

33rd Workshop on Crystalline Silicon Solar Cells & Modules: Materials and Processes



July 21st – July 24th, 2026

Breckenridge, Colorado

Sponsorship from:



Tuesday, July 21st

8:00 – 9:00 am Registration & Breakfast

9:00 – 9:30 am **Workshop Welcome and Introduction**
Ron Sinton (Sinton Instruments) and **Nathan Stoddard**
(Lehigh University)

Session 1: Characterization of Solar Cells, Modules, and Arrays

9:30 – 10:00 am **Yifu Shi** (Changzhou Fusion New Materials Company Ltd) –
Extracting contact recombination of industrial solar
cell metalisation from FFT analysis of photoluminescence
images

10:00 – 10:30 am **Abby Meyer** (Aerospace Corporation) – Pixel by Pixel Spatial EL
Characterization for Silicon and Tandem Solar Cells

10:30 – 11:00 am Break

11:00 – 11:30 am **Tristan de La Beaujardiere** (Sinton Instruments) I Can See
Clearly Now... the Recombination Is Mapped: Combining
precision lifetime measurements and PL Imaging

11:30 – 12:00 pm **Beryl Weinshenker** (All Correct Solar)– Tracing Fatal Module
Defects: Case Studies from the Field

12:00 – 1:30 pm Lunch

Session 2: The Potential for Perovskites and X/Silicon Tandems

1:30 – 2:00 pm **Laura Schelhas** (NLR) – Assessing the Reliability of Metal
Halide Perovskite Solar Modules Through Accelerated Testing
and Field Deployment

2:00 – 2:30 pm **Dr. Hyunju Lee** (Meiji University) – Advances in
Interconnecting recombination layers for monolithic
Perovskite/Si tandem solar cells. *Co-authors include Yoshio
Ohshita (Toyota Technological Institute) and Atsushi Ogura
(Meiji Renewable Energy Laboratory and Meiji University)*

2:30 – 3:00 pm	Daniel Walter (ANU) – Alternative top-cell materials for stable silicon-based tandems
3:00 – 3:30 pm	Break

Session 3: *Industrial Challenges in the US*

3:30 – 3:55 pm	Vinodh Chandrasekaran (Suniva, Inc.) – MES data driven process control and optimization in solar cell mass production
3:55 – 4:20 pm	Shehroz Zack (SEG Solar Inc.) - How to Tackle UVID Issues in HJT Cells & Modules
4:20 – 4:45 pm	Kiersten Ralston (Qcells North America) - American-Made: Opportunities and Obstacles in Domestic Solar Manufacturing
4:45 – 5:00 pm	Terry Jester (Highlands Materials) - Commercial Processing of Kerf to Polysilicon
6:30 – 8:00 pm	Welcome Reception with Dinner Sponsored by NLR

Wednesday, July 22nd

7:00 – 8:00 am	Breakfast
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Session 4: *Scaling Silicon PV Production Towards the TW/year*

8:00 – 8:30 am	Markus Beck (RCT Solutions)- Lessons Learned from GW-Scale c-Si Ingot, Wafer, and PV Cell Manufacturing: From Design to Operations
8:30 – 9:00 am	Pirmin Preis (ISC-Konstanz) – Technology Adoption in Crystalline Silicon PV Manufacturing: Regional Drivers and Trends
9:00 – 9:30 am	Xinyu Zhang (Jinko Solar) Key Advances in Manufacturing Technologies and Product Outlook in the Silicon Photovoltaic Industry

9:30 – 10:00 am Break

10:00 – 10:30 am **Urvashi Bothra** (Delft University) – Liquid encapsulation of photovoltaic modules to enable circular design

Session 5: *Poly-Silicon Production and Cz-Si Crystal Growth*

10:30 – 11:00 pm **Mike Pfund** (Advanced Material Solutions) – FBR vs. Siemens Polysilicon; Which Technology for Capacity Expansion?

11:00 – 11:30 am **Nicolas Enjalbert** (CEA-Liten) – Recent advances in bulk dopants for terrestrial and space silicon solar cells

11:30 – 12:00 pm **Talid Sinno** (University of Pennsylvania) – Physics-informed machine learning of vacancy-hydrogen interactions and clustering

12:00 – 1:30 pm Lunch

Free Afternoon to Enjoy Local Activities

6:30 – 8:30 pm **Poster Session and Reception**
Sponsored by Sinton Instruments

Thursday, July 23rd

7:00 – 8:00 am Breakfast

Session 6: *High-Efficiency Cell Development*

8:00 – 8:30 am **Yiğit Mert Kaplan** (ODTÜ-GÜNAM) – TOPCon Cell Processing Physics and Chemistry

8:30 – 9:00 am **Yevgeniya Larionova** (ISFH) – Solar Cells Exceeding 25% Efficiency and Upgrade to 26% Efficient POLO²IBC Solar Cells

9:00 – 9:30 am Break

9:30 – 10:00 am	Yifeng Chen (Trina Solar) – Progress of High efficiency Si and Silicon-based Tandem Solar Cells for Terrestrial and Space Application in Trina Solar
10:00 – 10:30 am	Ruohan Zhong (GIT) – Progress from Lab to Manufacturable Cu-contacted n-TOPCon Si Solar Cells with >24% Efficiencies.
10:30 – 11:00 am	Break

Session 7: Critical Materials for PV

11:00 – 12:00 pm	Critical Materials Panel Discussion
12:00 – 1:30 pm	Lunch

Session 8: System Level Implementations in Si PV

1:30 – 2:00 pm	Chris Deline (NLR) – Big data module degradation
2:00 – 2:30 pm	Ethan Ely (Nextpower) – Development of frame fatigue test method based on real world cyclic wind pressures
2:30pm – 3:00 pm	Break
3:00 – 4:00 pm	Company Panel Discussion Session Lead: Ron Sinton (Sinton Instruments)

Session 9: Reliability – Wafers, Cells, and Modules

4:00 – 4:30 pm	Dana Kern (NLR) – UV Degradation of PV Panels
4:30 – 5:00 pm	Kris Davis (UCF) – Replacing Silver: A Manufacturable Copper Metallization Route for Silicon Heterojunction Cells
5:00 – 5:30 pm	Joshua Kamphues (Universität Konstanz) – Influence of P, Sb, and As as dopant materials in n-type Si from RCz crystal pulling concerning the occurrence of LeTID-type degradation
6:30 – 8:30 pm	Poster Session and Reception Sponsored by Suniva and RCT Solutions

Friday, July 24th

7:00 – 8:00 am Breakfast

Session 10: *Silicon for Space Applications*

8:00 – 8:20 am **Abby Meyer** (Aerospace Corp.) - Considerations for space/characterization/space environment

8:20 – 8:40 am **Paul Stradins** (NLR) - Proton-irradiated silicon cells and structures: defect identification, their spatial profiles, and doping effects

8:40 – 9:00 am **Mariana Bertoni** (ASU) - Radiation Defects in Silicon Solar Cells: Old Problem, New Materials, New Architectures, New Rules

9:00 – 9:30 am Break

9:30 – 11:00 am **Panel Discussion on Space PV**
Panel moderator: Abby Meyer (Aerospace Corp)

Session 11: *Laser Processing*

11:00 – 11:30 am **Jan Nekarda** (Fraunhofer ISE) – Lasers in Silicon PV

11:30 – 12:00 pm **Thien Truong** (NLR) – Nanosecond Pulsed Laser Assisted Contact Enhancement in Silicon Solar Cells Metallization: Mechanisms and Stability

Session 12: *Discussion & Wrap-up: Conclusions and Open Questions from the Workshop*

12:00 – 12:15 pm Summary and Q&A
David Young (NLR)

12:15 pm **Workshop Adjourns**

Lunch on your own