



2017年度 物質生命理工学科コロキウム

上智大学 理工学部 物質生命理工学科 主催

理工学部・理工学振興会 共催

Synthesis as an Inspiration for Sustainability and Sensing



Professor Steven Bull

Department of Chemistry, University of Bath

2017年 8月 29日 (火) 17:00-18:30

場所：2-415

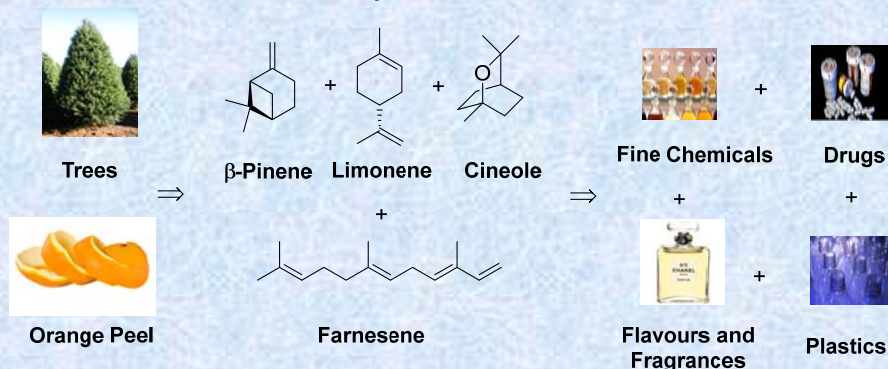
Professor Steven Bull was born in Cardiff in 1964. He received a Degree and Ph.D from the University of Cardiff and was a Post-Doctoral Fellow at the Universities of Queensland and Oxford. He is currently Professor and Head of Organic Chemistry at Bath and has published >160 papers on the development of novel methodology for the synthesis of drug molecules, natural products, chemical sensors, metabolic intermediates and fine chemicals.

学外の方の聴講歓迎・申込不要・参加無料

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Abstract

Catalysis for Sustainability: There is increasing awareness that society needs to develop more sustainable routes to fine chemicals, drugs and polymers that are currently sourced from non-renewable petroleum sources. Terpenes represent an abundant class of biorenewable natural products whose relatively non-oxygenated hydrocarbon skeletons contain alkene functionalities that are well suited as potential 'drop-in' substrates for existing industrial processes. We will demonstrate how catalytic transformations of terpenes such as limonene might be used to develop an industrial biorefinery approach for the synthesis of a range of value-added chemical products that are currently sourced from non-renewable petroleum sources.



Sensing for Healthcare: Our research into using boron compounds to develop simple three-component chiral derivatization protocol for determining the enantiopurity of chiral amines, diols, diamines, amino-alcohols and N-hydroxylamines using NMR spectroscopy, cyclic voltammetry or circular dichroism will be described. The development of boron based sensors for the colorimetric detection of fluoride in water at environmentally relevant levels and the fluorescent detection of reactive oxygen species in clinically relevant scenarios will also be presented.

