for Optoelectronics
12:50 - 13:20 G2.3-I2	<u>Sanjay Mathur</u> (<i>Department for Chemistry, Institute of Inorganic Chemistry, University of Cologne</i>), Feray Uenlue Chemical engineering of lead halide perovskites: from precursor inks to perovskite nanofibers
13:20 - 15:00	Lunch Break
	Session A2 - Interfaces I & Manufacturing II Chair: Iván Mora-Seró
15:00 - 15:15 II-01	<u>Mahmoud Zendehele</u> (<i>CHOSE (Centre for Hybrid and Organic Solar Energy), Department of Electronic Engineering, University of Rome Tor Vergata, Roma 00133, Italy</i>), Narges Yaghoobi Nia, Barbara Paci, Marco Di Giovannantonio, Amanda Generosi, Enrico Leonardi, Giorgio Contini, Marco Guaragno, Aldo Di Carlo Toward Highly Stable and Scalable Perovskite Solar Modules via Co-crystalline 2D Perovskite Passivation and Blade-Spin Deposition
15:15 - 15:30 II-02	<u>Rafael S. Sánchez</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, Castelló de la Plana, Castelló 12006, Spain</i>), Jesús Sánchez-Díaz, Sofia Masi, Marie Krečmarová, Agustín O. Alvarez, Eva M. Barea, Jesús Rodríguez-Romero, Vladimir S. Chirvony, Juan F. Sánchez-Royo, Juan P. Martínez-Pastor, Iván Mora-Sero Synergistic Additive's Engineering and Mechanistic Photo-Electrochemical Insights for the Development of High-Performance Tin-based Perovskite Solar Cells
15:30 - 15:45 II-03	<u>Namrata Pant</u> (<i>School of Chemistry, University of Glasgow, University Pl, G12 8QQ, Glasgow, UK</i>), Michele Cariello, Alexander Harkiss, Frances Tracey, Joseph Cameron, Peter Skabara, Peter Holliman, Pablo Docampo, Graeme Cooke Synthesis of SOT-OH as a building block for the synthesis of new dimeric and trimeric Spiro-OMeTAD Materials
15:45 - 16:00 II-04	<u>Mayank Kedia</u> (<i>Institut für Photovoltaik (ipv), Universität Stuttgart, Pfaffenwaldring 47, D-70569 Stuttgart, Deutschland</i>), Michael Saliba Interface Engineering of Perovskite via Laser Polishing
16:00 - 16:15 II-05	<u>Sandy Sanchez</u> (<i>EPFL, Switzerland</i>) Thermally Controlled Growth of photoactive FAPbI ₃ films for Highly Stable Perovskite Solar Cells
16:15 - 16:30 II-06	<u>Maurizio Stefanelli</u> (<i>CHOSE (Centre for Hybrid and Organic Solar Energy), Department of Electronic Engineering, University of Rome "Tor Vergata", via del Politecnico 1, 00133 Rome, Italy</i>), Luigi Vesce, Luigi Angelo Castriotta, Francesco Di Giacomo, Aldo Di Carlo Perovskite Technology Scaling Up From 32 cm ² to 320 cm ² Module by Fully Ambient Air Meniscus Coating Processes
16:30 - 16:45 II-07	<u>Monika Rai</u> (<i>Institute for Photovoltaics (ipv), University of Stuttgart, Pfaffenwaldring 47, 70569 Stuttgart, Germany</i>), Zhengtian Yuan, Anupam Sadhu, Shin Woei Leow, Lioz Etgar, Shlomo Magdassi, Lydia Helena Wong Holistic Approach Towards Fully Semi-transparent 21 cm ² Perovskite Solar Module with 9.5% Efficiency
16:45 - 17:00 II-08	<u>Joe Briscoe</u> (<i>School of Engineering and Materials Science, Queen Mary University of London.</i>) Additive-Enhanced Aerosol Treatment for Improved Perovskite Solar Cells and Photodetectors
17:00 - 17:15 II-09	<u>Javier Castillo-Seoane</u> (<i>Institute of Materials Science of Seville, (Spanish National Research Council (CSIC) - Univ. Seville), Seville, Spain</i>), Lidia Contreras-Bernal, Jose Manuel Obrero-Pérez, Xabier García-Casas, Francisco J Aparicio, M Carmen López-Santos, T Cristina Rojas, Juan A Anta, Ana Borrás, Ángel Barranco, Juan Ramón Sánchez-Valencia Two Step Glancing Angle Deposition of Supported Vertically Aligned Organometallic Halide Perovskite Nanostructures
	Session B2 - Defects II & Interfaces II Chair: Bruno Ehrler
15:00 - 15:15 II-01	<u>Sofia Kosar</u> (<i>Femtosecond Spectroscopy Unit, Okinawa Institute of Science and Technology Graduate University, Onna, Okinawa, 904 0495, Japan</i>), Andrew J. Winchester, Tiarnan A. S. Doherty, Stuart Macpherson, Christopher E. Petoukhoff, Kyle Frohna, Miguel Anaya, Nicholas S. Chan, Julien Madéo, Michael K. L. Man, Samuel D. Stranks, Keshav M. Dani The varied nature and roles of nanoscale defects in solution processed triple cation mixed halide perovskite thin films

15:15 - 15:30 II-02	<u>Waqas Zia</u> (<i>Institut für Photovoltaik (ipv), Universität Stuttgart, Pfaffenwaldring 47, D-70569 Stuttgart, Deutschland</i>), Clara A. Aranda, Michael Saliba Unveiling the Optoelectronic Properties of Seeded vs Unseeded grown MAPbBr ₃ Perovskite Single Crystals
15:30 - 15:45 II-03	<u>Suleiman Bello</u> (<i>University of Sheffield, Department of Chemical and Biological Engineering</i>), Alisyn Nedoma, Alan Dunbar Zinc chloride as a performance-enhancing additive for MAPbI ₃ solar cells produced in air.
15:45 - 16:00 II-04	<u>Kasparas Rakstys</u> (<i>Department of Organic Chemistry, Kaunas University of Technology, Lithuania</i>) Interfacial material engineering for the perovskite solar cell stability improvement
16:00 - 16:15 II-05	<u>Daimiota Takhellambam</u> (<i>CHOSE- Center for Hybrid and Organic Solar Energy, Electronic Engineering Department, University of Rome Tor Vergata</i>), Luigi Angelo Castriotta, Gloria Zanotti, Laura Mancini, Aldo di Carlo Introducing Organic Interlayer over Self Assembled Monolayers: Boosting Stability of Solution Processable P-I-N based Perovskite Solar Cells with nearly 20% efficiency
16:15 - 16:30 II-06	<u>Anjana Wijesekara</u> (<i>Department of Chemistry, University of Warwick, Coventry, CV4 7AL, United Kingdom</i>), Marc Walker, Yisong Han, David Walker, Steven Huband, Ross Hatton Enhanced Stability of Tin Halide Perovskite Photovoltaics Using a Bathocuproine - Copper Top Electrode
16:30 - 16:45 II-07	<u>Karunanantharajah Prashanthan</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, 14109 Berlin, Germany</i>), Igal Levine, Emilio Gutierrez-Partida, Artem Musienko, Hannes Hempel, Klaus Lips, Thomas Unold, Martin Stolterfoht, Thomas Dittrich, Rowan W. MacQueen Carrier Dynamics in Upconverting Thin Film Perovskite/Rubrene Bilayers Studied by Combined Surface Photovoltage and Photoluminescence
16:45 - 17:00 II-08	<u>ALANOOD ALIAGHWANI</u> (<i>Department of Chemistry, University of Warwick, CV4 7AL, Coventry, United Kingdom</i>), Philip Bellchambers, yisong Han, Ross Hatton A microcontact printed tin passivated copper grid electrode for organic photovoltaics
17:00 - 17:15 II-09	<u>Christopher Petoukhoff</u> (<i>Rutgers University, Materials Science and Engineering, US</i>), Deirdre O'Carroll Optimization of PCDTBT Metal-Insulator-Metal Hole-Only Photodiodes
Session C2 - Manufacturing I & New Materials II Chair: Gerrit Boschloo	
15:00 - 15:15 II-01	<u>Konrad Wojciechowski</u> (<i>Saule Research Institute</i>) Perovskite photovoltaic technology on flexible substrates
15:15 - 15:30 II-02	<u>Jaume Noguera-Gómez</u> (<i>UMDO Institut de Ciència dels Materials (ICMUV), Universitat de València</i>), Ismael Fernández-Guillen, Pablo Franco Betancur, Pablo P. Boix, Rafael Abarques Low-demanding in-situ crystallization method for tunable and stable perovskite nanoparticle thin-films.
15:30 - 15:45 II-03	<u>Michele Sessolo</u> (<i>Universidad de Valencia - ICMol (Institute of Molecular Science)</i>), Lidón Gil-Escrig, Isidora Susic, Henk Bolink Vacuum Deposition of Multi-Component Perovskite Solar cells
15:45 - 16:00 II-04	<u>Valentina M. Caselli</u> (<i>Department of Chemical Engineering, Delft University of Technology (TU Delft), The Netherlands</i>), Jos Thieme, Job Hermans, Sohan A. Phadke, Huygen J. Jöbsis, Eline M. Hutter, Tom J. Savenije Towards Lead-Free Perovskite: How Excitons and Charge Carriers Contribute to the Photovoltaic Performance in Cs ₂ AgBiBr ₆ Solar Cells
16:00 - 16:15 II-05	<u>Carlos Echeverría-Arondo</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, Castelló de la Plana, Castelló 12006, Spain</i>), Iván Mora-Seró A picture on DFT calculations for perovskite materials
16:15 - 16:30 II-06	<u>Florian Wolf</u> (<i>University of Munich (LMU), Department of Chemistry and Center for Nanoscience (CeNS)</i>), Rik Hooijer, Melina Armer, Firouzeh Ebadi, Mahdi Mohammadi, Clement Maheu, Andreas Weis, Bas T. van Gorkom, Sebastian Häring, Rene A. J. Janssen, Thomas Mayer, Vladimir Dyakonov, Wolfgang Tress, Thomas Bein 2D/3D Hybrid Cs ₂ AgBiBr ₆ Double Perovskite Solar Cells: Improved Energy Level Alignment for Higher Contact-Selectivity and Large Open Circuit Voltage
16:30 - 16:45 II-07	<u>Zafar Iqbal</u> (<i>Department Novel Materials and Interfaces for Photovoltaic Solar Cells, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Berlin, Germany</i>), Antonio Abate, Qiong Wang CsPbI ₃ /Hole transport layer interface modified by dipole molecule leads to better charge extraction and stability
16:45 - 17:00 II-08	<u>Alessandra Alberti</u> (<i>Institute for Microelectronics and Microsystems (CNR-IMM), Zona Industriale - VIII Strada 5, Catania 95121, Italy</i>), Emanuele Smecca, Ioannis Deretzis, Giovanni Mannino, Corrado Bongiorno, Salvatore Valastro, Salvatore Sanzaro, Giuseppe Fisicaro, Ajay Kumar Jena, Youhei Numata, Zhanglin Guo, Tsutomu Miyasaka, Corrado Spinella, Antonino La Magna Beneficial role of Europium into CsPbI ₃ perovskites
17:00 - 17:15 II-09	<u>Mahdi Malekshahi Byravanand</u> (<i>Institute for Photovoltaics (ipv), Universität Stuttgart, Pfaffenwaldring 47, 70569 Stuttgart, Germany</i>), Tim Kodalle, Weiwei Zuo, Theresa Magorian Friedlmeier, Maged Abdelsamie, Kootak Hong, Waqas Zia, Shama Perween, Oliver Clemens, Carolin M. Sutter-Fella, Michael Saliba One-Step Thermal Gradient-Free Crystallization method for Highly Efficient and Thermally Stable All-Inorganic Perovskite Solar Cells
Session D2 - New Materials I & Sustainability Chair: Peter Holliman	
15:00 - 15:15 Sustainability-01	<u>Rik Hooijer</u> (<i>University of Munich (LMU), Department of Chemistry and Center for Nanoscience (CeNS)</i>), Andreas Weis, Alexander Biewald, Maximilian T. Sirtl, Julian Malburg, Rico Holfeuer, Simon Thamm, Amir Abbas Yousefi Amin, Marcello Righetto, Achim Hartschuh, Laura M. Herz, Thomas Bein Silver-Bismuth based 2D Double Perovskites (4FPEA)AgBiX ₈ (X=Cl, Br, I): Highly Oriented Thin Films with Large Domain Sizes and Ultrafast Charge-Carrier Localization
15:15 - 15:30 Sustainability-02	<u>Yongjie Wang</u> (<i>ICFO-Institut de Ciències Fotoniques, The Barcelona Institute of Science and Technology, 08860 Castelldefels (Barcelona), Spain</i>), Sean Kavanagh, Ignasi Burgués-Ceballos, Aron Walsh, David Scanlon, Gerasimos Konstantatos Efficient AgBiS ₂ Nanocrystal Solar Cells enabled by Cation Disorder Engineering
15:30 - 15:45 Sustainability-03	<u>Fabian Schmitz</u> (<i>Center for Materials Research, Justus Liebig University, Heinrich-Buff-Ring 17, 35392, Giessen, Germany</i>), Teresa Gatti High Open-Circuit Voltage Cs ₂ AgBiBr ₆ Carbon-Based Perovskite Solar Cells Via Green Processing of Ultrasonic Spray-Coated Carbon Electrodes from Waste Tire Sources
15:45 - 16:00 Sustainability-04	<u>Nathan Daem</u> (<i>University of Liege, GREENMAT</i>), Jennifer Dewalque, Felix Lang, Anthony Maho, Gilles Spronck, Catherine Henrist, Pierre Colson, Samuel D. Stranks, Rudi Cloots High Open-Circuit Voltage Lead-Free Cs ₂ AgBiBr ₆ Double Perovskite Solar Cells from Spray-Coating Deposition

16:00 - 16:15 Sustainability-05	<u>Dmitry Bogachuk</u> (<i>Fraunhofer Institute for Solar Energy Systems ISE, Heidenhofstrasse 2, 79110 Freiburg, Germany</i>), Peter van der Windt, David Martineau, Stephanie Narbey, Anand Verma, Salma Zouhair, Andreas Hinsch, Markus Kohlstädt, Lukas Wagner A novel recycling method for encapsulated perovskite mesoscopic photovoltaic devices with minimal performance loss
16:15 - 16:30 Sustainability-06	<u>Abhyuday Paliwal</u> (<i>Universidad de Valencia - ICMol (Institute of Molecular Science)</i>), Henk Bolink Efficient All Vacuum Deposited Perovskite Solar Cells in Substrate Configuration
16:30 - 16:45 Sustainability-07	<u>Mark Khenkin</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany</i>), Quiterie Emery, Marko Remec, Ulas Erdil, Hans Köbler, Jinzhao Li, Antonio Abate, Eva Unger, Rutger Schlatmann, Carolin Ulbrich Perovskite Solar Cells in Real-World Conditions: What Did We Learn from Outdoor Experiments So Far?
16:45 - 17:00 Sustainability-08	<u>Nilanka Monarawila Keppetipola</u> (<i>Univ. Bordeaux, CNRS, Bordeaux INP, ISM, UMR 5255, 351 Cours de la Libération, F-33405 Talence, Cédex</i>), G.R.A Kumara, Kirithi Tennakone, Marie-Anne Dourges, Céline Olivier, Thierry Toupance, Ludmila Cojocaru Sustainable photo-supercapacitors using biomass waste as source of carbon for electrodes
17:00 - 17:15 Sustainability-09	<u>CARYS WORSLEY</u> (<i>SPECIFIC - Swansea University Bay Campus, Fabian Way, Crymlyn Burrows, SA1 8EN Swansea</i>) Green solvent engineering for enhanced performance and reproducibility in printed carbon-based mesoscopic perovskite solar cells and modules
Session E2 - Tandems I & Tandems II Chair: Henk Bolink	
15:00 - 15:15 II-01	<u>Mehrdad Najafi</u> (<i>TNO, partner in Solliance, High Tech Campus 21, 5656 AE Eindhoven, The Netherlands</i>), Dong Zhang, Valerio Zardetto, Lukas Simurka, Wiljan Verhees, Henri Fledderus, Harrie Gorter, Giulia Lucarelli, Ilker Dogan, Klaas Bakker, Petra Manshanden, Afshin Hadipour, Stijn Lammar, Mirjam Theelen, Rene Janssen, Tom Aernouts, Arthur Weeber, Bart Geerligs, Gianluca Coletti, Sjoerd Veenstra Highly Efficient Perovskite/Silicon Four-Terminal Tandem Solar Cells and Modules
15:15 - 15:30 II-02	<u>Vivek Babu</u> (<i>Saule Technologies, Wrocław Technology Park, 11 Dunska, Wrocław, 54-427, Poland</i>), Mario Alejandro Mejia Escobar, Rosinda Fuentes Pineda, Mateusz Scigaj, Pierpaolo Spinelli, Konrad Wojciechowski Towards up-scaling the 4-terminal all-perovskite tandem solar modules on flexible substrates
15:30 - 15:45 II-03	<u>Narges Yaghoobi Nia</u> (<i>CHOSE (Centre for Hybrid and Organic Solar Energy), Department of Electronic Engineering, University of Rome Tor Vergata, Roma 00133, Italy</i>), Mahmoud Zendehele, Harshavardhan Reddy Sathy, Luigi Schirone, Aldo Di Carlo Super Stable Semitransparent Perovskite Solar Modules for 4-terminal Perovskite-Silicon Tandem Modules via Engineering of the Polymeric Hole Transport Layer and Surface Passivation
15:45 - 16:00 II-04	<u>Philipp Tockhorn</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie, Division Solar Energy, Kekuléstr. 5, 12489 Berlin, Germany</i>), Johannes Sutter, Alexandros Cruz Bournazou, Klaus Jäger, Felix Lang, Max Grischek, Philipp Wagner, Danbi Yoo, Martin Stölterfoht, Bernd Stannowski, Steve Albrecht, Christiane Becker Nanostructures Enable Certified Efficiency of 29.80% in Perovskite/Silicon Tandem Solar Cells
16:00 - 16:15 II-05	<u>Yu-Hsien Chiang</u> (<i>Department of Physics, Cavendish Laboratory, University of Cambridge; Cambridge, UK</i>), Miguel Anaya, Kyle Frohna, Hayden Salway, Sam Stranks Selective contact, bandgap and passivation engineering in vacuum deposited perovskites for tandem solar cells
16:15 - 16:30 II-06	<u>Marcel Roß</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Germany</i>), Stefanie Severin, Amran Al-Ashouri, Eike Köhnen, Philipp Tockhorn, Philipp Wagner, Jona Kurpiers, Bernd Stannowski, Steve Albrecht Fully Textured Monolithic Perovskite/Silicon Tandem Solar Cells Realized by Co-Evaporation
16:30 - 16:45 II-07	<u>Paul Fassl</u> (<i>Light Technology Institute, Karlsruhe Institute of Technology, Engesserstrasse 13, 76131 Karlsruhe, Germany</i>), Saba Gharibzadeh, Marco A. Ruiz-Preciado, Motiur Rahman Khan, Ahmed Farag, Somayeh Moghadamzadeh, Christoph Klein, Ihtezaz M. Hossain, Roja Singh, Ulrich W. Paetzold Interface Passivation Schemes for Highly Efficient Inverted Perovskite Solar Cells and Two-Terminal perovskite/c-Si and perovskite/Cl(G)S tandem solar cells
16:45 - 17:00 II-08	<u>Fabrizio Gota</u> (<i>Karlsruhe Institute of Technology</i>), Raphael Schmagel, Ahmed Farag, Ulrich Paetzold Energy Yield Modelling of Textured Perovskite/Silicon Tandem Photovoltaics with Thick Perovskite Top Cells
17:00 - 17:15 II-09	<u>Patricia S. C. Schulze</u> (<i>Fraunhofer Institute for Solar Energy Systems ISE, 79110 Freiburg, Germany</i>), Özde Ş. Kabaklı, Minasadat Heydarian, Oussama Er-Raji, Maryamsadat Heydarian, Raphael Efinger, Oliver Schultz-Wittmann, Christoph Messmer, Alexander J. Bett, Oliver Fischer, Leonard Tutsch, Denis Erath, Sebastian Pingel, Thibaud Hatt, Martin Bivour, Jan Christoph Goldschmidt, Martin Hermle, Stefan W. Glunz Monolithic 2-Terminal Perovskite Silicon Tandem Solar Cells
17:30 - 18:45	Valencia Guided Tour
20:00 - 22:00	Social Dinner

May 25th - Day 7 (Wednesday) 7

08:55 - 09:00	nanoGe Introduction
	Session G3.1 Chair: Eva Unger
09:00 - 09:30 G3.1-I1	<u>Thomas Kirchartz</u> (<i>Forschungszentrum Jülich</i>) Defect densities and charge carrier lifetimes in lead-halide perovskites
09:30 - 10:00 G3.1-I2	<u>Juan Bisquert</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, Castelló de la Plana, Castelló 12006, Spain</i>) Impedance spectroscopy and hysteresis effects of halide perovskite solar cells and memristors
	Keynote Chair: Eva Unger
10:00 - 10:45 Keynote-K1	<u>Henk Bolink</u> (<i>Instituto de Ciencia Molecular, Universidad de Valencia, C/ Catedrático J. Beltrán 2, 46980 Paterna (Valencia), Spain</i>) Vapor phase deposited single junction and tandem perovskite solar cells
10:45 - 11:15	Coffee Break
	Session G3.2 Chair: Eva Unger
11:15 - 11:45 G3.2-I1	<u>Maria Antonietta Loi</u> (<i>Univeristy of Groningen</i>) Scalable, Template Driven Formation of Highly Crystalline Lead-Tin Halide Perovskite Films
11:45 - 12:15 G3.2-I2	<u>David Egger</u> (<i>Department of Physics, Technical University Munich, Germany</i>) Sub-unit-cell disorder and intensified band-to-band transitions in halide perovskites from first-principles
12:15 - 12:45 G3.2-I3	<u>Rebecca Milot</u> (<i>Department of Physics, University of Warwick</i>) Optoelectronic Properties of Layered Metal Hybrid Perovskites
12:45 - 13:15 G3.2-I4	<u>Udo Bach</u> (<i>ARC Centre of Excellence in Exciton Science, Department of Chemical and Biological Engineering, Monash University, Clayton, VIC, Australia</i>), Wenxin Mao Light-Induced Phase Segregation in Single-Crystalline Mixed-Halide Perovskite Platelets
13:15 - 15:00	Lunch break
	Session A3 - Characterisation II Chair: Alexander Urban
15:00 - 15:30 II-IS1	<u>Tracey Clarke</u> (<i>Department of Chemistry, University College London</i>) Triplets in Organic Photovoltaics
15:30 - 15:45 II-O1	<u>Alberto García-Fernandez</u> (<i>Division of Applied Physical Chemistry, Department of Chemistry, KTH - Royal Institute of Technology.</i>), Sebastian Svanström, Cody M. Sterling, Abhijeet Gangan, Axel Erbing, Chinnathambi Kamal, Tamara Sloboda, Birgit Kammlander, Gabriel J. Man, Håkan Rensmo, Michael Odelius, Ute B. Cappel Core level and valence band analysis of in-situ cleaved perovskite single crystals
15:45 - 16:00 II-O2	<u>Weidong Xu</u> (<i>Centre for Processable Electronics, Department of Chemistry, Imperial College London W12 0BZ, U.K.</i>), Lucy Jessica Fiona Hart, Benjamin Moss, Thomas J. Macdonald, Richard Pacalaj, Pietro Caprioglio, Robert DJ Oliver, James R Durrant Operando-photoluminescence spectroscopy for accessing radiative and non-radiative losses in perovskite solar cells
16:00 - 16:15 II-O3	<u>Tom P.A. van der Pol</u> (<i>Molecular Materials and Nanosystems and Institute of Complex Molecular Systems, Eindhoven University of Technology, Partner in Solliance, P.O. Box 513, Eindhoven, 5600 MB, The Netherlands</i>), Kunal Datta, Martijn M. Wienk, René A. J. Janssen The Intrinsic Photoluminescence Spectrum of Perovskite Films
16:15 - 16:30 II-O4	<u>Agustín O. Alvarez</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, 12071 Castelló de la Plana, Spain</i>), Sandheep Ravishankar, Elena Más Marza, Francisco Fabregat-Santiago Improving optoelectronic characterization by combining modulated techniques
16:30 - 16:45 II-O5	<u>Ben Carwithen</u> (<i>Department of Chemistry, Imperial College London, White City Campus, London, W12 0BZ, UK</i>), Thomas Hopper, Ziyuan Ge, Navendu Mondal, Franziska Krieg, Federico Montanarella, Georgian Nedelcu, Martin Kroll, Karl Leo, Yana Vaynzof, Maryna Bodnarchuk, Maksym Kovalenko, Artem Bakulin Hot Carrier Cooling Dynamics in Lead Halide Perovskite Nanomaterials
16:45 - 17:00 II-O6	<u>Jake D. Hutchinson</u> (<i>Department of Physics, University of Warwick, CV4 7AL, Coventry, United Kingdom</i>), Edoardo Ruggeri, Jack M. Woolley, Samuel D. Stranks, Rebecca L. Milot Ultrafast Photoexcited Carrier Dynamics in 2D/3D Lead-Tin Perovskites with Tuneable Dimensionality
17:00 - 17:15 II-O7	<u>Salim Mejaouri</u> (<i>IPVF, Institut Photovoltaïque d'Ile-de-France, 18 Boulevard Thomas Gobert, 91120 Palaiseau, France</i>), Stéfania Cacovich, Iwan Zimmermann, Armelle Yaiche, Dominique Loinsard, Stéphane Collin, Jean Rousset Analysis of the degradation products of hybrid perovskite by correlative electron microscopy
	Session B3 - Manufacturing III Chair: Udo Bach
15:00 - 15:30 III-IS1	<u>Gerrit Boschloo</u> (<i>Department of Chemistry - Ångström Laboratory, Uppsala University, Sweden</i>) PIN and NIP Join Forces in a New Type of Perovskite Solar Cell Module
15:30 - 15:45 III-O1	<u>Tian Du</u> (<i>Friedrich-Alexander-Universität Erlangen-Nürnberg, Institute Materials for Electronics and Energy Technology, Department of Materials Science and Engineering, Energy Campus Nürnberg</i>) Additive-free, Low-temperature Crystallization of Stable α -FAPbI ₃ Perovskite
15:45 - 16:00 III-O2	<u>Cristina Teixeira</u> (<i>Saule Technologies Ltd., Dunska11, Wroclaw 54-427, Poland</i>), Pierpaolo Spinelli, Luigi Angelo Castriotta, Luísa Andrade, Dávid Forgács, Adélio Mendes, Aldo Di Carlo, Konrad Wojciechowski Flexible Perovskite Solar Cells for indoor photovoltaics with efficiency up to 31% using metal and carbon electrodes
16:00 - 16:15 III-O3	<u>Fabio Matteocci</u> (<i>CHOSE (Centre for Hybrid and Organic Solar Energy), Department of Electronic Engineering, University of Rome "Tor Vergata", via del Politecnico 1, 00133 Rome, Italy</i>), Jessica Barichello, Diego Di Girolamo, Elisa Nonni, Aldo Di Carlo Opportunities of wide band gap semi-transparent perovskite solar cells and modules in BIPV
16:15 - 16:30 III-O4	<u>Farshad Jafarzadeh</u> (<i>CHOSE (Centre for Hybrid and Organic Solar Energy), Department of Electronic Engineering, University of Rome Tor Vergata, Roma 00133, Italy</i>), Luigi Angelo Castriotta, Francesca De Rossi, Aldo Di Carlo, Fabio Matteocci, Francesca Brunetti Flexible Blade-coated Perovskite Solar Cells with a Non-hazardous Solvent System Fabricated in Ambient Air

16:30 - 16:45 III-05	<u>Benjamin Putland</u> (<i>Clarendon Laboratory, University of Oxford, Parks Road, Oxford OX1 3PU, United Kingdom</i>), Marcello Righetto, Harry Sansom, Markus Fischer, Laura Herz, Henry Snaith Triple-Source Co-evaporation of lead-free Cu ₂ AgBiI ₆ for Use in Tandem Solar Cells
16:45 - 17:00 III-06	<u>Jacob Vagott</u> (<i>School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, Georgia 30332, USA</i>), Carlo Perini, Andres Felipe Castro Mendez, Juanita Hidalgo, Kathryn Bairley, Juan-Pablo Correa-Baena PbI ₂ and Lead Halide Perovskites by Atomic Layer Deposition for Perovskite Solar Cells
17:00 - 17:15 III-07	<u>Miguel Casademont-Viñas</u> (<i>Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Spain</i>), Martí Gibert-Roca, Quan Liu, Koen Vandewal, Alejandro R. Goñi, Mariano Campoy-Quiles Spectral Splitting Geometries for High Efficiency Multijunction Organic Solar Cells
Session C3 - Modelling Chair: Petra Cameron	
15:00 - 15:30 Modelling-IS1	<u>Alison Walker</u> (<i>Department of Physics, University of Bath</i>), Thijs Smolders, Lewis Irvine, Matthew Wolf, Matthew Cowley, Petra Cameron, William Clarke, Giles Richardson Multiscale Modelling of Perovskite Devices
15:30 - 15:45 Modelling-O1	<u>Matthew Cowley</u> (<i>Centre for Sustainable and Circular Technologies, University of Bath</i>), William Clarke, Matthew Wolf, Giles Richardson, Alison Walker, Petra Cameron What can J-V hysteresis tell us about defect mediated phenomena in perovskite based solar cells?
15:45 - 16:00 Modelling-O2	Camilla Vael, <u>Sandra Jenatsch</u> (<i>Fluxim AG, 8400 Winterthur, Switzerland</i>), Simon Züfle, Frank Nüesch, Beat Ruhstaller Assessing the validity of analytical models to determine trap state parameters from thermally stimulated current responses by means of drift-diffusion simulations
16:00 - 16:15 Modelling-O3	<u>Agustín Bou</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, 12071, Castelló de la Plana, Spain</i>), Juan Bisquert What Information Can Be Extracted from Light Modulated Techniques in Perovskite Solar Cells?
16:15 - 16:30 Modelling-O4	<u>Emilio Gutiérrez-Partida</u> (<i>Universität Potsdam, Soft Matter Physics, Karl-Liebknecht-Straße 24-25, 14476 Potsdam, Germany</i>) Towards understanding the built-in-field in perovskite solar cells through layer by layer SPV measurements
16:30 - 16:45 Modelling-O5	Jose Obrero-Perez, <u>Lidia Contreras-Bernal</u> (<i>Instituto de Ciencia de Materiales de Sevilla (CSIC-Universidad de Sevilla) C/Americo Vespucio 49, E-41092 Seville, Spain</i>), Fernando Nuñez-Galvez, Javier Castillo-Seoane, Karen Valadez-Villalobos, Francisco J. Aparicui, Juan A. Anta, Ana Borrás, Juan R. Sanchez-Valencia, Angel Barranco Organic plasma polymer for improving the stability of perovskite solar cells
16:45 - 17:00 Modelling-O6	Simon Zeder, <u>Antonio Cabas Vidani</u> (<i>Fluxim AG, 8400 Winterthur, Switzerland</i>), Beat Ruhstaller, Urs Aeberhard Assessment Of Photon Recycling In Perovskite Solar Cells By Fully Coupled Optoelectronic Simulation
17:00 - 17:15 Modelling-O7	<u>Jose Carlos Pérez-Martínez</u> (<i>Universidad Rey Juan Carlos</i>), Diego Martin-Martin, Gonzalo del Pozo, Belén Arredondo, Beatriz Romero Validation of Mazhari's Equivalent Circuit for Perovskites Solar Cells with a kink in the I-V characteristic
Session D3 - OPV/DSC Manufacturing Chair: Marina Freitag	
15:00 - 15:30 Manufacturing-IS1	<u>María Quintana</u> (<i>Center for the Development of Advanced Materials and Nanotechnology, Universidad Nacional de Ingeniería</i>), Anthony Huaman, Karim Salazar Molecular interaction of natural dye based on Zea mays and Bixa orellana with nanocrystalline TiO ₂ in dye sensitized solar cells
15:30 - 15:45 Manufacturing-O1	<u>Gethin Thomas</u> (<i>SPECIFIC - Swansea University Bay Campus, Fabian Way, Crymlyn Burrows, SA1 8EN Swansea</i>), Dr Matt Carnie Waving at Solar Cells: Hand Gesture Recognition for IoT Objects Based on Patterned Monolithic Dye-Sensitized Solar Cells
15:45 - 16:00 Manufacturing-O2	<u>Fionnuala Grifoni</u> (<i>Laboratoire de Réactivité et Chimie des Solides (LRCs) UMR CNRS 7314 - Institut de Chimie de Picardie FR 3085 Université de Picardie Jules Verne 33 rue Saint Leu, FR-80039 Amiens Cedex, France</i>), Waad Naim, Thomas Alnasser, Nadia Barbero, Claudia Barolo, Frédéric Sauvage Insights on component optimization to reach color neutral and highly transparent near-infrared dye sensitized solar cells
16:00 - 16:15 Manufacturing-O3	Benjamin Luginbuhl, Parth Raval, Tomasz Pawlak, Zhifang Du, Tonghui Wang, Grit Kupgan, Nora Schopp, Sangmin Chae, Veaceslav Coropceanu, Jean-Luc Brédas, Thuc-Quyen Nguyen, <u>G. N. Manjunatha Reddy</u> (<i>University of Lille, CNRS, Centrale Lille Institut, Univ. Artois, UMR 8181, Unité de Catalyse et Chimie du Solide, Lille, France</i>) Resolving atomic-scale interactions in non-fullerene acceptor organic solar cells by high-field NMR crystallography
16:15 - 16:30 Manufacturing-O4	<u>Ngoc-Le Maria Lena Nguyen</u> (<i>ARMOR Solar Power Films SAS</i>) Performance and long-term stability of industrially manufactured non-fullerene based organic photovoltaics (OPV)
16:30 - 16:45 Manufacturing-O5	<u>Anil Kumar Bharwal</u> (<i>Aix-Marseille Univ., Univ. Toulon, UMR CNRS 7334, Institut Matériaux Microélectronique Nanoscience de Provence (IM2NP), Marseille, France</i>), Yatzil Avalos, Carmen Ruiz-herrero, Olivier Margeat, Christine Vidélot-Ackermann, Jorg Ackermann, Ludovic Escoubas, David Duché, Jean-Jacques J.J. Simon Determination of complex optical constants of PBDB-T-2F/ITIC-4F organic solar cells
16:45 - 17:00 Manufacturing-O6	<u>Philip Bellchambers</u> (<i>Department of Chemistry, University of Warwick, CV4 7AL, Coventry, United Kingdom</i>), Charlie Henderson, Keun-Woo Park, Jin-Kyun Lee, Ross Hatton High Performance Transparent Embedded-Silver Grid Electrodes for Organic Photovoltaics Fabricated by Selective Metal Condensation
17:00 - 17:15 Manufacturing-O7	<u>Matías Jesús Alonso-Navarro</u> (<i>Department of Organic Chemistry, Faculty of Chemistry, Complutense University of Madrid (UCM).</i>), M. Mar Ramos, José L. Segura Precise design of organic semiconductors based on 1,2-diketone rylenimide assemblies for (opto)electronic devices.
Session E3 - Structure II Chair: Lioz Etgar	
15:00 - 15:30 II-IS1	Rafael Abarques, <u>Pablo P. Boix</u> (<i>Institut de Ciència dels Materials (ICMUV), Universitat de València, c Catedratic Beltran 2, 46980 Paterna, Valencia, Spain</i>) Multiscale Perovskite Structures for Device-Oriented Applications
15:30 - 15:45 II-O1	<u>Abraham Campos-Contreras</u> (<i>Laboratoire de Physique des Solides, CNRS, Univ. Paris-Sud, Université Paris-Saclay, 91405 Orsay Cedex, France.</i>), Min-I Lee, Lipin Chen, Amelie Jarnac, Claire Laulhé, Gaëlle Trippé-Allard, Emmanuelle Deleporte, Olivier Plantevin, David Le Bolloc'h, Vincent Jacques, Antonio Tejada Dynamics of the Structural Modification of CH ₃ NH ₃ PbI ₃ Hybrid Perovskite upon Visible-Light Excitation
15:45 - 16:00 II-O2	<u>Feng Wang</u> (<i>Department of Physics, Chemistry and Biology (IFM), Linköping University, Linköping, Sweden</i>), Fuxiang Ji, Feng Gao Structure Engineering of Halide Double Perovskites

16:00 - 16:15 II-03	<u>Sofia Masi</u> (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, 12006 Castelló, Spain</i>), K. M. Muhammed Salim Formamidinium Perovskite Solar Cells Fabricated Under Air Conditions: Additives and Pb-O bonds promote High Efficiency and Long-Term Stability
16:15 - 16:30 II-04	<u>Carlo Andrea Riccardo Perini</u> (<i>School of Materials Science and Engineering, Georgia Institute of Technology</i>), Andres Felipe Castro Mendez, Jacob Vagott, Magdalena Ravello, Juan-Pablo Correa-Baena Understanding the formation and transformation of low dimensional capping layers in lead halide perovskites by thermal evaporation
16:30 - 16:45 II-05	Bruno Borges, Soheila Holakoei, Matheus Neves, Luana Wouk, Aldo Zarbin, Lucimara Roman, <u>Maria Luíza Rocco</u> (<i>Instituto de Química da UFRJ</i>) Morphology and Charge Transfer Dynamics of Water Based, Solution-Processable, Transparent and Flexible Graphene Oxide/PEDOT:PSS Nanocomposite as Electrodes for Photovoltaic Applications
16:45 - 17:00 II-06	<u>Jie Xu</u> (<i>CHOSE - Centre for Hybrid and Organic Solar Energy, University of Rome "Tor Vergata"</i>), Suresh Kumar Podapangi, Sathy Harshavardhan Reddy, Aldo Di Carlo, Thomas Brown Bandgap and morphology engineering of triple cation perovskite solar cells under indoor and sun illumination
17:00 - 17:15 II-07	<u>Andres Felipe Castro Mendez</u> (<i>School of Materials Science and Engineering, Georgia Institute of Technology</i>), Juan-Pablo Correa-Baena, Carlo Andrea Perini, Junita Hidalgo, Jacob Vagott Formation of a secondary phase in thermally evaporated MAPbI ₃ and its effects on solar cell performance
17:15 - 17:30	Closing

Poster Contribution

011	Albert Harillo-Baños (<i>Nanoparticles and Nanocomposites G, Institut de Ciència de Materials de Barcelona (ICMAB-CSIC)</i>), Xavier Rodríguez-Martínez, Mariano Campoy-Quiles Efficient Exploration of the Composition Space in Ternary Organic Solar Cells by Combining High-Throughput Material Libraries and Hyperspectral Imaging
085	Samrat Das Adhikari (<i>Institute of Advanced Materials (INAM), Universitat Jaume I, Castelló de la Plana, Castelló 12006, Spain</i>), Carlos Echeverría-Arrondo, Rafael S. Sánchez, Vladimir S. Chirvony, Juan P. Martínez-Pastor, Saïd Agouram, Vicente Muñoz-Sanjosé, Iván Mora-Seró White light emission from lead-free mixed-cation doped Cs ₂ SnCl ₆ nanocrystals
113	Teresa S. Ripolles (<i>Instituto de Ciencia de los Materiales de la Universidad de Valencia (ICMUV), 46980, Paterna, Valencia, Spain</i>), Patricio Serafini, Carlos Redondo-Obispo, Esteban Climent-Pascual, Sofia Masi, Iván Mora-Seró, Carmen Coya Interface Engineering by Organic Halide Salt in Perovskite Solar Cells
153	Weiwei Zuo (<i>Institut für Photovoltaik (ipv), Universität Stuttgart, Pfaffenwaldring 47, D-70569 Stuttgart, Deutschland</i>), Michael Saliba In-situ methylammonium chloride assisted perovskite crystallization strategy for high-performance solar cells
157	Salma Zouhair (<i>Fraunhofer Institute for Solar Energy Systems ISE, Heidenhofstrasse 2, 79110 Freiburg, Germany</i>), Dmitry Bogachuk, Lukas Wagner, Adil Chahboun, Andreas Hinsch, So-Min Yoo, Kim Hobeom Overcoming Recombination Losses In Hole Selective Layer Free Carbon Electrode Based Perovskite Solar Cells
161	Gustavo de Miguel (<i>Departamento de Química Física y Termodinámica Aplicada, Instituto Universitario de Investigación en Química Fina y Nanoquímica, IUNAN Universidad de Córdoba Campus de Rabanales, Edificio Marie Curie, E-14071 Córdoba, Spain</i>) Cellulose-assisted formation of 2D hybrid perovskite nanostructures for light emitting devices with enhanced stability
163	Lucía Martínez Goyeneche (<i>Universidad de Valencia - ICMol (Institute of Molecular Science)</i>), Lidón Gil Escrig, Isidora Susic, Daniel Tordera, Michele Sessolo, Henk Bolink Narrowband monolithic perovskite-perovskite tandem PDS
166	Ismael Fernandez-Guillen (<i>Instituto Ciencia de los Materiales (ICMUV)</i>), Pablo P. Boix, Jaume Noguera-Gomez, Pablo F. Betancour, Rafa Abargues, Uladzimir Chirvony Contactless passivation in MAPbBr ₃ single crystals
194	Christopher Kershaw (<i>Faculty of Science and Engineering, Swansea University, GB</i>), Peter Holliman, Eurig Jones, Diana Meza-Rojas, Anthony Lewis, James McGettrick, Dawn Geatches, Kakali Sen, Ya-Wen Hsiao, Sebastian Metz, Graham Tizzard, Simon Coles New sulphur containing dyes to study dye-TiO ₂ interactions in dye-sensitized solar cells
199	Cristina Momblona (<i>Instituto de Ciencia de los Materiales de la Universidad de Valencia (ICMUV), 46980, Paterna, Valencia, Spain</i>), Nadja Klipfel, Albertus Adrian Sutanto, Mounir Mensi, Cansu Igci, Klaus Leifer, Keith Brooks, Sachin Kinge, Cristina Roldán-Carmona, Paul J. Dyson, Mohammad Khaja Nazeeruddin TFSI ion migration in perovskite solar cells: beneficial or detrimental?
200	Jiyeon Hyun (<i>Department of Materials Science and Engineering, Korea University, Korea</i>), Kyung Mun Yeom, Ha Eun Lee, Donghwan Kim, Hae-Seok Lee, Yoonmook Kang Perovskite/silicon tandem cell manufactured by directly depositing SnO ₂ on TOPCon silicon cell in CBD method
201	Danbi Kim (<i>Department of Physics, Pukyong National University, Busan 48513, Republic of Korea</i>), Eunhye Yang, Yoomi Ahn, Anqi Zhang, Sung Heum Park Grain Boundary Passivation by using Polymer-Permeating Method for Highly Efficient and Stable Perovskite Solar Cell
204	Ganghong Min (<i>Department of Chemistry and Centre for Processable Electronics, Molecular Sciences Research Hub, Imperial College London, London W12 0BZ, UK</i>), Meihuizi Jiang, Robert Westbrook, Ang Li, Thomas Webb, Thomas Macdonald, Saif Haque The Effects of Antisolvents for the Growth of 2D/3D Sn Perovskite Solar Cell
205	Mari Carmen López González (<i>Universidad Rey Juan Carlos</i>), Gonzalo del Pozo Melero, Diego Martín Martín, Laura Muñoz Díaz, José Carlos Pérez Martínez, Enrique Hernández Balaguera, Belén Arredondo Conchillo, Yulia Galagan, Mehrdad Najafi, Beatriz Romero Herrero Evaluation of active layer thickness influence in long-term stability and degradation mechanisms in CsFAPbI ₃ Br perovskite solar cells
206	Jiaxin Pan (<i>Ultrafast Optoelectronics Group, Imperial College London</i>), Ziming Chen, Tiankai Zhang, Beier Hu, Feng Gao, Artem Bakulin, Piers Barnes Tracing Trapped Carrier Dynamic in Perovskite Solar Cell Via IR Optical Activation Spectroscopy
207	Linah Alqahtani (<i>Department of Chemistry, University of Newcastle, Newcastle upon Tyne, NE1 7RU</i>), Elizabeth Gibson Synthesis and Development of New Electron Transport Mediators for Tandem Dye-Sensitized Solar Cell (DSSC) Applications
208	Mary E. O'Kane (<i>Department of Physics and Astronomy, University of Sheffield, UK</i>), Joel A. Smith, Tarek I. Alanazi, Elena J. Cassella, Onkar Game, David G. Lidzey Further Understanding the Solution Chemistry of Perovskite Precursor Solutions
209	Elena Cassella (<i>Department of Physics and Astronomy, University of Sheffield, UK</i>), Emma Spooner, Timothy Thornber, Mary O'Kane, James Bishop, Joel Smith, Onkar Game, David Lidzey Spray Coating of Perovskite Solar Cells Incorporating Sprayed Self-Assembled Monolayers
210	Emma Spooner (<i>Department of Physics and Astronomy, University of Sheffield, UK</i>), Elena Cassella, David Lidzey Air Knife-Assisted Spray Coating of Organic Solar Cells
213	Nilanka M. Keppetipola, Keishi Tada, Takeru Bessho, Satoshi Uchida, Hiroshi Segawa, Lionel Hirsch, Thierry Toupance, Ludmila Cojocaru (<i>University of Bordeaux, CNRS, Bordeaux INP, ISM, UMR 5255, 351 Cours de la Libération, F-33405 Talence, Cédex, France</i>) Evaluation of energy conversion-storage devices based on perovskites solar cells in comparison with other solar cells under different light intensities
214	Joshua Larsson (<i>School of Natural and Environmental Sciences, Newcastle University, UK</i>), Elizabeth Gibson, Mary Pryce Ruthenium-Rhenium and Ruthenium-Palladium Supramolecular Photocatalysts for Photoelectrocatalytic CO ₂ and H ⁺ Reduction
215	Stevan Gavranovic (<i>Materials Research Centre, Brno University of Technology</i>), Jan Pospisil, Oldrich Zmeskal, Vitezslav Novak, Petr Vanysek, Klara Castkova, Jaroslav Cihlar, Martin Weiter Channel Length Determines the Output Performance of Planar-type Photodetectors Based on MAPbBr ₃ Perovskite Single Crystals
216	Diana Meza Rojas (<i>College of Engineering, Swansea University, Bay Campus, Swansea SA1 8EN UK</i>), Peter Holliman, Chris Kershaw, Eurig Jones, Dawn Geatches, Kakali Sen, Ya-Wen Hsiao, Joe Bater-Davies, Benjamin Harrison, Josh Barlow Efficient and stable organic yellow-coloured dye for dye-sensitized solar cells and solid-state dye-sensitized solar cells

217	<u>Volker Buschmann</u> (<i>PicoQuant GmbH, Rudower Chaussee 29, D-12489 Berlin, Germany</i>), Eugeny Ermilov, Felix Koberling, Jürgen Breitlow, Hugo Koolman, Johannes W. N. Los, Jan van Willigen, Mario U. Castaneda, Jessica de Wild, Guy Brammertz, Rainer Erdmann Integration of a Superconducting Nanowire Detector into a Confocal Microscope for TRPL-Mapping: Sensitivity and Time Resolution
218	<u>Deimante Vaitukaitys</u> (<i>Department of Organic Chemistry, Kaunas University of Technology, Lithuania</i>), Minh Anh Truong, Kasparas Rakstys, Richard Murday, Vygtintas Jankauskas, Vytautas Getautis, Atsushi Wakamiya Engineering the Central Heteroatom of Hole Transporting Enamines for Efficient Perovskite Solar Cells
219	<u>Susana Iglesias-Porras</u> (<i>School of Natural and Environmental Sciences, Newcastle University, UK</i>), Dumitru Sirbu, Noel Healy, Pablo Docampo, Elizabeth Gibson Halide Perovskite Microstrain: Are We Measuring Correctly?
220	<u>Gulzada Beket</u> (<i>Epishine</i>), Thomas Österberg, Jonas Bergqvist, Feng Gao Operational stability of printed organic solar cells for indoor applications
221	<u>Will Clarke</u> (<i>Department of Mathematical Sciences, University of Southampton</i>), Giles Richardson Disambiguating the Cause of Inverted Hysteresis in Perovskite Solar Cells with an Asymptotic Approach
222	<u>Koen van den Hoven</u> (<i>High Field Magnet Laboratory, HFML-EMFL, Radboud University, The Netherlands</i>), Vishal Bechai, Hans Engelkamp, Peter Christiaan Dynamic Duos - Uncovering Singlet Fission Dynamics in TIPS-tetracene Crystals
223	<u>Laura Ciommaruchi</u> (<i>Eni - Renewable Energies and Materials Science Research Center</i>), Luigi Abbondanza, Riccardo Po, Fabio Melchiorre Use of Flory-Huggins Parameters concepts for the screening of novel Donor:Acceptor couples
224	<u>Clara Aranda</u> (<i>Forschungszentrum Jülich GmbH</i>), Monika Rai, Agustin Alvarez, Chittaranjan Das, Michael Saliba Deciphering the Role of Alkali Metals in Perovskite Solar Cells: Beyond High Photovoltage
225	<u>Šarūnė Daškevičiūtė-Gegužienė</u> (<i>Department of Organic Chemistry, Kaunas University of Technology, Kaunas, Lithuania</i>), Yi Zhang, Kasparas Rakstys, Marytė Daškevičiūtė, Vygtintas Jankauskas, Mohammad Khaja Nazeeruddin, Vytautas Getautis Green Synthesis of Cyclobutane-Based Hole-Selective Materials for Efficient Perovskite Solar Cells and Modules
226	<u>Aistė Jegorovė</u> (<i>Department of Organic Chemistry, Kaunas University of Technology, Kaunas LT-50254, Lithuania.</i>), Sreekanth Mandati, Nimish Juneja, Atanas Katerski, Aivars Vembris, Raitis Grzibovskis, Vytautas Getautis, Tatjana Dedova, Artiom Magomedov, Nicolae Spalatu, Smagul Karazhanov, Malle Krunks, Ilona Oja Acik Inexpensive fluorene-based hole transporting material with terminated thiophene unit for efficient semi-transparent Sb2S3 solar cells
227	<u>Bor Li</u> (<i>Helmholtz-Zentrum Berlin für Materialien und Energie, Division Solar Energy, 12489 Berlin, Germany</i>), Marlene Härtel, Amran Al-Ashouri, Eike Köhnen, Kari Sveinbjörnsson, Artem Musilenko, Philipp Wagner, Bernd Stannowski, Lars Korte, Steve Albrecht Up to 1.94 V Open Circuit Voltage in Highly Efficient Perovskite/Silicon Tandem Solar Cells Using Polymeric Interlayers in the Top Contact
228	<u>Jiashang Zhao</u> (<i>Department of Chemical Engineering, Delft University of Technology (TU Delft), The Netherlands</i>), Tom Savenije Manipulate the Second Order Non-radiative Recombination Process in MAPbBr3 Perovskites
229	Stuart Thomson, Maria Tesa, <u>Stephen McGurk</u> (<i>Edinburgh Instruments, Livingston, United Kingdom</i>) Bulk and Micro-Photoluminescence Studies of Perovskites
230	<u>Mohammadreza Golobostanfard</u> (<i>Photovoltaics and thin-films electronics laboratory (PV-lab), Institute of Electrical and Microengineering (IEM), Ecole Polytechnique Federale de Lausanne (EPFL), Neuchatel, 2000 Switzerland</i>), Xin Yu Chin, Kerem Artuk, Daniel Jacobs, Quentin Jeangros, Christian Wolff, Christophe Ballif Two-Step Evaporation-Solution Deposition of Narrow Bandgap FAPbI3-Based Perovskite Solar Cell
231	<u>Matthew Dingley</u> (<i>Department of Chemistry, University of Warwick, Coventry, CV4 7AL, United Kingdom</i>), Ross Hatton Investigating the Potential of Copper(II) Acetylacetonate as an Interfacial Buffer Layer in Organic Photovoltaics
232	<u>Raúl Ivan Sánchez-Alarcón</u> (<i>Institut de Ciència dels Materials (ICMUV), Universitat de València, c. Catedratic Beltrán 2, 46980 Paterna, Valencia, Spain</i>), Omar Eduardo Solís- Luna, María Cristina Momblona, Teresa Sanchis- Ripolles, Rafael Abargues, Pablo Perez- Boix, Vladimir Chirvony, Juan Martínez- Pastor Hot injection approach for lead free tin halide-based perovskite materials synthesis for photovoltaic and optoelectronic applications
233	<u>Xiao Zhang</u> (<i>Faculty of Science and Technology (TNW), University of Twente</i>), Lisanne Einhaus, André ten Elshof, Annemarie Huijser Patterned 2D Layered Perovskite Solar Cell under Controlled Crystallization by Imprint Lithography
234	<u>Weidong Xu</u> (<i>Centre for Processable Electronics, Department of Chemistry, Imperial College London W12 0BZ, U.K.</i>), Lucy Hart, Benjamin Moss, James Durrant Quantification of the charge losses in perovskite solar cells via operando photoluminescence spectroscopy
235	<u>Shizhe Wang</u> (<i>Department of Chemistry, University of Munich, Butenandtstrasse 5-13, 81377 Munich, Germany</i>), Dan Han, Rik Hooijer, Andreas Weis, Florian Wolf, Hubert Ebert, Thomas Bein Room-Temperature Synthesis of Lead-Free Copper-Antimony-Based Double Perovskite Nanocrystals for Photovoltaic Application
236	<u>Sofya Svetlanova</u> (<i>Institute for Photovoltaics (ipv), University of Stuttgart, Pfaffenwaldring 47, 70569 Stuttgart, Germany</i>), Claudiu Mortan, Michael Saliba Perovskite Solar Cells for Space Applications on a High-Altitude Stratosphere Balloon
237	<u>Eman Alkudhayr</u> (<i>University of Newcastle</i>), Dumitru Sirbu, Elizabeth Gibson, Benjamin Vella, Miriam Fsadni, Namrata Pant, Toby Hallam, Pablo Docampo Amide-based Small Molecules with Non-conjugate Backbones as Hole Transporting Material for Perovskite Solar Cells
238	Gabriela S. Anaya Gonzalez, <u>Jose J. Jeronimo-Rendon</u> (<i>University of Stuttgart, Institute for Photovoltaics, Pfaffenwaldring 47, 70569 Stuttgart, Germany</i>), Qiong Wang, Guixiang Li, Agustin O. Alvarez, Francisco Fabregat-Santiago, Alberto Alvarado, Hector Juárez-Santiesteban, Silver-Hamill Turren-Cruz, Michael Saliba, Antonio Abate Large grain size with reduced non-radiative recombination in potassium incorporated methylammonium-free perovskite solar cells
240	Fernanda Retana, Susana Lopez, Idalia Gomez, <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>), Yolanda Peña Hybrid FeS2 - polythiophene derivatives solar cells
241	<u>Sun Ju Kim</u> (<i>Laboratory of Nano Energy Harvesting Materials and Devices, Department of Nano Fusion Technology, Pusan National University, Pusan, Korea</i>), Ramech Chitumalla Kumar, Joon Kyung Jang, Ji Youn Seo Interfacial Engineering towards Stable and Safer Lead Perovskite Solar Cell
242	<u>Ugur Deneb Menda</u> (<i>Universidade NOVA de Lisboa, CENIMAT-I3N, Faculdade de Ciências e Tecnologia</i>), Iñigo Ramiro, Guilherme Ribeiro, Daniela Nunes, Tomas Calmeiro, Hugo Aguas, Elvira Fortunato, Rodrigo Martins, Manuel J. Mendes Wide Bandgap Mixed Cation Mixed Halide Perovskite Solar Cells Fabricated in Ambient High-Humidity Conditions

243	<u>Minju Jun</u> (<i>Pusan National University, South Korea</i>), Thanh Mien Nguyen, Jin-Woo Oh, Ji-Youn Seo Light Engineering towards Highly Efficient Organic Solar Cells by M13 Bacteriophage
244	<u>Robbe Breugelmans</u> (<i>Hasselt University, imo-imomec, Martelarenlaan 42, 3500 Hasselt, Belgium</i>), Tamara Merckx, Aranzazu Aguirre, Stijn Lammar, Jorne Carolus, Tom Aernouts, Bart Vermang, Michaël Daenen On The Susceptibility of PID in Perovskite Modules: A Comparison of ITO and Cu Contacts
246	<u>Giovanni Spinelli</u> (<i>School of Natural and Environmental Sciences, Newcastle University, UK</i>), Marina Freitag Conductivity and Properties of Two Charge Transfer Salts for Molecular Devices
247	<u>Iñigo Ramiro</u> (<i>Universidade NOVA de Lisboa, CENIMAT-13N, Faculdade de Ciências e Tecnologia</i>), Ugur Deneb Menda, Guilherme Ribeiro, Santanu Jana, Daniela Nunes, Elvira Fortunato, Rodrigo Martins, Manuel João Mendes Expanding the absorption of lead-halide perovskites via the inclusion of QDs for enhanced photovoltaic conversion
248	<u>Quanyao Lin</u> (<i>Institute for Materials Discovery, University College London, Malet Place, London, WC1E 7JE, UK</i>), Kwang-Leong Choy, Mojtaba Abdi-Jalebi Localised Surface Plasmon Enhancement on Perovskite Thin Films for Photovoltaics with Plasmonic Core/Shell Nanoparticles
249	<u>Omar E. Solis</u> (<i>Instituto de Ciencia de los Materiales de la Universidad de Valencia (ICMUV), 46980, Paterna, Valencia, Spain</i>), Carolina Fernández-Saiz, Jesús Manuel Rivas, D. Esparza, Silver-Hamill Turren-Cruz, Beatriz Julián-López, Pablo P. Boix, Iván Mora-Seró α -FAPbI ₃ powder presynthesized by microwave irradiation for photovoltaic applications
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