2024 DuraMat Workshop Agenda

Sept 17-18, Berkeley, CA

Tuesday, September 17, 2024	
Breakfast	
8:30 am – 9:00 am	

Opening Remarks	
9:00 am – 9:10 am	Welcome (Anubhav Jain, LBNL)
9:10 am – 9:30 am	Program Overview (Teresa Barnes, NREL)

Session 1: Data, analytics, and techno economic 9:30 am – 10:35 am	
Chair: Clifford Hansen	
9:30 - 9:45 am	DuraMAT Data (PI: Robert White, NREL) Survey
9:45 - 10:00 am	Assessing Factors Underpinning PV Degradation through Data Analysis (PI: Anubhav Jain, LBNL; Presenter: Baojie Li, Xin Chen) Survey
10:00 - 10:15 am	Techno Economic Analysis (TEA) Support to DuraMAT (PI: Michael Woodhouse, Brittany Smith, NREL; Presenter: Jacob Cordell) Survey
10:15 - 10:35 am	Discussion

Networking Break
10:35 am – 10:55 am

Session 2: Solar cell cracking 10:55 am – 12:00 pm	
Chair: Martin Springer	
10:55 - 11:10 am	Probabilistic Predictive Models for Si PV Cell Crack Stress and Power Loss (PI: Jennifer Braid, Sandia) Survey
11:10 - 11:25 am	Effort of Cell Cracks on Module Power Loss and Degradation: Modern Module Architectures (PI: Robert Flottemesch, EPRI; Presenter: Viral Parikh) Survey
11:25 - 11:40 am	Multi-Year Study of Crack-Induced Degradation in Fielded Photovoltaic Modules (PI: Todd Karin, PVEL) Survey
11:40 am- 12:00 pm	Discussion

Lunch

12:00 pm – 1:00 pm

Session 3: Disruptive Acceleration Science 1:00 pm – 2:05 pm	
Chair: Michael Owen-Bellini	
1:00 - 1:15 pm	Accelerated Stress Testing to Deconvolute Simultaneous-But-Distinct Degradation Pathways under UV Illumination (PI: Peter Hacke, Dana Kern, NREL; Presenter: Dennice Roberts, Rebecca Wai) Survey
1:15 - 1:30 pm	Degradation Mechanisms and the Role of Sequenced Accelerated Testing to Ensure Long-Term Solar Module Encapsulation (PI: Reinhold Dauskardt, Stanford; Presenter: Alan Liu) Survey
1:30 - 1:45 pm	Rapid reliability prediction of emerging module interconnect technologies with combined-accelerated stress testing (PI: Peter Hacke, NREL; Presenter: David Miller) Survey
1:45 - 2:05 pm	Discussion

Networking & Ice Cream Break
2:05 pm – 2:30 pm

Session 4: Degradation Mechanisms 2:30 pm – 3:35 pm	
Chair: David Miller	
2:30 - 2:45 pm	Degradation Pathways in Glass/Glass Bifacial Photovoltaics with Emerging Encapsulants and Half-Cut Cells (PI: Dana Kern, NREL) Survey
2:45 - 3:00 pm	Developing the Science Basis for Understanding Polymer Encapsulant Degradation Mechanisms: A Scale Bridging Computational Framework (PI: Mark Wilson, Sandia; Presenter: Hannah Dedmon) Survey
3:00 - 3:15 pm	Modeling the exposure of PV components on the module back side (PI: Michael Kempe, NREL) Survey
3:15 - 3:35 pm	Discussion

Networking Break
3:35 pm – 3:55 pm

Session 5: Environmental stress and material resilience 3:55 pm – 5:00 pm	
Chair: Bruce King	
3:55 - 4:10 pm	Forecasting glass resilience of large format modules (PI: Martin Springer, NREL) Survey
4:10 - 4:25 pm	Analyzing Hail Impacts on PV Modules Using Computational Simulation (PI: James Hartley, Sandia) Survey
4:25 - 4:40 pm	A simulation and optimization framework for managing wind-driven loading on PV systems (PI: Ethan Young, NREL) Survey

4:40 - 5:00 pm	Discussion

Wednesday, September 18, 2023	
Breakfast	
8:30 am – 9:00 am	

Session 6: Advancing longevity and sustainability 9:00 am – 10:15 am	
Chair: Anubhav Jain	
9:00 - 9:15 am	Industry Facing PV Degradation Prediction Tool and Degradation Database to Enable a 50 Year Life Module (PI: Michael Kempe, NREL) Survey
9:15 - 9:30 am	Silicon Module Recycling by High-Power Lasers (PI: Mool Gupta, University of Virginia) Survey
9:30 - 9:45 am	Mechanical Models for 50-year Lifetime - PV Modules (PI: Nicholas Bosco, NREL; Presenter: Salil Rabade) Survey
9:45 - 10:00 am	Durability of modules utilizing screen printed copper contacts (PI: Thad Druffel, Bert Thin Films) Survey
10:00 - 10:15 am	Discussion

Networking Break
10:15 am – 10:30 am

Working group discussion and Tech Scouting 10:30 am – 11:15 am	
10:30 - 10:55 am	AI/ML working group and discussion (Presenter: Xin Chen)
10:55 - 11:15 am	Tech Scouting (Presenter: Ellie Palmiotti)

Networking Break
11:15 am – 11:30 am

Session 7: New projects (In person/virtual) 11:30 am – 11:50 pm	
Chair: Baojie Li, Xin Chen	
11:30 - 11:35 am	Encapsulants for screen printed copper contacts (Presenter: Dustin Williams, Bert Thin Films LLC)
11:35 - 11:40 am	Root Cause Investigation of Glass Cracking in Field-Mounted Solar Modules (Presenter: Viral Parikh, EPRI)
11:40- 11:45 am	New Cells, New Issues: Stress Tests for N-Type PV Module Designs (Presenter: Archana Sinha, PVEL)
11:45 - 11:50 am	[VIRTUAL] Dynamic mechanical compatibility of trackers and PV modules (Presenter: Colleen O'Brien, UL Solutions)

Closing Remarks	
11:50 pm – 12:00 pm	Anubhav Jain, LBNL

Lunch
12:00 pm – 1:00 pm

IAB Discussion [INVITE ONLY - DuraMat leadership & IAB]
1:00 pm – 3:00 pm IAB Discussion