



אוניברסיטת בן-גוריון בנגב
Ben-Gurion University
of the Negev

Program
21st Sede Boqer Symposium
on Solar Electricity Production
March 7-8, 2018

George Evens Family Auditorium,
The Blaustein Institutes for Desert Research,
Ben-Gurion University of the Negev (Midreshet Ben-Gurion)

Organizing Committee:

Eugene A Katz
Daniel Feuermann
Arik Yochelis

Wednesday, March 7, 2018

9:00 – 9:30 Arrival and Registration

9:30-10:00 **Opening Greetings**

Chair: Prof. **Eugene Katz**, Ben-Gurion University of the Negev
Prof. **Rivka Carmi**, President, Ben-Gurion University of the Negev

Prof. **Boris Zaltzman**, Director, Jacob Blaustein Institutes, Ben-Gurion University of the Negev

Sponsors:



The Jacob Blaustein Center for Scientific Cooperation
The Jacob Blaustein Institutes for Desert Research
Ben-Gurion University of the Negev



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Ministry of Energy

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Office of the Rector, Swiss Institute

10:00-11:30 Session 1.1: Basic processes in photovoltaic conversion
Chair: David Faiman (Ben-Gurion University of the Negev)

- 10:00-10:30 Invited talk: **Natalie Stingelin** (Georgia Tech), *Solution-Processed Photovoltaics: Challenges and Opportunities through Materials and Interface Engineering*
- 10:30-11:00 Invited talk: **Anna Köhler** (Bayreuth University), *The Impact of Coherence Effects on Charge Separation in Organic Solar Cells*
- 11:00-11:30 Invited talk: **Carlos Silva** (Georgia Tech), *Stable Biexcitons in Two-Dimensional Lead-halide Perovskites with Strong Dynamic Lattice Disorder*

11:30-11:45 Coffee break

11:45-12:30 Session 1.2: Keynote
Chair: Avner Rothschild (Technion – Israel Institute of Technology)

Michael Grätzel

Ecole Polytechnique Federale de Lausanne

Metal Halide Perovskites as Powerful Light Harvesters for the Generation of Electricity and Fuels from Sunlight

12:30-13:45 Lunch

13:45-14:45 Poster session I in lobby of Evens Auditorium

14:45-16:30 Session 1.3: Perovskite-based Photovoltaic Materials and Devices
Chair: Lioz Etgar (Hebrew University of Jerusalem)

- 14:45-15:15 Invited talk: **Shengzhong (Frank) Liu** (Shaanxi Normal University), *Perovskite – a Wonder for Photovoltaic & Optoelectronic Applications*
- 15:15-15:45 Invited talk: **Pavel Troshin** (Institute for Problems of Chemical Physics, Russian Academy of Sciences), *Bulk and Interface-induced Degradation Effects Governing the Operation Stability of Perovskite Solar Cells*
- 15:45-16:00 **Mark Khenkin** (Ben-Gurion University of the Negev), *Dynamics of Photoinduced Degradation of Perovskite Photovoltaics: From Reversible to Irreversible Processes*
- 16:00-16:15 **Eva L. Unger** (Helmholtz-Zentrum Berlin, Lund University), *Ionic (In)homogeneity in Metal-halide Perovskites*
- 16:15-16:30 **Eva Majkova** (Institute of Physics, Bratislava), *Time-resolved GIWAXS Studies of Organometallic Perovskite Layer Structure Annealed at Various Temperatures*

16:30-16:45 Coffee break

16:45-17:30 Session 1.4: Keynote
Chair: Arik Yochelis (Ben-Gurion University of the Negev)

Katharina Krischer

Technische Universität München

Solar Fuel Generation with Plasmonic Photoelectrochemistry

17:30-19:00 Session 1.5: New Approaches for Solar Energy Conversion

Chair: Carmel Rothschild (Technion – Israel Institute of Technology)

- 17:30-18:00 Invited talk: **Alexis Vossier** (French National Center for Scientific Research), *Performance Bounds for Hybrid Solar PV/Thermal Electricity Generation Strategies*
- 18:00-18:30 Invited talk: **Arik Yochelis** (Ben-Gurion University of the Negev), *From Solvent-Free to Dilute Electrolytes: A Unified Continuum Theory for Electrochemical Applications*
- 18:30-18:45 **Nimrod Kruger** (Technion – Israel Institute of Technology), *Thermal Photo-Luminescence Photovoltaics as High Efficiency Conversion Devices*
- 18:45-19:00 **Yifat Piekner** (Technion – Israel Institute of Technology), *Tandem Photovoltaic-Photoelectrochemical Cells for Solar Water Splitting*

19:30 Festive dinner**21:00 Bus returns to Beer-Sheva at the end of the evening****Thursday, March 8, 2018****9:00 – 9:30** Arrival and registration**9:30-9:45** Greetings. **Yael Harman**, Israel's Ministry of Energy. *Focus areas for support by the Ministry of Energy***9:45-11:15 Session 2.1: Solar Fuels**

Chair: Katharina Krischer (Technische Universität München)

- 9:45-10:15 Invited talk: **Noam Adir** (Technion – Israel Institute of Technology), *Utilizing Photosynthetic Complexes for Solar Energy Conversion: Building a Bio-generator*
- 10:15-10:30 **Yotam Avital** (Ben-Gurion University of the Negev), *H₂O₂ Photo-oxidation on Hematite Electrodes: A Tale of Two Sites*
- 10:30-10:45 **Maytal Caspary Toroker** (Technion – Israel Institute of Technology), *Recent Advances in ab-initio Modeling Iron Oxide Water Splitting*
- 10:45-11:00 **Yuval Ben-Shahar** (Hebrew University of Jerusalem), *Semiconductor-Metal Hybrid Nanorods as Photocatalysts*
- 11:00-11:15 **Oren Meiron** (Ben-Gurion University of the Negev), *Designing Nano-catalysts for the Hydrogen Evolution Reaction*

11:15-11:30 Coffee break**11:30-12:15 Session 2.2: Keynote**

Chair: Muhammad Bashouti (Ben-Gurion University of the Negev)

Silke Christiansen

Helmholtz-Zentrum Berlin für Materialien und Energie (HZB)

*Three-dimensional Nano-architectures for Solar Energy Conversion - Synthesis, Characterization and Device Integration***12:15-13:30 Lunch****13:30-14:30 Poster session II in lobby of Evens Auditorium**

14:30-15:45 Session 2.3: Broader Perspectives for Solar Energy Conversion

Chair: Iris Visoly-Fisher (Ben-Gurion University of the Negev)

- 14:30-14:45 **Muhammad Bashouti** (Ben-Gurion University of the Negev), *Molecular Surface Approach for Efficient Solar Cells*
- 14:45-15:00 **A.A. Solomon** (Lappeenranta University of Technology), *Solar Driven Net Zero Emission Electricity Supply with Negligible Carbon Cost: Israel as a Case Study for Sun Belt Countries*
- 15:00-15:15 **Doron Azulay** (Hebrew University of Jerusalem), *Investigating Thin Film Absorbers by Combined Scanning Tunneling Spectroscopy and Photo-transport Measurements*
- 15:15-15:30 **Adam Ginsburg** (Bar-Ilan University), *Solid State ITO|Au-NPs/TiO₂ Plasmonic Based Solar Cells*
- 15:30-15:45 **Ido Frenkel** (Ben-Gurion University of the Negev), *Granular Optics for Advanced Light Management of Solar Cells (was Avi Niv)*

15:45-16:15 Coffee break**16:15-17:45 Session 2.4: Organic Photovoltaics**

Chair: David Cahen (Weizmann Institute of Science)

- 16:15-16:45 Invited talk: **Garry Rumbles** (National Renewable Energy Laboratory), *A Perspective on the Learnings of OPV*
- 16:45-17:15 Invited talk: **Gitti Frey** (Technion – Israel Institute of Technology), *Molecular Mobility in Organic Solar Cells – a Mixed Blessing*
- 17:15-17:30 **Giovanni Matrone** (Imperial College London), *Not all Roads Lead to Phase Separation — A Polymer Science Approach to Predict and Manipulate the Morphology of Bulk Heterojunctions Solar Cells*
- 17:30-17:45 **Jeffrey Kettle** (Bangor University), *Characteristics of Organic and Perovskite Photovoltaic Modules Monitored Outdoors*

17:45-18:00 Closing remarks, Daniel Feuermann (Ben-Gurion University of the Negev)**18:15 Bus returns to Beer-Sheva**

Our webpage <http://in.Ben-Gurion University.ac.il/en/solar/Pages/Symposium.aspx>, or write to sbsolarsymposium@bgu.ac.il.