

HelioStat Sizing Methodology for Solar Heating for Industrial Processes

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BIO

Alex Zolan joined NLR in August 2018 as a postdoctoral researcher after obtaining a PhD from the Operations Research and Industrial Engineering graduate program at the University of Texas at Austin.

His recent work at NLR involves the development of models that seek optimal design, dispatch, and operations of solar thermal systems and multi-energy microgrid systems. His research experience is in the fields of stochastic optimization and Monte Carlo simulation.

ABSTRACT

This seminar discusses a recent study on methodology to obtain a heliostat size that minimizes the levelized cost of a heliostat-based concentrating solar thermal system for industrial process heat (IPH) applications at operating temperatures from 565 to 1550°C. The method extends prior work by embedding a routine for system design that obtains near-optimal subsystem sizes, increasing the fidelity of drive cost functions, and adding an optical performance model.

This seminar will discuss an illustrative business case developed for Daggett, California, as well as the findings of this study, which are consistent with the general trend of smaller heliostats under deployment at existing projects for high-temperature industrial process heat and reflect the significant reduction in power electronics and other per-heliostat costs.



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HelioCon

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Concentrating Solar-Thermal Power

HelioStat Consortium Seminar series host:
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