

2023 DuraMAT Workshop

STATE BAR OF NEW MEXICO | 5121 MASTHEAD ST NE ALBUQUERQUE, NM 87109 | SEPTEMBER 26-27, 2023

Host: Sandia National Laboratories

Tuesday, September 26, 2023

Breakfast

7:00 am – 8:00 am

Opening Remarks

8:00 am – 8:20 am

8:00 – 8:05 **Welcome:** *Cliff Hansen (Sandia)*

8:05 – 8:20 **Program Overview:** *Teresa Barnes (NREL)*

Session 1: Data, software, and analytics

8:20 am – 9:20 am **Chair:** *Anubhav Jain (LBL)*

8:20 – 8:40 **Estimating the value of worker training: a system reliability & LCOE perspective:** *Brittany Smith (NREL)*

8:40 – 9:00 **DuraMAT Data Hub Status: Visualizing Data Hub Contents with Knowledge Graphing:** *Robert White (NREL)*

9:00 – 9:20 **Best practices for DuraMat software development: tips to save time and maximize impact:** *Anubhav Jain (LBL)*

9:20 – 9:30 **Discussion**

Networking Break

9:30 am – 10:00 am

Session 2: [Session Title TBD]

10:00 am – 11:20 pm **Chair:** *David Miller (NREL)*

10:00 – 10:20 **Rapid reliability prediction of emerging module interconnect technologies with combined-accelerated stress testing; focus on low temperature interconnects:** *Peter Hacke (NREL)*

10:20 – 10:40 **Improving Predictive Mechanics and Photochemical Degradation Kinetics Modeling for Polymeric Encapsulants:** *Reinhold Dauskardt (Stanford)*

10:40 – 11:00 **Glass/Glass bifacial project:** *TBD (Affiliation)*

11:00 – 11:20 **Discussion**

Lunch

11:30 pm – 12:30 pm

Session 3: Plenary

- 12:30 pm - 2:00 pm Co-Chairs: *Cliff Hansen (Sandia) & Michael Owen-Bellini (NREL)*
- 12:30 - 12:50 **Underperformance and its causes:** *Jim Crimmins (CFV)*
- 12:50 - 1:10 **TBD:** *Dylan Colvin (FSEC)*
- 1:10 - 2:00 **Views from the IAB:** *Robert Flottemesch (EPRI), Nick De Vries (Silicon Ranch), Hoi Ng (SunPower/Maxeon)*

Networking Break

2:00 pm - 2:30 pm

Session 3: BOM Impacts - Trends, analytics, and forensic analysis

- 2:30 pm - 3:30 pm Chair: *Laura Schelhas (NREL)*
- 2:30 - 2:50 Cross-sectional depth profiling of accelerated and field aged backsheet materials: *Elizabeth Palmiotti (NREL)*
- 2:50 - 3:10 Data analytics applied to equivalent circuit modeling for production power data and to bill of materials analysis: *Baojie Li & Anubhav Jain (LBL)*
- 3:10 - 3:20 PV Module Bill-of-Materials Trends Since 2016: *Joe Karas (NREL)*
- 3:20 - 3:30 Discussion

Session 4: Advancements in Module Materials and Recycling

- 3:40 pm - 5:00 pm Chair: *Bruce King (Sandia)*
- 3:40 - 4:00 Copper metallization - initial results: *Thad Druffel (Bert Thin Films)*
- 4:00 - 4:20 Silicon Module Recycling by High-Power Lasers: *Mool Gupta (UVA)*
- 4:20 - 4:40 Multifunctional and Durable Engineered Glass for PV Applications: *Vissila Zorba (LBL)*
- 4:40 - 5:00 **Discussion**

Reception hosted by Osazda

6:00 pm 204 Bryn Mawr Dr SE, Albuquerque, NM 87106

RSVP requested (email to cwhanse@sandia.gov,
michael.owenbellini@nrel.gov)

Wednesday, September 27, 2023

Breakfast

7:00 am - 8:00 am

Session 5: Cracks - they're still not good. Performance loss as damage evolves

- 8:00 am - 9:30 am Chair: *Bruce King (Sandia)*
- 8:00 - 8:20 Progress made in the early stages of EPRI's Award on Cell-Crack Project: *Abhi Parikh (EPRI)*

- 8:20 – 8:40 Performance impacts of cell cracks on modern high-busbar count PV modules: *Todd Karin (PVEL)*
- 8:40 – 9:00 Probabilistic Predictive Models for Si PV Cell Crack Stress and Power Loss: *Jennifer Braid (Sandia)*
- 9:00 – 9:20 Discussion

Networking Sessions

9:30 am – 10:30 am

DECS – IAB Meeting: *Dennice Roberts (NREL)*
Collaboration vs. Competition: *Teresa Barnes (NREL), Cliff Hansen (Sandia)*

Session 6: [Session Title TBD]

- 10:30 am 11:30 am Co-Chairs: *Michael Owen-Bellini (NREL)*
- 10:30 – 10:50 A simulation and optimization framework for managing wind-driven loading on PV systems: *Ethan Young (NREL)*
- 10:50 – 11:10 Analyzing hail impacts on PV modules using computational simulation: *James Hartley (Sandia)*
- 11:10 – 11:30 Industry Facing PV Degradation Prediction Tool and Degradation Database to Enable a 50 Year Life Module: *Mike Kempe (NREL)*

Closing Remarks

11:30 am – 11:50 pm

Lunch

12:00 pm - 1:00 pm

IAB Meeting

1:00 pm - 3:00 pm