Telluride Workshop

Solar Solutions to Energy and Environmental Problems

June 26-30, 2017

Telluride Middle School @ 725 W Colorado Ave, Telluride CO

Co-Organizers: Ksenija Glusac and Jao van de Lagemaat

TSRC Host: Mark Kozak, 970 729 8375

Sunday, June 25

6:30 – 8:30 pm Reception at the Smuggler's Brew Pub (225 S. Pine St)

Monday, June 26

8:30 – 9:00 Breakfast at the TSRC meeting site for participants only

9:00 – 9:15 Welcome and introductory remarks - Ksenija Glusac and Jao van de Lagemaat

9:15 – 10:00 *High Efficiency Approaches to Solar Energy Conversion using Quantum Dots or Perovskites*
Matt Beard, NREL

10:00 – 10:30 *Break*

10:30 – 11:15 *Molecular Origins of Electronic Structure in Emerging Photovoltaic Materials: From Perovskites to Pentacenes*
John Ashbury, Penn State

11:15 – 12:00 *Ultrafast Electronic and Nuclear Structural Dynamics of Excited State Transition Metal Centers for Solar Energy Conversion*
Lin Chen, Northwestern/Argonne

12:00 – 1:30 Catered Lunch Provided at the TSRC Meeting Site

1:30 – 2:15 *Nanoscale Characterization of Ultrathin Liquid Junction Photovoltaics: Towards Identifying Champion Nanosheets*
Justin Sambur, Colorado State

2:15 – 3:00 *In-Situ X-Ray Structural Characterization of Catalysts for the Artificial Leaf*
David Tiede, Argonne

3:00 – 3:30 *Break*

3:30 – 4:15 *Understanding Fundamental Properties of Hybrid Perovskites*
Bo Chen, University of Nebraska Lincoln

4:15 – 5:00 *Discussion Topic: In situ/operando Spectroscopies*

Tuesday, June 27

8:00 – 8:30 Breakfast at the TSRC meeting site for participants only

8:30 – 9:15 *Dynamics of Charge Transfer Between Semiconductor Nanocrystals and Redox Catalysts*
Gordana Dukovic, CU Boulder

9:15 – 10:00 *Photochemical Reduction of Redox Enzymes for Mechanistic Studies*
Paul King, NREL

10:00 – 10:30 *Break*

10:30– 11:15 *Phase Stabilization of alpha-CsPbI3 in Quantum Dots for High Efficiency, High Voltage Solar Cells*
Joey Luther, NREL

11:15– 12:00 *Two-dimensional Excitons in "Giant" Semiconductor Nanoshells*
Mikhail Zamkov, BGSU

12:00– 1:30 Catered Lunch Provided at the TSRC Meeting Site

1:30 – 2:15 *Quantum Dots as Non-Innocent Ligands: An Integrative Approach to Photocatalysis*
Liang-shi Li, Indiana University

2:15 – 3:00 *Inner-Sphere Interfacial Charge Transfer at Graphite-Conjugated Surface Sites*
Yogesh Surendranath, MIT

3:00 – 3:30 *Break*

3:30 – 4:15 *Metal-free Models for Electrocatalytic Oxygen Evolution Reaction*
Ksenija Glusac, BGSU

4:00 – 5:00 *Discussion Topic: Interfacial Charge Transfer*

6:00 - 7:15 TSRC town talk: Bern Kohler, Professor of Chemistry, The Ohio State University: *Four billion years of fun in the sun: The photochemical properties of*

DNA and their role in minimizing UV damage, Telluride Conference Center in Mountain Village

Wednesday, June 28

8:00 - 8:30 am breakfast at the TSRC meeting site for participants only

8:00 am – 3 pm Via Ferrata or Hike

12:00– 1:00 Catered Lunch Provided at the TSRC Meeting Site

3:30 – 4:15 *Accessing Heterogeneous Electrocatalysts and Photocatalysts With Close to Single-atom Precision*
Joseph Hupp, Northwestern

4:15 – 5:00 *Discussion Topic: Breaking Scaling Relations*

6:00 – 9:00 TSRC picnic: Telluride Middle School at 725 W Colorado Ave (family welcome)

Thursday, June 29

8:00 – 8:30 Breakfast at the TSRC meeting site for participants only

8:30 – 9:15 *Efficient Electrocatalytic Activity in Rutile TiO_2 Caused by a Strain-induced Semiconductor-to-metal Transition*
Jao van de Lagemaat, NREL

9:15 – 10:00 *Computational Design of Organic Catalysts and Photocatalysts*
Charles Musgrave, CU Boulder

10:00 – 10:30 *Break*

10:30 – 11:15 Bioinspired Surface Coatings for Solar Fuel Production
Gary Moore, Arizona State

11:15 – 12:00 Utilizing NAD^+/NADH Analogs for Fuel Forming Photoreductions
Stefan Ilic, BGSU

12:00 – 1:30 Catered Lunch Provided at the TSRC Meeting Site

1:30 – 3:00 *Discussion Topic: Solar Cell Architectures*

3:00 – 3:15 *Closing Remarks - Ksenija Glusac and Jao van de Lagemaat*

6:00 – 8:00 Closing dinner, location TBD

Friday, June 30

7:30 - 8:00 am breakfast at the TSRC meeting site for participants only

Departure