



Heliostat Consortium Seminar Series

Brought to you by the Resource, Training, and Education (RTE) topic area



Dr. Rebecca Mitchell

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Host: Dr. Jeremy Sment, Sandia National Laboratories

Title: The CSP Industry Perspective on Heliostat Optical Measurement: Learnings from Energy I-CORPS

When: August 30th 1-2 PM MDT

Zoom:
<https://nrel.zoomgov.com/j/7111111111>

Abstract:

The Non-Intrusive Optical (NIO) technology measures heliostat optical errors in power tower Concentrating Solar Power (CSP) plants to provide operators with data to inform control room corrections and solar field maintenance decisions and boost plant power output. The Department of Energy's Energy I-CORPS program provides researchers with training and experiences to establish a viable commercialization pathway for laboratory-developed technology. By participating in the I-CORPS program, the NIO team interviewed 79 CSP industry stakeholders to gather information about the priorities, needs, and challenges of plants, technology suppliers, and contractors/service providers regarding heliostat optical measurement. These findings were used to develop a business model for the NIO technology and improve the CSP research community understanding of the industry.

Bios:

Dr. Rebecca Mitchell (PI) has been a researcher at NREL since 2018. She develops imaging-based heliostat optical metrology tools through algorithm development, theoretical modeling, and laboratory/field testing and is leading a round-robin comparison of ray trace tools in collaboration with Tietronix and ASU. As the topic lead for the Resource, Training, and Education task under the NREL-led Heliostat Consortium, she mentors interns and leads a public virtual seminar series and development of an online resource database. She is the Diversity, Equity, and Inclusion lead of the newly formed Women+ in Concentrating Solar organization.

Tucker Farrell has been a research engineer at NREL since 2020. He has contributed to the development of optical tools used to assess optical quality and heliostat performance metrics. His work began with flight planning for autonomous UAS and has progressed to include learning and computer vision techniques for image analysis. He also works in optical material characterization, accelerated aging, and life cycle modeling for solar reflectors, absorbers, and lately, particles. Finally, he's one of NREL's 3 operators of our 10-kW solar furnace.