2021 NIST/UL Workshop on Photovoltaic Materials Durability (Agenda)

December 7-9, 2021
9:00 AM-12:15 PM (UTC-05:00)
Virtual Meeting

Day 1: Tuesday, December 7, 2021 (9:00 AM-12:15 PM, UTC-5:00)	
8:30 - 9:00 AM	Speakers and Session Chairs Check In **(Xiaohong Gu, NIST)**
9:00 - 9:15 AM	Opening Remarks--- **Joannie Chin, Acting Director, NIST Engineering Laboratory** **Kenneth Boyce, Director, UL Energy & Power Technologies**
Session 1: PV Reliability Programs (Chairs: Kenneth Boyce, UL and Laura Schelhas, NREL)	
9:15 - 9:30 AM	DOE SETO Office **(Garrett Nilsen, DOE)**
9:30 - 9:45 AM	DuraMAT: Material Durability Research Enabling 50-year Modules **(Teresa Barnes, NREL)**
9:45 - 10:00 AM	IEA-PVPS Task 13: Quality, Durability and Integration of PV in Different Environments & Applications **(Ulrike Jahn, VDE Renewable GmbH, Germany)**
10:00 - 10:15 AM	Panel Discussion (Chairs: Kenneth Boyce and Laura Schelhas)
Session 2: PV Module Circular Economy (Chairs: Aron Newman, NIST and Tadanori Tanahashi, AIST)	
10:15 - 10:30 AM	PV CIRCULAR ECONOMY: REGULATORY AND POLICY CONSIDERATIONS **(TAYLOR CURTIS, NREL)**
10:30 - 10:45 AM	Approaches to Facilitate Responsible PV Module Re-Use **(François Rummens, Belgian Electrotechnical Committee, Belgium)**
10:45 - 11:00 AM	Increasing the Recyclability of PV Modules **(Gernot Oreski, PCCL, Austria)**
11:00 - 11:15 AM	Panel Discussion (Chairs: Aron Newman and Tadanori Tanahashi)
Session 3: Climate Change and Post-disaster Investigation (Chairs: Nancy Phillips and Robert Flottemesch, Brookfield USA)	
11:15 - 11:30 AM	Field Failures and Extreme Weather: Findings from Field-testing of Damaged Solar Assets **(Jenya Meydbray, PV Evolution Labs)**
11:30 - 11:45 AM	Bolted Joint Research - Improving the Resilience of PV Systems **(Gerald Robinson, Lawrence Berkeley National Laboratory)**
11:45 AM - 12:00 PM	Identifying and Characterizing Fire Related Damage in Solar Modules **(Eric Daniels, Suncycle USA)**
12:00 PM - 12:15 PM	Panel Discussion (Chairs: Nancy Phillips and Robert Flottemesch)

Day 2: Wednesday, December 8, 2021 (9:00 AM-12:15 PM, UTC-5:00)	
8:30 - 9:00 AM	Speakers and Session Chairs Check In **(Xiaohong Gu, NIST)**
Session 4: PV Module Field Performance (Chairs: Colleen O'Brian, UL and John Wohlgemuth, Powerkmark Inc)	
9:00 - 9:15 AM	Testing Methodology, Measurement, and Observation Biases: Insights from 80GW of PV field inspections **(Rob Andrews, Heliolytics)**
9:15 - 9:30 AM	Real-World Backsheet Survey **(Laura Bruckman, Case Western Reserve University)**
9:30 - 9:45 AM	Electrical Insulation for Field Aged Modules **(Tadanori Tanahashi, AIST, Japan)**
9:45 - 10:00 AM	Panel Discussion (Chairs: John Wohlgemuth and Colleen O'Brian)
Session 5: Accelerated Laboratory Testing (Chairs: Michael Owen-Bellini, NREL and Peter Pasmans, Endurans Solar)	
10:00 - 10:15 AM	Rate of PID-p Progression in n-PERT Cells Depends on Encapsulant Resistivity and Irradiance **(Brian Habersberger, Dow)**
10:15 - 10:30 AM	Material Characterization and Durability of Clear Backsheets for Bifacial PV Modules **(Xiaohong Gu, NIST)**
10:30 - 10:45 AM	BACKFLIP: A Comparison of Emerging Non-Fluoropolymer-Based, Co-Extruded PV Backsheets to Industry-Benchmark Technologies **(David Miller, NREL)**
10:45 - 11:00 AM	Validating IEC TS 63209 Mechanical and Backsheet Degradation Test Legs **(Colin Sillerud, CFV LABS)**
11:00 - 11:15 AM	Panel Discussion (Chairs: Peter Pasmans and Michael Owen-Bellini)
Session 6: Linking Accelerated Laboratory Tests to Field Performance (Chairs: William Gambogi, Xiaohong Gu, NIST)	
11:15 - 11:30 AM	Understanding the Variability Extrapolation from Lab to Field Conditions **(Mike Kempe, NREL)**
11:30 - 11:45 AM	Challenges, Opportunities and Approaches for New Service Life Estimation Models for PV Modules- Results of IEA-PVPS-Task 13 **(Karl-Anders Weiss, Fraunhofer ISE, Germany)**
11:45 AM - 12:00 PM	Moving from Qualifying Test to Service Life Prediction **(James Pickett, Consultant)**
12:00 PM - 12:15 PM	Panel Discussion (Chairs: William Gambogi and Xiaohong Gu)

Day 3: Thursday, December 9, 2021 (9:00 AM-12:15 PM, UTC-5:00)	
8:30 - 9:00 AM	Speakers and Session Chairs Check In **(Xiaohong Gu, NIST)**
Session 7: Characterization and Modeling (Chairs: David Miller, NERL and Mihail Bora, LLNL)	
9:00- 9:15 AM	Statistical and Deep Learning Methods for Degradation Prediction of Polymeric Materials in PV Systems **(Yili Hong, Virginia Tech)**
9:15 - 9:30 AM	Measurement and Simulation of Moisture in PV Modules **(Stefan Mitterhofer, NIST)**
9:30 - 9:45 AM	Predicting Performance of PV Modules with Differing UV Absorbers Undergoing UV-Induced Degradation **(Peter Hacke, NREL)**
9:45 - 10:00 AM	Panel Discussion (Chairs: David Miller and Mihail Bora)
Session 8: Linking Research to Standards (Chairs: George Kelly, IEC and Liang Ji, UL)	
10:00 - 10:15 AM	IEC TS 63209-2 AND EXTENDED TESTING OF PV POLYMERIC COMPONENTS **(NANCY PHILLIPS)**
10:15 - 10:30 AM	Development of the Front- and Back-sheet Standard (IEC 62788-2-1) **(Peter Pasmans, Endurans Solar, The Netherlands)**
10:30 - 10:45 AM	UL Standards Update: Corrosion Testing for PV Applications **(Colleen O'Brian, UL)**
10:45 - 11:00 AM	Panel Discussion (Chairs: George Kelly and Liang Ji)
Session 9: Emerging PV Technology (Chairs: Ingrid Repins, NREL and Stephanie Moffitt, NIST)	
11:00 - 11:15 AM	Perovskite Module Scaling and Stability **(Reinhold Dauskardt, Stanford University)**
11:15 - 11:30 AM	Photovoltaics for Vehicles -Similarities and Differences between Standard PV and Car-Component PV **(Kenji Araki, University of Miyazaki, Japan)**
11:30 - 11:45 AM	Performance Risks for Building Integrated Photovoltaic Materials, Modules, and Systems **(Andrew Fairbrother, EPFL, Switzerland)**
11:45 AM -12:00 PM	Panel Discussion (Chairs: Stephanie Moffitt and Ingrid Repins)
12:00 PM -12:15 PM	**Summary and Adjourn (Kenneth Boyce, UL & Xiaohong Gu, NIST)**

Past NIST PV Workshops can be found:

2019 NIST/UL Workshop on PV Materials Durability

2017 4th NIST/Atlas Workshop on PV Materials Durability

2015 3rd NIST/Atlas Workshop on PV Materials Durability

2013 2nd NIST/Atlas Workshop on PV Materials Durability

2011 1st NIST/Atlas Workshop on PV Materials Durability