

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	
15min	DuraMAT Data (PI: Robert White, NREL)
15min	Assessing Factors Underpinning PV Degradation through Data Analysis (PI: Anubhav Jain, LBNL)
15min	Techno Economic Analysis (TEA) Support to DuraMAT (PI: Michael Woodhouse, Brittany Smith, NREL)
20min	Discussion
Networking Break	
10:35 am – 10:55 am	
Session 2: Solar cell cracking	
10:55 am – 12:00 pm	
Chair: Martin Springer	
15min	Probabilistic Predictive Models for Si PV Cell Crack Stress and Power Loss (PI: Jennifer Braid, Sandia)
15min	Effort of Cell Cracks on Module Power Loss and Degradation: Modern Module Architectures (PI: Robert Flottemesch, EPRI; Presenter: Viral Parikh)
15min	Multi-Year Study of Crack-Induced Degradation in Fielded Photovoltaic Modules (PI: Todd Karin, PVEL)
20min	Discussion
Lunch	
12:00 pm – 1:00 pm	
Session 3: Disruptive Acceleration Science	
1:00 pm – 2:05 pm	

Chair: Michael Owen-Bellini	
15min	Accelerated Stress Testing to Deconvolute Simultaneous-But-Distinct Degradation Pathways under UV Illumination (PI: Peter Hacke, Dana Kern, NREL)
15min	Degradation Mechanisms and the Role of Sequenced Accelerated Testing to Ensure Long-Term Solar Module Encapsulation (PI: Reinhold Dauskardt, Stanford; Presenter: Alan Liu)
15min	Rapid reliability prediction of emerging module interconnect technologies with combined-accelerated stress testing (PI: Peter Hacke, NREL; Presenter: David Miller)
20min	Discussion

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

Session 4: Degradation Mechanisms	
2:30 pm – 3:35 pm	
Chair: David Miller	
15min	Degradation Pathways in Glass/Glass Bifacial Photovoltaics with Emerging Encapsulants and Half-Cut Cells (PI: Dana Kern, NREL)
15min	Developing the Science Basis for Understanding Polymer Encapsulant Degradation Mechanisms: A Scale Bridging Computational Framework (PI: Mark Wilson, Sandia; Presenter: Hannah Dedmon)
15min	Modeling the exposure of PV components on the module back side (PI: Michael Kempe, NREL)
20min	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	
15min	Forecasting glass resilience of large format modules (PI: Martin Springer, NREL)
15min	Analyzing Hail Impacts on PV Modules Using Computational Simulation (PI: James Hartley, Sandia)
15min	A simulation and optimization framework for managing wind-driven loading on PV systems (PI: Ethan Young, NREL)
20min	Discussion

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Breakfast

8:30 am – 9:00 am

Session 6: Advancing longevity and sustainability

9:00 am – 10:15 am

Chair: Anubhav Jain

15min	Industry Facing PV Degradation Prediction Tool and Degradation Database to Enable a 50 Year Life Module (PI: Michael Kempe, NREL)
15min	Silicon Module Recycling by High-Power Lasers (PI: Mool Gupta, University of Virginia)
15min	Mechanical Models for 50-year Lifetime - PV Modules (PI: Nicholas Bosco, NREL; Presenter: Salil Rabade)
15min	Durability of modules utilizing screen printed copper contacts (PI: Thad Druffel, Bert Thin Films)
15min	Discussion

Networking Break

10:15 am – 10:30 am

Working group discussion and Tech Scouting

10:30 am – 11:15pm

25min	AI/ML working group and discussion
20min	Tech Scouting

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

5min	Encapsulants for screen printed copper contacts (Presenter: Dustin Williams, Bert Thin Films LLC)
5min	Root Cause Investigation of Glass Cracking in Field-Mounted Solar Modules (Presenter: Viral Parikh, EPRI)
5min	New Cells, New Issues: Stress Tests for N-Type PV Module Designs (Presenter: Archana Sinha, PVEL)
5min	[VIRTUAL] Dynamic mechanical compatibility of trackers and PV modules (Presenter: Colleen O'Brien, UL Solutions)

Closing Remarks

11:50 pm – 12:00 pm

Lunch

12:00 pm – 1:00 pm

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