

High throughput experimentation for organic reaction development

ABSTRACT: High throughput experimentation (HTE) is a critical tool for reaction optimization and process development that is routinely used in industry, but which remains under-employed in academic research. By collecting data on arrays of reactions run in miniature and in parallel, the relationship of reaction parameters (i.e. catalyst, solvent, temperature, time, etc.) can be understood and exploited for the development of more robust and general reactions. The HTE Center at the University of Delaware seeks to increase the accessibility of these techniques to academic researchers through collaboration, education, and the development of improved workflows. This talk will discuss recent efforts apply HTE techniques for reaction development, scope evaluation, and dataset collection.

Jessica Sampson earned their Ph.D. in Inorganic Chemistry from Caltech in 2019. There, they worked with Theo Agapie on olefin polymerization catalysis and ligand design. She subsequently pursued postdoctoral research on C-H activation methodology and base-metal cross-coupling with Brad Carrow at Princeton University and the University of Houston. Jessica started as the manager of the High Throughput Experimentation Facility at the University of Delaware in 2021 and is interested in the development of HTE for applications in organic and organometallic chemistry.



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