DuraMAT 2018 Fall Workshop

Location: *Talks (Kavli Auditorium) and posters (SUSB:53)*
Talk Length: *5-7 minutes, with 3 minutes after for online reviews*
Please hold questions until discussion panels at the end of each session
Wifi: *SLAC Visitor, connect and complete online form*

Tuesday Aug.28th

12:00 – 1:30 Registration, Posters up – (cafeteria available for lunch)

Session I – Welcomes and Keynote 1
Session Chair – Nancy Haegel, NREL

1:30 – 1:45 Welcome, Workshop Goals, Review Logistics – Teresa Barnes, NREL
1:45 – 2:00 Comments from DOE – Dana Olson, DOE
2:00 – 2:30 DuraMAT Consortium Update
Teresa Barnes, NREL/Margaret Gordon, SNL
2:30 – 3:00 What's next for PV accelerated testing?
Gabriela Bunea, SunPower

3:00 – 3:30 Break w/Posters

Session II – DuraMAT capability Presentations
Session Chair – Margaret Gordon, SNL

3:30 – 3:40 The DuraMAT DataHub; Year 1
Robert White, NREL– Feedback
3:40 – 3:50 Capability 1 – Data Analytics
Anubhav Jain, LBL– Feedback
3:50 – 4:00 Capability 2 – Predictive Simulation: Progress and Updates
James Hartley, SNL– Feedback
4:00 – 4:10 Capability 3 – Materials Forensics for Understanding PV Module Material Durability, Stephanie Moffit, SLAC– Feedback
4:10 – 4:20 Capability 4 – Combined-Accelerated Stress Testing for Advanced Reliability Assessment of Photovoltaic Modules
Michael Owen-Bellini, NREL– Feedback
4:20 – 4:30 Capability 5 – Field Deployment for Reliability
Bruce King, SNL– Feedback
4:30 – 4:40 Capability 6 – DuraMAT's Value Proposition to PV Project Economics by Targeting Improved Energy Yield and Lower Operations and Maintenance Expenses, Mike Woodhouse, NREL– Feedback

4:40 – 5:00 Discussion panel with Capability leads
Panel Moderator: Margaret Gordon, SNL

5:00 – 6:30 DuraMAT poster presentations and welcome reception (capability leads at posters)

Wednesday Aug. 29th

Breakfast 7:30 – 9:00

Session III – Keynote Session – Reliability of Glass/Glass Compared to Glass/Backsheet – What do we know and What do we need to know?
Session Chair – Teresa Barnes, NREL

9:00 – 9:20 **Keynote:** Basics of Glass/Glass Reliability – Historical Data, Literature Reports, and What we Know Now, Josh Stein, SNL
9:20 – 9:40 **Keynote:** Glass/Glass vs. Glass Module Differences and Field Performance – What can we learn from limited field data? Dirk Jordan, NREL
9:40 – 10:00 Discussion of research needs and data gaps for glass/glass modules
Moderators: Dirk Jordan, NREL & Josh Stein, SNL

10:00 – 10:30 Break with posters (university and industry at posters)

Session IV – University and Industry projects
Session Chair: Mark Hartney, SLAC

10:30 – 10:40 Novel Electrically Conductive Adhesive Materials with Multiple Fillers
Yu Zhu, University of Akron– Feedback
10:40 – 10:50 Characterizing Adhesives and Edge Seals for Roll to Roll Photovoltaics Packaging, Samuel Graham, Georgia Tech– Feedback
10:50 – 11:00 Demonstrating New Concepts for Reliable Low-Cost Module Encapsulation and Barrier Technologies
Daisy Yuen, Nick Rolston, Patrick Thornton, Stanford– Feedback
11:00 – 11:10 Hydrophobic-Hydrophilic Coatings for PV Solar Cover Glass
Alan Lyons, CUNY– Feedback
11:10 – 11:20 Low-Cost, Advanced Metallization to Mitigate Cell-Crack-Induced Degradation
Sang Han, Osazda Energy LLC– Feedback
11:20 – 11:30 Advanced Multifunctional Coatings for PV Glass to Reduce Soiling Losses
Drew Fleming, WattGlass– Feedback
11:30 – 11:40 25 Year Low Cost Flexible Frontsheet
David Okawa, SunPower– Feedback

11:40 – 12:00 Panel Discussion with project leads
Panel Moderator: Mark Hartney, SLAC

12:00 – 1:30 Luncheon / Posters
(university and industry at posters 1-1:30)

Session V - University projects and SPARKS
Session Chair – Laura Schelhas, SLAC

1:30 – 1:40 Direct Imaging of Stress in Crystalline Silicon Modules
Mariana Bertoni, Arizona State University/QESST– Feedback
1:40 – 1:50 Failure Mechanisms in ECA Interconnects: X-Ray Tomography
Kathryn Fisher, Arizona State University/QESST– Feedback
1:50 – 2:00 Reliability of Modules Using High Efficiency Solar Cells with Copper Plated Contacts, Stuart Bowden, Arizona State University/QESST– Feedback
2:00 – 2:10 Discovering New materials for PV Encapsulation
Tushar Shimpi, Colorado State University/NGPV– Feedback
2:20 – 2:30 A Novel Method to Evaluate the Crack Propensity of PV Backsheets
Michael Kempe, NREL– Feedback
2:30 – 2:40 Cohesive Zone Model to Simulate PV Encapsulant Delamination
Nick Bosco, NREL– Feedback

2:40 – 3:00 Panel Discussion with project leads
Panel Moderator: Laura Schelhas and Don Jenket

Session VI –New Capability Development Projects
Session Chair – Stephanie Moffitt, SLAC

3:00 – 3:10 New capability Presentations (2 slides each, 2-3 min/ person)

- A Unified Constitutive Model for the Degradation of Electrically Conductive Adhesives Nick Bosco, NREL
- Correlation of Advanced Accelerated Stress Testing – Comparison of Backsheet Properties After Accelerated Testing and Field Deployment
  Michael Owen-Bellini, NREL
- Module Level Solutions for Degradation by Ionization Damage
  Peter Hacke, NREL
- DuraMAT Fielded Module Study – Comparison of Module Materials Properties Before and After Deployment
  Bruce King, SNL

Full DuraMAT Consortium Review– Feedback
(Everyone is welcome to provide feedback)

3:10 – 4:00 Break with posters
(sparks and new capabilities at posters)

4:00 – 5:30 IAB closed session
IAB board members and DuraMAT leadership

Thursday Aug. 30th

DuraMAT team – DuraMAT Leadership Team and Capability Leaders Required, DECS invited.

Breakfast 7:30 – 9:00

8:30 – 12:00 DuraMAT Core Team Work Session
Leadership Team and Capability Leaders required to attend
Industry Board Members welcome

Lunch on your own – SLAC Cafeteria available