

nanoGe Fall Meeting19 (NGFM19)

#MapNan19. Mapping Nanoscale Functionality with Scanning Probe Microscopy

Berlin, Germany, 2019 November 4th - 5th

Conference Chairs: Stefan Weber and Brian Rodriguez

Conference Program

November 4th - Day 2 (Monday)	
	Plenary Session 1 Chair: Roel van de Krol Room: Plenum 09:00 - 09:30 <u>Daniel Nocera</u> (<i>Harvard University</i>) 1-K1 Sustainable and Renewable Carbon and Nitrogen Cycles for Fuel and Crop Production
	Plenary Session 2 Chair: Cristiane Morais Smith Room: Breakout 1 09:00 - 09:30 <u>Erat Lifshitz</u> (<i>Schulich Faculty of Chemistry, Solid State Institute, Russell Berrie Nanotechnology Institute and the Helen Diller Quantum Information Center; Technion, Haifa, Israel</i>), Maksym Kovalenko, Andrew Rappe 2-K1 The Effect of Magnetism on the Optical Properties of Bulk and Confined Perovskite Structures
	MapNan 1.1. Chair: Lukas M. Eng Room: Breakout 1 09:30 - 10:00 <u>Yunseok Kim</u> (<i>Sungkyunkwan University, Republic of Korea</i>) 1.1.-I1 Fast Local Probing of Polarization Charge 10:00 - 10:30 <u>Tobias Leonhard</u> (<i>Light Technology Institute, Karlsruhe Institute of Technology, Germany</i>), Holger Röhm, Alexander Schulz, Susanne Wagner, Michael J. Hoffmann, Alexander Colsmann 1.1.-O1 Ferroelectricity in methylammonium lead iodide perovskite solar cells
10:30 - 11:00	Coffee Break
	MapNan 1.2 Chair: Laura Fumagalli Room: Breakout 1 11:00 - 11:30 <u>Liam Collins</u> (<i>Center for Nanophase Materials Sciences, Oak Ridge National Laboratory</i>) 1.2.-I1 Multiscale Functional mapping in Hybrid Organic Inorganic Perovskites: Linking Device Hysteresis with Local Functionality 11:30 - 12:00 <u>Rajiv Giridharagopal</u> (<i>University of Washington, Department of Chemistry, Seattle, WA 98195-1700</i>), David Ginger 1.2.-O1 Advances in Multimodal Scanning Probe Microscopy at the Nanoscale 12:00 - 12:30 <u>Ilka M. Hermes</u> (<i>Max Planck Institute for Polymer Research, Mainz, Germany</i>), Andreas Best, Julian Mars, Sarah M. Vorpahl, Markus Mezger, Hans-Jürgen Butt, David S. Ginger, Kaloian Koyanov, Stefan A. L. Weber 1.2.-I2 Anisotropic Charge Carrier Diffusion Correlated to Ferroelastic Twin Domains in MAPbI ₃ Perovskite
12:30 - 14:00	Lunch
	MapNan 1.3 Chair: Patrick Mesquida Room: Breakout 1 15:00 - 15:15 <u>Hiroaki BENTEN</u> (<i>Division of Materials Science, Nara Institute of Science and Technology - JP</i>) 1.3.-O1 Nanoscale Morphology for Charge Transport of Conjugated Polymer Blend Films Studied by Conductive Atomic Force Microscopy

15:15 - 15:30 D.O. Alikin (*Ural Federal University, School of Natural Sciences and Mathematics, Ekaterinburg, Russia*), Y. Fomichov, S.P. Reis, A.S. Abramov, D.S. Chezganov, V.Ya. Shur, E. Eliseev, A. Morozovska, E.B. Araujo, A.L. Kholkin
 1.3-O2 Piezoelectric Response and Polarization-Dependent Conductivity of Grain Boundaries in BiFeO₃ Thin Films

15:30 - 16:00 **Coffee Break**

November 5th - Day 3 (Tuesday)

Plenary Session 3

Chair: Marcus Scheele
 Room: Plenum

08:30 - 09:00 William Tisdale (*Massachusetts Institute Of Technology*)
 3-K1 Nonequilibrium Dynamics of Excitons and Charges in Semiconductor Nanomaterials

Plenary Session 4

Chair: Pablo P. Boix
 Room: Breakout 4

08:30 - 09:00 Juan Bisquert (*Universitat Jaume I, Institute of Advanced Materials (INAM) - Spain*)
 4-K1 Understanding Time Scales of Ionic and Electronic Phenomena in Perovskite Solar Cells

MapNan 2.1

Chair: Liam Collins
 Room: Breakout 1

09:00 - 09:30 LAURA FUMAGALLI (*National Graphene Institute, Manchester, UK*)
 2.1-I1 Probing the Dielectric Constant on the Nanoscale: from Thin Films to DNA and Confined Water

09:30 - 10:00 Riccardo Borgani (*Nanostructure Physics, KTH Royal Institute of Technology, Stockholm, Sweden*), David Haviland
 2.1-O1 Multifrequency AFM Methods for Electrical Characterization at the Nanoscale

10:00 - 10:15 Andrea Cerreta (*Park Systems Europe GmbH*), Florian Stumpf, Ilka Hermes, Manfred Madel, Linh Trinh-Xuan,
 2.1-O2 Sandra Riedmüller, Daniel Sommer, Hervé Blanck
 Simultaneous SKPM and Current-Voltage Characterization of Slow Charging Processes in Transistors

10:15 - 10:30 Katie O'Neill (*CRANN/AMBER, School of Physics, Trinity College Dublin, Ireland*), Cormac Ó Coileáin, Jason
 2.1-O3 Kilpatrick, Max Pechtl, Niall McEvoy, Georg S. Duesberg
 Manipulation of Transition Metal Dichalcogenides: Nanomachining 2D PtSe₂ using AFM

10:30 - 11:00 **Coffee Break**

MapNan 2.2

Chair: Ilka Hermes
 Room: Breakout 1

11:00 - 11:30 Lukas M. Eng (*Institute of Applied Physics, TU Dresden*)
 2.2-I1 "SFM-mediated NanoMagnetism & NanoOptics: From Skyrmions to THz Near-field Optics"

11:30 - 12:00 Patrick Mesquida (*Kings College London*)
 2.2-I2 Kevin-probe Force Microscopy of Biological Materials

12:00 - 12:15 Richard Thelen (*Karlsruhe Institute of Technology (KIT), Institute of Microstructure Technology (IMT), Hermann-
 2.2-O1 von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany*)
 Correlated Characterization: a Realistic Option For Future Metrology ?

12:15 - 12:30 Miriam Unger (*Bruker Nano Surfaces*), Anirban Roy, Qichi Hu
 2.2-O2 Latest Advances in Nanoscale IR Spectroscopy and Imaging

12:30 - 14:00 **Lunch**

MapNan 2.3

Chair: Brian Rodriguez
 Room: Breakout 1

14:00 - 14:30 2.3-I1	<u>Mahshid Ahmadi</u> (<i>Joint Institute for Advanced Materials, Department of Materials Science and Engineering, University of Tennessee</i>), Liam Collins, Kate Higgins, Matthias Lorenz, Sergei V. Kalinin Spatially Resolved Carrier Dynamics and Associated Chemical Changes at Hybrid Organic-inorganic Perovskite/Electrode Interfaces
14:30 - 14:45 2.3-O1	<u>Amelie Axt</u> (<i>Max Planck Institute for Polymer Research, Mainz, Germany</i>), Ilka Hermes, Stefan A.L. Weber Know your full potential: Kelvin probe force microscopy on nanoscale electrical devices and at solid-liquid interfaces
15:30 - 16:00	Coffee Break
17:00 - 19:00	Poster Session