



European Materials Research Society

2023 Spring Meeting May 29 | June 2

40th Anniversary

Congress & Exhibition Centre, Strasbourg, France

SYMPOSIUM 0

Halide Perovskites for photonic applications: stability and durability issues

Symposium Organizers:

Giulia GRANCINI, Università di Pavia, Italy

Annamaria PETROZZA, IIT, Milano, Italy

Juan P. MARTINEZ PASTOR, University of Valencia, Spain

Michele DE BASTIANI, Università di Pavia, Italy

APL Energy



جامعة الملك عبدالله
للعلوم والتقنية
King Abdullah University of
Science and Technology

KAUST
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Tuesday May 30

O1

High energy detection

Chairperson(s) : GRANCINI Giulia - PETROZZA Annamaria

Churchill (1st floor)

13:45	2393	INV	Radiation tolerance and stability of deep levels in PEA ₂ PbBr ₄ 2D perovskite crystals	CIAVATTI Andrea
14:15	50		Mechanosynthesis and wafers-shaping of 2D and mixed 2D/3D hybrid perovskites for designing new X-Ray detector with improved stability and performance	CAI Yihui
14:30	1796		Wide-Band Gap Perovskite based on bromide halide: Impact of light, thermal and X-Ray Irradiation stresses on semi-transparent perovskite solar cells and detectors	MATTEOCCI Fabio
14:45	1403		Mitigating effects of ion migration for stable perovskite image sensors	TSAREV Sergey

Tuesday May 30

O2

Devices and stability 1

Chairperson(s) : GRANCINI Giulia - PETROZZA Annamaria

Churchill (1st floor)

15:00	1839	INV	MXenes for Stable Halide Perovskite Solar Cells	LIRA-CANTU Monica
15:30	1635		Elucidating the role of surface state in stability of perovskite solar cells using NiOx hole transport layer	JUNG Hye Ri
15:45	1135		Opportunities for the commercialization of stable perovskites based solar cells	BOUICH Amal

Tuesday May 30

O3

Perovskite heterostructures

Chairperson(s) : GRANCINI Giulia - PETROZZA Annamaria

Churchill (1st floor)

16:30	509	INV	2D/3D bilayers for stable solar cells	EVEN Jacky
17:00	637		Manipulation of 2D Layered Perovskites Optoelectronic Properties by Crystalline Orientation Control	ZANETTA Andrea
17:45	1075		A comparative study on bulk and surface passivants in high efficiency p-i-n perovskite solar cells	MONTECUCCO Riccardo
18:00	1277		Dimensionality control and growth of bottom-up synthesized lead- free hybrid tin (II) halide perovskites micro- and nanostructures	SÁNCHEZ Raúl Ivan
18:15	643		Single-nanowire CsPbBr ₃ perovskite nanodevices and green-blue nanoheterostructures via anion exchange	LAMERS Nils

Wednesday May 31

O4

Advanced characterization

Chairperson(s) : GRANCINI Giulia - PETROZZA Annamaria

Churchill (1st floor)

10:00	2824	INV	Study of the formation mechanism of fluorophenylethylammonium - based 2D / triple cation - based 3D perovskite heterostructures for stable solar cells	DELEPORTE Emmanuelle
10:45	267		In-situ characterization monitoring of physical mechanisms acting during perovskite solar cell degradation and its stabilization when using molecular additive.	BAUMANN Fanny
11:15	398		Advanced Perovskite Interface Characterization by Admittance Spectroscopy on MOS Structures	PARION Jonathan
11:30	2755		Surface or Bulk Defects - Halide Perovskites Probed by Photothermal Deflection Spectroscopy	LEDINSKY Martin
11:45	2431		When photoluminescence, electroluminescence, and open-circuit voltage diverge – light soaking and halide segregation in perovskite solar cells	EBADI Firouzeh

Wednesday May 31

O5

Devices and stability 2

Chairperson(s) : DE BASTIANI Michele - PETROZZA Annamaria

Churchill (1st floor)

13:30	2767	INV	Pathways to efficient and stable perovskite/silicon tandem solar cells	DE WOLF Stefaan
14:00	1395		Wide Band Gap Perovskites for Tandem Solar Cells Fabricated by Thermal Co-Evaporation	ROSS Marcel
14:15	271		Stability Assessment of Perovskite Solar Cells Under Real Outdoor Conditions: Effect of Encapsulation	TANKO Kenedy Tabah
14:30	1511		Visualizing Losses in Highly Efficient and Stable Perovskite-based Tandem Solar Cells	UGUR Esma

14:45 1844 Ageing and characterization of high-bandgap perovskites for all thin-film tandem solar cell devices **CABAS VIDANI Antonio**

Wednesday May 31

O6

Devices and stability 3

Chairperson(s) : **DE BASTIANI Michele - PETROZZA Annamaria**

Churchill (1st floor)

15:00 1512 INV Stability aspects of perovskite/silicon tandem solar cells on the path of industrialization **AYDIN Erkan**

15:30 2496 Efficient and Stable Formamidium Based Perovskite Solar Cells by Slot-Die Coating **KUNNUMMAL MANGOTT Muhammed Salim**

15:45 2723 Structure and Stability Studies of Chlorine Addition to Flexible Printed Perovskite Solar Cells **STAVRAKI Chrysi**

Wednesday May 31

O_P

Poster session

Etoile (1st floor) - 4.30 p.m to 6.30 p.m

02_2495 Performance analysis of Tin-based Perovskite-SnS Tandem solar cell using alternative hole transport and buffer layers **DJEFFAL Faycal**

03_2358 Effect of film composition and interlayers on the stability of tin perovskite solar cells. **GUPTA Devina**

04_1229 Increasing Halide Perovskite Stability with Food Additives **CARTLEDGE Carsen**

05_2316 Effect of A-site engineering on the crystal structure and UV light photodetection properties of cesium copper iodide perovskite **NAWROCKI Jan**

06_2111 Nano-filters for perovskite solar cell stability enhancement **DELGADO RODRÍGUEZ Silvia**

07_1319 Molecular doping of MAPbI₃ with hole transport triazatuxenes: effect on solar cell performance. **COYA M. Carmen**

08_1089 Magnetron Sputtered SnO₂ as Electron Transport Layer for Perovskite Solar Cells **ZAKARIA Yahya**

09_1134	Europium bromide doped-CH ₃ NH ₃ PbI for stable and organic perovskite films	MARÍ-GUAITA Julia
10_1781	Synthesis of perovskite nanocrystals using bio-inspired passivation agent for stability enhancement	YANG Hee Yun
11_1825	A 2D lead halide hybrid system with the lowest bandgap and exciton binding energy	PARIARI Debasmita
12_1729	Ultrastretchable perovskite solar module with high areal coverage of active devices with 3D printer-based fabrication process	LEE Phillip
13_1322	First principles investigation of microscopic effects of additives bication thiocyanate slats in wide bandgap perovskites	CHANG Yun Hee
14_1120	Natural Clay Based Scaffold Layer for Perovskite Solar Cells	BÜTÜN Buse Nur
15_1014	Impact of hexagonal stacking fault on defect distribution of metal halide perovskites	WOO Young Won
16_924	Perovskite solar cells based on lead-deficient Perovskites	PAUपोर्टÉ Thierry
17_880	Sulphur-doped CQDs to improve the photovoltaic parameters of perovskite solar cells	KIRBIYIK KURUKAVAK Çisem
18_867	Controlling Intrinsic Quantum Confinement in Formamidinium Lead Triiodide Perovskite through Cs Substitution	ELMESTEKAWY Karim
19_683	Over 20% efficient FAPbI ₃ -based perovskite deposited by hybrid evaporation-solution method as a mid-cell for triple junction solar cells	GOLOBOSTANFARD Mohammadreza
20_552	Encapsulated Cs _{0.1} (MA _{0.17} FA _{0.83}) _{0.9} Pb(I _{0.83} Br _{0.17}) ₃ triple cation perovskite in MOF-5 as a highly efficient material for Stable perovskite solar cell	GOEL Priyanshu
21_439	Super Stable Quadruple-cation Bromide Perovskite Solar Cells- From Fundamental Research To Final Application.	HESHMATI Niusha
22_297	Using ZnCo ₂ O ₄ nanoparticles as the HTL for fabricating perovskite solar cells with enhanced device stability	YANG Sheng-Hsiung
23_296	Synthesis of perovskite nanocrystals tethering conjugated sulfonate ligands for light-emitting application	YANG Sheng-Hsiung

24_206	Full-Color Micro-LED Display Enabled by Highly Stable Photo-Patternable Perovskite Quantum Dot Resin	SHIM Hyungcheoul
25_2602	Flash Annealed Nickel Oxide for Large Area Perovskite Solar Cells	OCHOA-MARTÍNEZ Efrain
26_2707	Light and Iodine-Induced Phase Segregation in Mixed-Halide Perovskites Studied by Optoelectric and X-ray Diffraction Methods	HOLOVSKÝ Jakub
27_2562	Dual passivation strategy to suppresses non-radiative recombination in narrow bandgap Pb-Sn perovskite solar cells for achieving efficiency above 20%	KURISINKAL PIOUS Johnpaul

Thursday June 1

07

Novel materials and deposition techniques

Chairperson(s) : DE BASTIANI Michele - MARTÍNEZ-PASTOR Juan P.

Churchill (1st floor)

10:00	2009	INV	Pulsed Laser Deposition of Halide Perovskites: A Single-source, Dry, Vapor Deposition Approach	MORALES-MASIS Monica
10:30	353		Surface Functionalized MXene-based Halide Perovskite Solar Cells	PAINGOTT Ashitha
10:45	374		Investigation of perovskite solar cells with guanidinium iodide doped MAPbI ₃ active layer	CHANG Ting-Chun
11:00	668		Interface Quality and Stability Correlation in Photonically Cured Solution Processed Tin Oxide Thin Films based Perovskite Solar Cells	SARDA Nisha
11:15	745		Out-of-Glovebox Integration of Recyclable Europium-Doped CsPbI ₃ in Triple-Mesoscopic Carbon-Based Solar Cells Exceeding 9% Efficiency	VALASTRO Salvatore
11:30	1097		Control of Perovskite Film Crystallization and Growth Direction to Target Homogeneous Monolithic Structures	PAUPOURÉ Thierry

Thursday June 1

08

Perovskites for photonic applications 1

Chairperson(s) : GRANCINI Giulia - MARTÍNEZ-PASTOR Juan P.

Churchill (1st floor)

13:30	2823	INV	Vapor phase deposited halide perovskites for photonic applications	ROLDAN CARMONA Cristina
14:00	2719		Demonstrating multiple Metal Oxide charge transport layers in fully Inkjet-Printed Halide Perovskite LEDs on Flexible Substrates	GONZALEZ-TORRES Sergio
14:15	1598		Temperature-Induced Morphology Optimization for High-Performance Green Emissive Cs ₃ MnBr ₅ Perovskite Nanoparticles	YOO Ho Chan

14:30 2360 The sharp blue and green emission in Eu-doped CsPbBr₃ halide perovskite for the Optical Applications **KACHHAP Santosh**

14:45 1929 Unveiling the electro-ionic coupling mechanisms in high-performance Perovskite Light-emitting Diodes through modulated techniques **SÁNCHEZ Rafael**

Thursday June 1

O9

Perovskites for photonic applications 2

Chairperson(s) : GRANCINI Giulia - MARTÍNEZ-PASTOR Juan P.

Churchill (1st floor)

15:00 13 INV High-performance perovskite light-emitting diodes with tuneable near-infrared emissions and improved operational stability **YUAN Zhongcheng**

15:30 2188 Towards fully inkjet-printed 2D Lead-Free Halide Perovskite Red-emitting LEDs on Rigid and Flexible Substrates **VESCIO Giovanni**

15:45 756 Molecular Interaction Strategies Enable Highly Stable and Efficient Perovskite Light-Emitting Diodes **KUANG Chaoyang**

Thursday June 1

O10

Perovskites for photonic applications 3

Chairperson(s) : GRANCINI Giulia - MARTÍNEZ-PASTOR Juan P.

Churchill (1st floor)

16:30 1416 INV Photovoltaic and excitonic properties of novel perovskite-like materials. **VOLONAKIS George**

17:00 1949 How Relevant are Long Diffusion Lengths for Efficient Halide Perovskite Solar Cells? **AKEL Samah**

17:15 1812 Multi-Stage Phase-Segregation of Mixed Halide Perovskites under Illumination: A Quantitative Comparison of Experimental Observations and Thermodynamic Models **SUCHAN Klara**

17:30 1556 Effect of anharmonicity and polymorphism on electron-phonon coupling in halide perovskites **ZACHARIAS Marios**

17:45 1178 Phase stability in MAPbI₃ from first principles calculations **MADAAN Kajaal**

18:00	1892	Temperature-dependence optical properties of CsCu ₂ I ₃ NCs	DIAGO FORERO Joshua
18:15	891	Interlayer-Sensitized Linear/Nonlinear Photoluminescence of Quasi-2D Perovskites Using Aggregation-induced Emission Active Organic Cation	LIM Chang-Keun

Friday June 2

O11

Perovskites for photonic applications 4

Chairperson(s) : GRANCINI Giulia - PETROZZA Annamaria

Churchill (1st floor)

08:45	2802	INV	Low-dimensional perovskites: from structural design to photonic applications	CORTECCHIA Daniele
09:15	1230		Highly Stable Cesium Lead Halide Perovskites in Mesoporous Liquid Crystal Polymer Particles	LEE Geunjung
09:30	1410		High Performance All Inorganic Perovskite Solar Cells Based on Oxide/Halide/Oxide Architecture	JEONG Min Ju
09:45	1619		Simultaneous encapsulation of halide perovskite in polyethylene lamellar capsule through facile hot-injection method	YOO Junghyeon

Friday June 2

O12

Perovskites for photonic applications 5

Chairperson(s) : GRANCINI Giulia - PETROZZA Annamaria

Churchill (1st floor)

10:30	996	INV	Next materials for future photonics devices	GIRTAN Mihaela
11:00	1502		Accelerating the development of stable vapor-deposited perovskite thin-films via combinatorial UV-Vis degradation studies	WIECZOREK Alexander
11:15	2005		Ionic liquid-based molecules and macromolecules to improve the performance of hybrid perovskite solar cells	CLOUTET Eric
11:30	1549		Thermal Evaporation of Self-Assembled Monolayers for Lossless Interfaces in p-i-n Perovskite Solar Cells	FEENEY Thomas

