

Development of flow-based Methodologies and their Application to Array and Natural Product Synthesis

Marcus Baumann

Ley Group Innovative Technology Centre, Department of Chemistry

Sidney Sussex College

Sidney Street, Cambridge CB2 3HU, England

E-mail: mb588@hermes.cam.ac.uk

During the last decade there has been a steadily growing interest within the chemical community for flow chemistry approaches to synthetic targets due to inherent benefits such as automated and telescoped reaction sequences, quick reaction optimisations and in-line work-ups and purifications. Consequently, flow chemistry addresses both environmental and economic drives. The Ley group has long been involved in the development of such flow processes for the synthesis of complex and strategically important compounds. In this talk the application of flow chemistry in heterocycle syntheses, fluorination reactions as well as important azide-promoted reaction sequences will be demonstrated. Furthermore, some recently accomplished natural product syntheses will be presented.

Selected references:

(1) *A Modular Flow Reactor for Performing Curtius Rearrangements as a Continuous Flow Process*. Marcus Baumann, Ian R. Baxendale, Steven V. Ley, Nikzad Nikbin, Christopher D. Smith, Jason P. Tierney, *Org. Biomol. Chem.*, **2008**, *6*, 1577-1586.

(2) *The Use of Diethylaminosulfur Trifluoride (DAST) for Fluorination in a Continuous Flow Reactor*. Marcus Baumann, Ian R. Baxendale, Steven V. Ley, *Synlett*, **2008**, *14*, 2111-2114.

(3) *Fully Automated Continuous Flow Synthesis of 4,5-disubstituted oxazoles*. Marcus Baumann, Ian R. Baxendale, Steven V. Ley, Christopher D. Smith, Geoffrey K. Tranmer, *Org. Lett.*, **2006**, *8*(23), 5231-5234.