

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	
09:00 - 09:30 Session-K1	<u>Efrat 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 The Effect of Magnetism on the Optical Properties of Bulk and Confined Perovskite Structures
09:00 - 09:30 Session-K2	<u>Daniel Nocera</u> (<i>Harvard University</i>) Sustainable and Renewable Carbon and Nitrogen Cycles for Fuel and Crop Production
MapNan 1.1.	
09:30 - 10:00 1.1.-I1	<u>Yunseok Kim</u> (<i>Sungkyunkwan University (SKKU)</i>) Fast Local Probing of Polarization Charge
10:00 - 10:30 1.1.-O1	<u>Tobias Leonhard</u> (<i>Light Technology Institute, Karlsruhe Institute of Technology, Germany</i>), Holger Röhms, Alexander Schulz, Susanne Wagner, Michael J. Hoffmann, Alexander Colsmann Ferroelectricity in methylammonium lead iodide perovskite solar cells
10:30 - 11:00	Coffee Break
MapNan 1.2	
11:00 - 11:30 1.2-I1	<u>Liam Collins</u> (<i>Center for Nanophase Materials Sciences, Oak Ridge National Laboratory</i>) Multiscale Functional mapping in Hybrid Organic Inorganic Perovskites: Linking Device Hysteresis with Local Functionality
11:30 - 12:00 1.2-O1	<u>Rajiv Giridharagopal</u> (<i>University of Washington, Department of Chemistry, Seattle, WA 98195-1700</i>), David Ginger Advances in Multimodal Scanning Probe Microscopy at the Nanoscale
12:00 - 12:30 1.2-I2	<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 Koynov, Stefan A. L. Weber Anisotropic Charge Carrier Diffusion Correlated to Ferroelastic Twin Domains in MAPbI3 Perovskite
12:30 - 14:00	Lunch
MapNan 1.3	
14:00 - 14:30 1.3-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 - 15:00 1.3-I2	<u>Andrei Kholkin</u> (<i>University of Aveiro</i>), Denis Alikin, Boris Slautin, Konstantin Romanyuk, Daniele Rosato, Alexander Tselev Correlative Scanning Probe and Confocal Raman Microscopy for the Evaluation of Li-ion Kinetics in LiMn2O4 Cathodes
15:00 - 15:15 1.3-O1	<u>Hiroaki BENTEN</u> (<i>Division of Materials Science, Nara Institute of Science and Technology - JP</i>) Nanoscale Morphology for Charge Transport of Conjugated Polymer Blend Films Studied by Conductive Atomic Force Microscopy

15:15 - 15:30 1.3-O2	<u>Denis Alikin</u> (<i>University of Aveiro</i>), Yevhen Fomichov, Saulo Reis, Eugene Eliseev, Anna Morozovska, Eudes Araujo, Andrei Kholkin Polarization-dependent Conductivity of Grain Boundaries in BiFeO ₃ Thin Films
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15:30 - 16:00	Coffee Break
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November 5th - Day 3 (Tuesday)

Plenary Session

08:30 - 09:00 Session-K1	<u>Juan Bisquert</u> (<i>1 Institute of Advanced Materials (INAM), Universitat Jaume I, Castellon, 12006 (Spain)</i>) Understanding Time Scales of Ionic and Electronic Phenomena in Perovskite Solar Cells
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08:30 - 09:00 Session-K2	<u>William Tisdale</u> (<i>Massachusetts Institute Of Technology</i>) Nonequilibrium Dynamics of Excitons and Charges in Semiconductor Nanomaterials
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MapNan 2.1

09:00 - 09:30 2.1-I1	<u>LAURA FUMAGALLI</u> (<i>National Graphene Institute, Manchester, UK</i>) Probing the Dielectric Constant on the Nanoscale: from Thin Films to DNA and Confined Water
09:30 - 10:00 2.1-O1	<u>Riccardo Borgani</u> (<i>Nanostructure Physics, KTH Royal Institute of Technology, Stockholm, Sweden</i>), David Haviland Multifrequency AFM Methods for Electrical Characterization at the Nanoscale
10:00 - 10:15 2.1-O2	<u>Andrea Cerreta</u> (<i>Park Systems Europe GmbH</i>), Florian Stumpf, Ilka Hermes, Manfred Madel, Linh Trinh-Xuan, Sandra Riedmüller, Daniel Sommer, Hervé Blanck Simultaneous SKPM and Current-Voltage Characterization of Slow Charging Processes in Transistors
10:15 - 10:30 2.1-O3	<u>Katie O'Neill</u> (<i>CRANN/AMBER, School of Physics, Trinity College Dublin, Ireland</i>), Cormac Ó Coileáin, Jason Kilpatrick, Max Pechtl, Niall McEvoy, Georg S. Duesberg Manipulation of Transition Metal Dichalcogenides: Nanomachining 2D PtSe ₂ using AFM

10:30 - 11:00	Coffee Break
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MapNan 2.2

11:00 - 11:30 2.2-I1	<u>Lukas M. Eng</u> (<i>Institute of Applied Physics, TU Dresden</i>) "SFM-mediated NanoMagnetism & NanoOptics: From Skyrmions to THz Near-field Optics"
11:30 - 12:00 2.2-I2	<u>Patrick Mesquida</u> (<i>Kings College London</i>) Kevin-probe Force Microscopy of Biological Materials
12:00 - 12:15 2.2-O1	<u>Richard Thelen</u> (<i>Karlsruhe Institute of Technology (KIT), Institute of Microstructure Technology (IMT), Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen, Germany</i>) Correlated Characterization: a Realistic Option For Future Metrology ?
12:15 - 12:30 2.2-O2	<u>Miriam Unger</u> (<i>Bruker Nano Surfaces</i>), Anirban Roy, Qichi Hu Latest Advances in Nanoscale IR Spectroscopy and Imaging

12:30 - 14:00	Lunch
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14:00 - 15:30	MapNan 2.3
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15:30 - 16:00	Coffee Break
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17:00 - 19:00	Poster Session
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