Innovation in synthetic methodology through use of flow

Timothy Noël
Eindhoven University of Technology, Department of Chemical Engineering & Chemistry, Micro Flow Chemistry & Synthetic Methodology, Eindhoven, The Netherlands
E-mail: t.noel@tue.nl; website: www.NoelResearchGroup.com; Twitter: @NoelGroupTUE



Until recently, many reactions have been exclusively performed in conventional batch LabWare. With the advent of microreactor technology, significant effort has been devoted to develop a wide variety of continuous-flow techniques to facilitate organic synthesis. Microreactor technology offers several advantages compared to traditional batch reactors, such as, enhanced heat- and mass-transfer, improved irradiation, safety of operation and the possibility to integrate several reaction steps and subsequent separations in a single streamlined process.[1]
My group has taken a great interest in assisting chemists by developing automated and flow-based reaction technologies capable of reducing manual labor, increasing the reproducibility of the results and accelerating reaction discovery. In this presentation, we will give an overview of our synthetic methodology development, exemplified by photoredox catalysis[2], C–H activation chemistry[3] and electrochemistry[4] and how these synthetic methods were impacted by continuous-flow microreactor technology. Furthermore, we will discuss the developed technology and reaction models in detail.

References:

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