Heliostat.consortium@nrel.gov
heliocon.org

HelioCon 2024 Annual Workshop

Co-located with ASME-ES Conference

Hilton Anaheim
777 W Convention Way
Anaheim, California 92802 USA

July 16- 17, 2024

HelioCon Sessions held in room: Palos Verdes A

Agenda Outline:

- Tuesday, July 16 10:25 AM - 12:05 PM: Technical Session 18-01: HelioCon Metrology
- Tuesday, July 16 1:35 PM - 3:15 PM: Technical Session 18-02: HelioCon Windload
- Tuesday, July 16 3:35 PM - 5:15 PM: Technical Session 18-03: HelioCon Solar Field
- Wednesday, July 17 9:05 AM - 10:05 AM: Technical Session 18-04: HelioCon Heliostat Designs
- Wednesday, July 17 10:25 AM - 12:05 PM: Technical Session 18-05: HelioCon Modeling and Training
- Wednesday, July 17 1:30 PM – 6:15 PM: HelioCon Workshop: Summary Session

Workshop Chairs:

Guangdong Zhu, guangdong.zhu@nrel.gov
Jeremy Sment, jsment@sandia.gov

Workshop Coordinator:

Cindy Gerk, cindy.gerk@nrel.gov
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HelioCon 2024 Workshop Technical Sessions

as part of the ASME-ES Conference

July 16 – 17, 2024

Heliostat Consortium – TUESDAY, JULY 16, 2024	
Session 18-01: HelioCon Metrology - Chair: Rebecca Mitchell (10:25 AM - 12:05 PM)	
Randy Brost	Optical Effects of Temperature Change for Heliostat Mirrors
Devon Kesseli	Demonstration and Automation of Reflected Target Optical Measurement for Heliostats
Yu Zhou	Heliostat Consortium: Scoping Optical Metrology Tools for Heliostat Evaluation and Building a Power Tower Concentrating Solar Power Plant Database
Tucker Farrell	A Non-Intrusive Optical (NIO) Approach to Characterize in-situ Optical Performance of Heliostats: Field Testing and Tracking Error Estimates
Kyle Sperber	Moving NIO to Commercial Ready

Session 18-02: HelioCon Windload - Chair: Randy Brost (1:35 PM - 3:15 PM)	
Matthew Emes	Impact of Heliostat Array Density on Boundary Layer Characteristics and Wind Loading
Matthew Emes	Effects of Atmospheric Boundary Layer Turbulence on Single Heliostat Wind Load Coefficients: Comparison of Field Measurements With Wind Tunnel Experiments
Brooke J. Stanislawski	Tracking Error at an Operational Concentrating Solar Power Plant
Ulrike Egerer	Dynamic Wind Loading on CSP Collectors: Insights from NREL's Measurements in Operational Parabolic Trough and Heliostat Fields
Matthew Emes	Wind Tunnel Study on the Effects of Ground Clearance Ratio on Heliostat Dynamic Wind Loads

Session 18-03: HelioCon Solar Field - Chair: Matthew Muller (3:35 PM - 5:15 PM)	
Alex Zolan	Forecasting Soiling-Related O&M Costs for Concentrating Solar Power Tower Plants
Jeremy Sment	Design of Experiment to Evaluate the Beneficial Effects of Heliostat Shading on Desert Ecosystems
Eirini Eleni Tsiropoulou	Heliocomm: A Wireless Communications Autonomous System for Concentrated Solar Power Fields
Kenneth Armijo	HelioCon Closed Loop Control: Extremum Seeking Control Small-Scale and Single Heliostat Testing

Heliostat Consortium – WEDNESDAY, JULY 17, 2024	
Session 18-04: HelioCon Heliostat Designs - Chair: Kenneth Armijo (9:05 AM - 10:05 AM)	
Kyle Kattke	SunRing: Mirror Array Optimization and Prototyping
Ye Wang	Using an equivalent slope error to quantify different types of optical errors of a heliostat
Matthew Muller	Performance and Durability Testing of Advanced Composite Mirror Facets

Session 18-05: HelioCon Modeling and Training - Chair: Stephanie Meyen (10:25 AM - 12:05 PM)	
Chad Augustine	Impact of Temperature on Solar Industrial Process Heat Costs
Rebecca Mitchell	Modeling Receiver Flux of Commercial Power Tower Concentrating Solar Power Plants Using Ray Tracing: Benchmark Cases for Validation and Comparison of Ray-Trace Tools
Rebecca Mitchell	Heliostat Consortium: Updates on Resource, Training, and Education Development for the Concentrating Solar Power Community
Hameed Metghalchi	An Educational Program on Concentrated Solar Power and Heliostats for Power Generation and Industrial Process

HelioCon 2024 Annual Workshop: Summary Session
Hilton Anaheim
ROOM: Palos Verdes A
Wednesday, July 17, 2024

Time	Agenda Item	Speaker/Facilitator
1:30 PM – 1:35 PM	Welcome	Guangdong Zhu
1:35 PM – 2:20 PM	Highlights from Topic Area technical work	Guangdong Zhu (NREL work) – 15 mins Jeremy Sment (Sandia work) – 15 mins Matthew Emes (ASTRI progress) – 10 mins Craig Turchi (RFP round 1 project summary) – 10 mins
2:20 PM – 3:10 PM	Intro to awarded RFP Round 2 Projects	RFP Round 2 Project overview (3 min each) PIs to be determined
3:10 PM – 3:30 PM	Break	
3:30 PM – 6:15 PM	Program Discussion with All: Progress on Roadmap Gaps and Looking Ahead	Craig Turchi