Preliminary program as of 2026/02/06

PVRW 2026

Photovoltaics Reliability Workshop

February 24–26, 2026

Lakewood, Colorado

Program committee:

Michael Deceglie (chair)
Jenn Braid
Kris Davis
Nick de Vries
Tristan Erion-Lorico
Henry Hieslmair
Will Hobbs
Joe Karas
Cherif Kedir
Jenya Meydbray
Colleen O'Brien
Gernot Oreski
Silvana Ovaitt
Jon Previtali
Dennice Roberts
Janna Segrest
Adam Shinn
Tim Silverman
Colin Sillerud
Allan Ward

Tuesday, February 24, 2025 — Morning

7:30 AM	**Breakfast**
8:20 AM	**Opening remarks**
8:30 AM	**Extreme weather and resilience**
8:30 AM	**Hail: A data-driven understanding of PV module resilience** Colin Sillerud *GroundWork*
8:50 AM	**Predicting module damage from hail impacts using finite element simulations** Steven DiGregorio *Sandia National Laboratories*
9:10 AM	**Measuring solar PV resilience: At 6s and 7s, how to make solar PV a 10 in the face of storms** James Elsworth *National Laboratory of the Rockies*
9:30 AM	**Panel discussion**
9:50 AM	**Break**
10:20 AM	**Quality and reliability in module and system design**
10:20 AM	**Creepage, clearance and compliance in PV modules: Quality assurance lessons from domestic manufacturing** Terry Jester *Kiwa PI Berlin*
10:40 AM	**Accelerating structural and mechanical engineering practice: Urgent needs and a path forward** Gerald Robinson *Lawrence Berkeley National Laboratory*
11:00 AM	**Industry-informed analysis of PV module glass breakage: Insights and perspectives from stakeholder interviews** Farid Samara *DNV*
11:20 AM	**Warranty litigation—Lessons learned and best practices** Todd Heffner *Smith, Gambrell & Russell LLP*
11:40 AM	**Panel discussion**
12:00 PM	**Lunch**

Tuesday, February 24, 2025 — Afternoon

1:00 PM	**Poster session**
2:30 PM	**Glass**
2:30 PM	**Predicting glass fracture in large-format photovoltaic modules** Martin Springer *National Laboratory of the Rockies*
2:50 PM	**From static loads to dynamic reliability in PV systems: Investigating module cracking** Miguel Garcia *Nextpower*
3:10 PM	**Site data collection for asset management** Janna Segrest *Quanta Services*
3:30 PM	**Panel discussion**
3:50 PM	**Break**
4:10 PM	**Discussion session: Insurance**

Moderators

Michael Perron, *FM Renewable Energy*

Isaac McLean, *kWh Analytics*

Panelists

Heidi Aragon, *J.S. Held*

Marc Giovannetti, *Lloyd Warwick*

Roderick Rennison, *Rimkus*

5:20 PM	**Day 1 closing and poster awards**
5:30 PM	**Welcome reception**

Wednesday, February 25, 2026 — Morning

7:30 AM	**Breakfast**
8:30 AM	**Cell reliability**
8:30 AM	**From corrosion to UV effects: Unveiling and mitigating degradation mechanisms in TOPCon solar cells and modules** Bram Hoex *University of New South Wales*
8:50 AM	**Post-PID metastability and recovery behavior in TOPCON modules** Allan Ward *Heliene*
9:10 AM	**PID observations in the field** Hubert Seigneur *University of Central Florida*
9:30 AM	**Panel discussion**
9:50 AM	**Break**
10:20 AM	**Quality and reliability in operation and asset management**
10:20 AM	**Large scale daylight photoluminescence imaging for quality assessment of utility scale solar farms** Thorsten Trupke *Lab 360 Solar / University of New South Wales*
10:40 AM	**Insights from field operations** Greg Rossin *AES*
11:00 AM	**Insights from the PV O&M Analytics Collaborative** Marios Theristis *Sandia National Laboratories*
11:20 AM	**Repowering, the other side of the reliability coin** Silvana Ovaitt *National Laboratory of the Rockies*
11:40 AM	**Panel discussion**
12:00 AM	**Lunch**

Wednesday, February 25, 2026 Afternoon

1:00 PM	**Poster session**
2:30 PM	**Quality and reliability in construction and procurement**
2:30 PM	**Strained connections—EBOS and trackers** David Devir *VDE Americas*
2:50 PM	**Field data review: Quality and reliability insights from >2,000 inspections covering >5 GW of U.S. PV assets** David Penalva *HelioVolta*
3:10 PM	**National Lab Center for Electrical Balance of System Reliability** Laurie Burnham *Sandia National Laboratories*
3:30 PM	**Resuscitating Icarus: Responding to PV plant performance testing challenges** Adam Kankiewicz *Origis Energy*
3:50 PM	**Panel discussion**
4:10 PM	**Break**
4:30 PM	**Discussion session: Building consensus on module reliability classification**
4:30 PM	**Introductory presentations**
4:40 PM	**Panel discussion** Henry Hieslmair, DNV Colleen O'Brien, UL Nick de Vries, Silicon Ranch Tristan Erion-Lorico, Kiwa PVEL
5:20 PM	**Day 2 closing, presentation of the PowerMark Early Career Prize, poster awards**

Thursday, February 26, 2026 — Morning

7:30 AM	**Breakfast**
8:30 AM	**Fleet-level observations**
8:30 AM	**PV Fleet performance—2025 update** Chris Deline *National Laboratory of the Rockies*
8:50 AM	**Insights from performance and reliability benchmarking (SUPER)** Danny Fregosi *Electric Power Research Institute (EPRI)*
9:10 AM	**Ensuring quality and reliability: Insights from our reliability testing and inspections** Max Koentopp *TÜV Rheinland International GmbH*
9:30 AM	**Panel discussion**
9:50 AM	**Break**
10:20 AM	**Inverters**
10:20 AM	**Inverters as repairable systems** Nathan Brunner *DNV*
10:40 AM	**Environmental effects on inverters: An in-depth study of humidity** Peter Hacke and Ramanathan Thiagarajan *National Laboratory of the Rockies*
11:00 AM	**Extending component lifetime and improving inverter reliability** Wayne Li *Electric Power Research Institute (EPRI)*
11:20 AM	**Panel discussion**
11:40 AM	**Lunch**

Thursday, February 26, 2026 — Afternoon

1:00 PM	**Poster session**
2:30 PM	**Thin films**
2:30 PM	**Stabilization and characterization of CdTe solar panels** Dana Kern *National Laboratory of the Rockies*
2:50 PM	**Light and elevated temperature testing of perovskites** Michael Owen-Bellini *National Laboratory of the Rockies*
3:10 PM	**Insights from long-term stability testing of numerous FACs perovskite solar cells** Marko Topič *University of Ljubljana*
3:30 PM	**Panel discussion**
3:50 PM	**Break**
4:10 PM	**Encapsulants**
4:10 PM	**Temperature dependence of PV encapsulant degradation for UV-ID studies** Xavier Hanna *National Laboratory of the Rockies*
4:30 PM	**Let's not R-EPE-at our mistakes** Ellie Palmiotti *National Laboratory of the Rockies*
4:50 PM	**NIR spectroscopy for evaluating cross linking** Gernot Oreski *Polymer Competence Center Leoben*
5:10 PM	**Panel discussion**
5:30 PM	**Workshop closing and poster awards**

Tuesday, February 24, 2026

Poster session

1 A Test-to-Failure Protocol for PV Module Hail Damage
Tyjal DeWolf-Moura[1], Jonathan Allen[1], Jon Previtali[1], Peter Bostock[1], Michael Linn[2], Cherif Kedir[3], Saeed Arash Far[3], Adrian Hernandez[3], Manpreet Kaur[3], Arlexy Angulo[3], Ronald Fritz[4], Michael Pilliod[5]

[1]*VDE Americas*

[2]*RETC / VDE*

[3]*Renewable Energy Test Center RETC LLC*

[4]*InSite Technologies*

[5]*CENTRAL TENSION*

4 Dynamic tracker system modeling for use in glass fracture studies
Tracy Becker[1]

[1]*University of California Berkeley*

7 Multiple Hail Impact Testing
Jimmy Newkirk[1], **Dirk Jordan**[1], Martin Springer[1], James Hartley[2]

[1]*National Laboratory of the Rockies*

[2]*Sandia National Laboratories*

8 Defining the 50-year module: Luck, Design, or Both?
Dirk Jordan[1], Silvana Ovaitt[1], Heather Mirletz[1], Teresa Barnes[1]

[1]*National Laboratory of the Rockies*

13 Spectral Tuning and Optimized Kinetics via Energy Down-shifting in PV Packaging (STOKED!)
David Miller[1], Dana Kern[1], Peter Hacke[1]

[1]*National Laboratory of the Rockies*

16 Development of Durability Tests for Photovoltaic Connectors
Michael Kempe[1], Aidan Wesley[1], Aubrey Jackson[1], Rachael Arnold[1], Jimmy Newkirk[1]

[1]*National Laboratory of the Rockies (NLR)*

19 Evaluating the UV exposure and degradation of PV backsheet materials
Aidan Wesley[1]

[1]*National Laboratory of the Rockies (NLR)*

22 PVDeg: Enhancing usability and AI-driven multi-mechanism degradation modeling
Rajiv Daxini[1], Tobin Ford[1], Silvana Ovaitt[1], Michael Kempe[1], Dirk Jordan[1], Anubhav Jain[2], Martin Springer[1]

[1]*National Laboratory of the Rockies*

[2]*Lawrence Berkeley National Laboratory*

25 Reflection-Based Polariscope Technology for Stress Analysis in Glass-Glass PV Modules
Jessica Rimsza[1], Collin Wilkinson[2], Ashley Gaulding[3], Jennifer Braid[1]

[1]*Sandia National Laboratories*

[2]*Alfred University*

[3]*National Laboratory of the Rockies*

28 Let's not R-EPE-at our mistakes
Mirzojamshed Mirzokarimov[1], Dennice Roberts[1], Michael Owen-Bellini[1], Hannah Dedmon[2], Mark Wilson[2], Elizabeth Palmiotti[1]

[1]*National Laboratory of the Rockies (NLR)*

[2]*Sandia National Laboratories*

31 Electrical-thermal modeling of photovoltaic module connectors to enable thermo-mechanical coupling and failure mode indication
Farhan Rahman[1], Steven DiGregorio[1], James Hartley[1], Bruce King[1]

[1]*Sandia National Laboratories*

34 New Cells, New Issues: Stress Tests for N-type PV Module Designs
Archana Sinha[1], Jean-Nicolas Jaubert[1], Dana B. Kern[2], Todd Karin[1]

[1]*Kiwa PVEL*

[2]*National Laboratory of the Rockies*

37 Large Language Model – Enabled Analysis of Field PV System Degradation
Baojie Li[1], Dirk Jordan[2], Martin Springer[2], Daxini Rajiv[2], Anubhav Jain[1]

[1]*Lawrence Berkeley National Laboratory (LBNL)*

[2]*National Laboratory of the Rockies*

40 Accelerated stress testing identifies greater UV-induced degradation under UV-fluorescent compared to full spectrum illumination
Rebecca B. Wai[1], Xavier M. Hanna[1], David C. Miller[1], Dennice M. Roberts[1], Kent Terwilliger[1], Jimmy M. Newkirk[1], Steve Johnston[1], Dana B. Kern[1], Peter Hacke[1]
[1]*National Laboratory of the Rockies*

43 A fast, accurate prediction for system-wide damage due to dynamic wind loading
Ethan Young[1], Martin Springer[1], Brooke Stanislawski[1], Andrew Glaws[1], Xin He[1], Walid Arsalane[1], Matthew Emes[1]
[1]*National Laboratory of the Rockies*

46 Assessing Risks for Photovoltaic Modules: Environmental Conditions, Extreme Weather, and Regional Capacity
Jennifer L. Braid[1], Norman R. Jost[1]
[1]*Sandia National Laboratories*

49 Advancing the DuraMAT Data Hub
Robert White[1], Rachel Hurst[1], David Hsu[1], Nicholas Wunder[1], David Rager[1], Sagi Zisman[1]
[1]*National Laboratory of the Rockies*

52 Cell Cracks Cause Minor Performance Loss for Modern PV Modules
Todd Karin[1]
[1]*Kiwa PVEL*

55 Root cause investigation of glass cracking in field-mounted solar modules
Joe Karas[1]
[1]*EPRI*

58 Mapping PV degradation mechanisms and field performance by leveraging large language models
Baojie Li[1], Dirk Jordan[2], Martin Springer[2], Anubhav Jain[1]
[1]*Lawrence Berkeley National Laboratory*
[2]*National Laboratory of the Rockies*

61 PV-Copilot: An Autonomous Assistant for End-to-End Degradation Analysis
Baojie Li[1], Anubhav Jain[1]
[1]*Lawrence Berkeley National Laboratory*

64 Effect of Cell Cracks on Module Power Loss and Degradation: Modern Module Architectures
Viral Parikh[1], **Wayne Li**[1], Martin Springer[2], Michael Gostein[3], Will Hobbs[4], Jim Rand[5]
[1]*Electric Power Research Institute*
[2]*National Laboratory of the Rockies*
[3]*Atonometrics Inc.*
[4]*Southern Company Services*
[5]*Core Energy Works*

67 Implications of Thinner Glass: Low Hanging Fruit Solutions
Ashley Gaulding[1], Elizabeth Palmiotti[1], Timothy Silverman[1], Michael Deceglie[1]
[1]*National Laboratory of the Rockies (NLR)*

70 Integrated performance diagnosis of an utility-scale photovoltaic plant in Colombia using machine learning–based fault detection and updated energy generation modeling
Rafael Avila Naranjo[1], Cesar Sierra[1], Luis Felipe Rangel[1]
[1]*ICREA*

73 Estimating PV system availability P-values using operational data
Owen Westbrook[1]
[1]*Sunrise Technologies*

76 Analysis of UVID and Dark Degradation Recombination Mode in Fielded TOPcon Modules
Johnson Wong[1], Karl Bedrich[1], Yong Sheng Khoo[1], Franco Lim[2], Jing Chai[1], Aziz Nairi[3]
[1]*Quantified Energy*
[2]*Sembcorp*
[3]*Solar Energy Research Institute of Singapore (SERIS)*

79 3000 Performance Models is Greater than 1
Kurt Rhee[1]
[1]*Proximal Energy, Inc.*

82 Glass with inherent antireflective properties for PV applications
Alexandra Mitchell[1]
[1]*Corning Incorporated*

85 Investigating the Oxygen Barrier Properties of Desiccated Edge Sealants for Protection of Perovskite Solar Modules

Paul Monroe[1], Lori Postak, M.Sc.[1]

[1]*Quanex IG Systems*

88 Integrated Hail Resilience Strategy to Reduce Insurance Costs for Utility-Scale Solar Assets

Travis Morrison[1], Mandar Khodegaokar[2], Ashish Kothari[2], Kendall Lilly[2]

[1]*GroundWork Renewables*

[2]*Recurrent Energy*

91 Assessing Durability and Cracking Propensity of Emerging PV Backsheets under Accelerated Laboratory Weathering

Xiaohong Gu[1], Zelin Li[1], Stefan Mitterhofer[1], Karissa Jensen[1], Ashlee Aiello[1], Hsin-Hsin Hsieh[2], Anabel Kadri[3], Julie Aleiner[4], Laing Ji[5]

[1]*National Institute of Standards and Technology (NIST)*

[2]*Industrial Technology Research Institute (ITRI)*

[3]*Tulane University*

[4]*Columbia University*

[5]*UL Solutions*

94 Inferring module degradation from SCADA: a combiner-level state of health approach

Hunter Coleman[1]

[1]*Proximal Energy, Inc.*

97 A decade of In-Production EL Defects data: Insights for Different Geographies and Technologies

Juan Lopez-Garcia[1], Varun Kelkar[1], Elias Garcia-Goma[1], Hugo Leduc[1], Yann Teyssedre[1], Stefano N. Granata[1]

[1]*STS*

100 Improving natural hazard risk quantification for the renewable energy sector

Faisal Bhuiyan[1], Patrick Duffy[1]

[1]*National Laboratory of the Rockies (NLR)*

103 Impact of the surroundings on bifacial gain in the performance ratio

Chris Buckland[1], Luis Rodrigues[1], Armando Solis[1], **Greg Gavazzi**[1], Tony Pananos[1]

[1]*Lightsource bp*

106 Wind Stow Performance Assessment

Ali Cole[1], **Yarrow Fewless**[1]

[1]*CPP Wind Engineering*

109 Evaluation of Tracker Losses from Limited Data

Peter Burgess[1], Natali Martinez[1]

[1]*EDF power solutions*

112 Characterization of Surface Coating Variability in Commercially Available Solar PV Connectors

Tapasvi Lolla[1], **Wayne Li**[1], Laurie Burnham[2], David Miller[3], Steven DiGregorio[2], Bruce King[2]

[1]*Electric Power Research Institute (EPRI)*

[2]*Sandia National Laboratories*

[3]*National Laboratory of the Rockies*

Wednesday, February 25, 2026

Poster session

2 Test to Failure of PV Modules Subject to Freezer Ice Ball Impacts at Oblique Angles

Tyjal DeWolf-Moura[1], Jonathan Allen[1], Jon Previtali[1], Peter Bostock[1], Cherif Kedir[2], Saeed Arash Far[2], Adrian Hernandez[2], Manpreet Kaur[2], Arlexy Angulo[2], Ronald Fritz[3], Michael Pilliod[4]

[1]*VDE Americas*

[2]*Renewable Energy Test Center RETC LLC*

[3]*InSite Technologies*

[4]*CENTRAL TENSION*

5 Linear machine abrasion test to emulate cleaning of solar power surfaces: results of the inter-lab precision study

Delos Ashcraft[1], David C. Miller[1], Pavan S. Fuke[2], Anil Kottantharayil[2], Lubna Al Harthy[3], Adam Law[3], Charlotte Pfau[4], Deshaboina Saikumar[4], Ning Song[5], Marko Turek[4], Michael Walls[3]

[1]*National Laboratory of the Rockies (NLR)*

[2]*Indian Institute of Technology (IIT) Bombay*

[3]*Loughborough University*

[4]*Fraunhofer Center for Silicon Photovoltaics CSP*

[5]*University of New South Wales (UNSW Sydney)*

10 Field performance tests of perovskite solar cells loaded with fixed resisters

Takeshi Tayagaki[1], Sayaka Hirooka[1], Kohei Yamamoto[1], Takurou N. Murakami[1], Masahiro Yoshita[1]

[1]*National Institute of Advanced Industrial Science and Technology (AIST)*

11 IEC TC 82 status

George Kelly[1]

[1]*Sunset Technology Inc.*

14 Modeling Tracker Twist and the Impact on Module Performance and Fatigue Life

Chris Needham[1], Frank Oudheusden[1]

[1]*Azimuth Advisory Services*

17 Insurance Cost Model Framework

Adam Shinn[1], Jal Desai[2]

[1]*kWh Analytics*

[2]*National Laboratory of the Rockies*

20 Symmetrical Hot Spots in Half-Cell PV Modules: Root Causes and Operational Risks

Fan Zhang[1], Devon Nishimura[1], Alfredo Spagnuolo[1], Thomas Amsuess[1]

[1]*Zeitview*

23 Economic Analysis of Solar PV Decommissioning Cost and Industry Recommendation

Simon Krebs[1]

[1]*HSB / Munich RE*

26 Uniform Mechanical Loading Can Test for Non-Uniform Loading Durability

Nick Bosco[1], Martin Springer[1]

[1]*National Laboratory of the Rockies*

29 Modeling the System-Level Economic Impact of PV Connector Failure Modes

Jal Desai[1], **Vignesh Ramasamy**[1]

[1]*National Laboratory of the Rockies (NLR)*

32 Cold-Weather Risk for Battery-Powered PV Trackers

Ali Dionigi*, Haley DiGiovanni[1]

[1]*Natural Power*

35 Capacity test regression equation comparison

James Willett[1]

[1]*Renewable Energy Systems*

38 Beyond Straight-Line Depreciation: Leveraging Real-Time Market Indexes to Scale Solar Circularity

Alexander Olesen[1]

[1]*Buckstop*

41 Two module features that raise glass breakage risk

Timothy J Silverman[1], Elizabeth C. Palmiotti[2], Martin Springer[2], Michael G. Deceglie[2], E. Ashley Gaulding[2]

[1]*Delft University of Technology*

[2]*National Laboratory of the Rockies*

44 Thermal and Visual Precursors to Risk in Utility-Scale PV Connectors and Fuses Observed with Ground-Based Robotics

Martin Waters[1], Jason Wheeler[1]

[1]*nextpower*

47 Edge Seal Effects on the Reliability of Modern Si PV Technologies

Luke McClintock[1], Aidan Wesley[1], Jimmy Newark[1], Michael Kempe[1]

[1]*National Laboratory of the Rockies (NLR)*

50 A Static Hail Mitigation Solution for Solar Power Plants

Chad Medcroft[1], Mike Anderson[1]

[1]*Erthos, Inc.*

53 Domestic content as it affects quality and reliability

Kim Clark[1]

[1]*Natural Power*

56 18 Years of investigating fires in PV systems: A synopsis of experience

Bill Brooks[1]

[1]*Brooks Engineering*

59 Technoeconomic Exploration of Photovoltaic Recycling

Collin Wilkinson[1]

[1]*Alfred University*

62 Feel the burn: a grass fire stress test for solar panels

Sara MacAlpine[1]

[1]*JUWI inc*

65 Mapping J0e Across Modules: Injection Dependent EL for Advanced Diagnostics

Adrienne L. Blum[1], Tristan de la Beaujardiere[1], Wes Dobson[1], Harrison Wilterdink[1], Ron Sinton[1]

[1]*Sinton Instruments*

68 One flash to rule them all: rethinking non-uniformity testing in large area solar simulators

Weston Dobson[1], Adrienne Blum[1], Harrison Wilterdink[1], Ron Sinton[1], Tristan de la Beaujardiere[1]

[1]*Sinton Instruments*

71 UV Stress and Capacitance-Based Metastability of Silicon TOPCon Photovoltaic Modules

Steve Johnston[1], Dana B. Kern[1], Rebecca B. Wai[1], Kent Terwilliger[1]

[1]*National Laboratory of the Rockies*

74 Mitigation of hail-related asset risk via hail resistant PV modules

Daniel Inns[1], **Mengyuan Huang**[1]

[1]*LONGi Solar*

77 High-Resolution Temporal Visualization of Event Losses for Utility-Scale Solar Performance Analysis

Rob van Haaren[1], Jasper Travers[1]

[1]*Proximal Energy, Inc.*

80 Data driven analysis of PV soiling loss models: A case study into HSU and Kimber using machine learning

Maya Yu[1], Mustafa Akbari[1]

[1]*Onyx Renewables LLC*

83 Understanding the thermomechanical properties of polyolefin encapsulants for reliable perovskite solar module packaging

Marco Casareto[1], Nick Bosco[2], Laura Schelhas[2], Michael Owen-Bellini[2], Nicholas Rolston[1]

[1]*Arizona State University (ASU)*

[2]*National Laboratory of the Rockies*

86 pvcracks: python repository for electroluminescence image processing, current-voltage curve fitting and power loss estimation

Norman Jost[1], Brandon K. Byford[1], Rodrigo del Prado Santamaría[2], Clifford W. Hansen[1], Jennifer L. Braid[1]

[1]*Sandia National Laboratories*

[2]*DTU*

89 Solar Photovoltaics Resilient Fasteners Levelized Cost of Energy (LCOE) Tool

Bonnie Powell[1], James Elsworth[1]

[1]*National Laboratory of the Rockies (NLR)*

92 Large-area photoluminescence imaging of thin film solar panels

Jared D. Friedl[1], Marissa Garcia[1], Rich Landy[1], Elizabeth C. Palmiotti[2], Timothy J. Silverman[2], Andrew M. Gabor[1]

[1]*BrightSpot Automation, LLC*

[2]*National Laboratory of the Rockies*

95 Sparks fly: Why PV fire risk isn't just a wildfire problem

Charity Faith Sotero[1]

[1]*kWh Analytics*

98 Extreme Weather Impacts on Utility-Scale Photovoltaic Systems: Failure Mechanisms, Root Causes, and Resilience-Oriented Design Strategies

Juan Montiel[1]

[1]*Bureau Veritas Renewable Technical Advisory*

101 Progress in outdoor monitoring of CdTe photovoltaic modules at four climatic sites

Camille Bainier[1], Elsa Kam-Lum[2], Damien Cosme[2], Martin Poveda[1], José Cano-Garcia[1]

[1]*TotalEnergies OneTech*

[2]*TotalEnergies*

104 Module architecture - steel frame advancement

Tyler Hudson[1], Lauren Ahsler[1]

[1]*nextpower*

107 Quantifying system-level savings in 2000V utility-scale PV plants

Ethan Ely[1], Bobby Naimool[1], Roque Ortiz[1]

[1]*Trina Solar*

110 Soiling Loss Optimization

Tak Shun Au[1]

[1]*RWE*

Thursday, February 26, 2026

Poster session

3 Advancements in solar simulator technologies for perovskite tandem reliability
Peter Pasmans[1], **Jake Veloza**[1]
[1]Eternal Sun BV

6 Understanding Hydrogen Induced Surface Passivation and De-passivation Dynamics in Tunnel Oxide Passivating Contacts for Silicon Solar Cells using a Trapping-Diffusion Model
Aditya R. Ratnapagol[1], Zitong Zhao[2], Adam Goga[2], William Nemeth[1], Sumit Agarwal[3], Gergely Zimanyi[2], **David L. Young**[1]
[1]National Laboratory of the Rockies (NLR)
[2]UC Davis Physics
[3]Colorado School of Mines

9 EL is Possible with Analog 35mm Film
Will Hobbs[1], Liam Hobbs[1]
[1]The Hobbs Family

12 Durability and Performance: Assessing Long-Term Grounding Efficacy in Bare Steel vs. Galvanized Steel Piles and Structural Members
Evan Martin[1]
[1]Hubbell

15 Full-scale seismic testing of single-axis trackers
Nathaniel Healy[1]
[1]GameChange Solar

18 Modeling accuracy of bifacial gain energy estimates
Christine Bordonaro[1], Pierre Metaut[1], Alex Berlinsky[1]
[1]Clearway Energy

21 PV Standards Activities of IEC
John H Wohlgemuth[1]
[1]PowerMark Corporation

24 Perovskite Photovoltaic Module Curvature from Lamination Correlates to Operational Stability
Muneeza Ahmad[1], Terrence Banks[2], Sean P. Dunfield[2], Nicholas Rolston[1]
[1]Arizona State University (ASU)
[2]Tandem PV

Thursday posters

27 A test platform to characterize PV module cell shading
Rich Stromberg[1]
[1]Equitable Solar Solutions/Univ of Alaska

30 PV Module Mechanical Characterization
Kanwal Bhatti and Ketan Patel[1]
[1]First Solar Inc

33 Durability of adhesion: results from the current standardized IEC aging sequence
Rachael L. Arnold[1], David C. Miller[1], Aubrey Jackson[1]
[1]National Laboratory of the Rockies (NLR)

36 Field observations: module shipments, pallet handling, and staging
Robert Flottemesch[1]
[1]Flottemesch LLC

39 Clearway fleet degradation analysis
Alex Berlinsky[1], Taylor Romshek[1], Pierre Metaut[1], Christine Bordonaro[1]
[1]Clearway Energy

42 Mechanical vs Sensor Based Stow
Mudasar Zahoor[1]
[1]Array Technologies Inc

45 Enhanced POE Resins for Reliable and Efficient PV Module Production
Paul Brigandi[1]
[1]Dow Inc.

48 Evaluation of Long-term Durability of Repaired Photovoltaic Backsheets
Zelin Li[1], Stefan Mitterhofer[1], Xiaohong Gu[1], William Hobbs[2], Michael D. Kempe[3], Liang Ji[4]
[1]National Institute of Standards and Technology (NIST)
[2]Southern Company
[3]National Laboratory of the Rockies (NLR)
[4]UL Solutions

51 A Public Data Set of Auto-Generated Geotagged PV Site Equipment, Generated via Deep Learning
Kirsten Perry[1], Quyen Nguyen[1], Marwan Ruby[1]
[1]National Laboratory of the Rockies

54 Understanding Heating from Partial Shade of a PV Module under Varying Conditions

Shariful Islam[1], Sarah Kurtz[1]

[1]*University of California Merced*

57 Root cause analysis of module thermal damage at a utility scale project in Southest Asia

Beryl Weinshenker[1]

[1]*All Correct Solar*

60 Hail Response Effectiveness of Solar trackers

Sumanth Lokanath[1], Demetre Argiro[2]

[1]*Array technologies*

[2]*Novasource Power*

63 Spontaneous Breakage: Edge-Pinch versus Mounting Point

Sushma Pothana[1]

[1]*nextpower*

66 A comparison of PXX estimation methods using typical-year and time-series solar resource data

Evan Westphal[1]

[1]*Luminate LLC*

69 Thermal modeling of PV modules based on outdoor measurements at FREA

Kenji Kamide[1], Katsuto Tanahashi[1]

[1]*National Institute of Advanced Industrial Science and Technology (AIST)*

72 Performance ratio vs performance index for PV underperformance detection, classification and quantification using DUET

Trevor J. Coathup[1], Ras-Jeevan K. Obhi[1], Mandy R. Lewis[1], Julia F. Zonneveld[1], Annie C. J. Russell[1], Nick Anderson[1], Elias Hussary[1], Kibby Pollak[1], Christopher E. Valdivia[1]

[1]*Enurgen*

75 Impacts of Improper Cable Management at Utility PV Sites

Baba Karthik Kalapatapu[1]

[1]*Renewable Energy Systems*

78 Toward a Multiscale Data-Integrated Workflow for CdTe Module Reliability Analysis

Max Liggett[1], Dana B. Kern[2], Steven Johnston[2], Collin West[1], Michael Bolen[3], Dylan J. Colvin[4], Ceclie Molto[4], Greg Horner[5], Kristopher O. Davis[1]

[1]*University of Central Florida*

[2]*National Laboratory of the Rockies*

[3]*SB Energy Pvt Ltd (Soft Bank Group)*

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