U.S. Department of Energy
HelioCon
Heliostat Consortium for Concentrating Solar-Thermal Power

Heliostat Consortium Seminar Series

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

Kyle Kattke, Senior Engineer, Solar Dynamics

Host: Dr. Brooke Stanislawski

Title: SunLite HelioStat: Mirror Array Optical Design, Tuning, And Testing

When: July 23rd, 2025 1-2 PM MST

Zoom: https://nrel.zoomgov.com/meeting/register/5fEDTNpfR5iTvLfTTalT6w#/registration

Abstract:

Solar Dynamics' recently completed its HelioCon RFP Round 1 projected titled "SunRing Advanced Manufacturing and Field Deployment". Within the project, Solar Dynamics' pivoted to the pedestal style SunLite heliostat from the carousel type SunRing heliostat, but both heliostats incorporated 2D focusing and larger format mirrors compared to their predecessor. The mirror array's support structure and assembly workstation were developed in parallel to deliver 2D curvature from the assembly process.

A combination of optical metrology systems were used including Photogrammetry, ReTNA from NREL, and SOFAST from Sandia. Photogrammetry was used to optically tune the assembly workstation while ReTNA and SOFAST confirmed workstation tuning was indeed improving the overall slope error of the mirror array. In this seminar, Solar Dynamics will present its SunLite heliostat and the assembly tuning process used to fabricate the 1st prototype.

Bio:

Kyle holds a Masters Degree in Mechanical Engineering from the Colorado School of Mines. He started his career in CSP 14 years ago at Abengoa Solar in the US where he developed a novel carousel type heliostat and performed techno-economic optimizations of molten salt tower projects. As a Senior Engineer at Solar Dynamics for the past 7 years, Kyle manages Solar Dynamic's heliostat development. This began with the carousel type SunRing heliostat and currently with the pedestal type SunLite heliostat. With both heliostat designs, Kyle has managed the projects from conceptual design through full scale prototype testing. Kyle also leads performance modeling efforts at Solar Dynamics for both heliostat and parabolic trough technologies.