

Abstract Submitted  
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**High-throughput search for photoabsorbers for solar fuels**<sup>1</sup> SLOBODAN MITROVIC, Caltech, Joint Center for Artificial Photosynthesis, EARL CORNELL, Lawrence Berkeley National Laboratory, PAUL NEWHOUSE, JOEL HABER, RYAN JONES, JOHN GREGOIRE, Caltech, Joint Center for Artificial Photosynthesis — We present the suite of instrumentation developed specifically to search for light absorber materials for solar hydrogen and carbon-based fuels. A pre-screening method utilizes colorimetric image analysis to search for positive and negative metrics for electronic bandgaps, isolate materials not suitable for further screening and identify phase clusters in the compositional space of combinatorial material libraries. Then, two highly-automatized instruments screen for photocurrent, by performing incident-photon conversion efficiency measurement in a redox couple, and absorption properties via UV-Vis-NIR spectroscopy. Finally, we present a new instrument for multispectral microscopic imaging of material libraries. We will discuss the challenges in automated data analysis from large datasets and multispectral data-cubes.

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