

マテリアルサイエンス系セミナー(第14回)

テーマ Continuous Hydrothermal Synthesis for Materials Discovery and Scale-up.

講演者: Professor. Jawwad Darr,

Department of Chemistry, University College London

日時: 平成29年2月20日(月) 15:00~16:30

場所: マテリアルサイエンス系研究棟IV棟8階 中セミナー室

講演要旨 : Laboratory scale continuous hydrothermal flow synthesis (CHFS) systems for the controlled synthesis of inorganic nanoparticles (diameter <100 nm) have many potential commercial applications from catalysts to sunscreens and battery materials to fuel cell components. CHFS systems offer many advantages over batch processes: it is a green technology (using supercritical water as the reagent at >374°C and 22.1 MPa), and uses inexpensive precursors (e.g. metal nitrate salts), and parameters such as T, P, etc. can be controlled independently for the synthesis of high-quality, technologically-important functional nanomaterials in a single step (or fewer steps than conventionally used). The Clean Materials Technology Group at UCL, has developed an engineered confined mixer which allows continuous running of a supercritical water CHFS system to prepare novel crystalline inorganic nanoparticle libraries. Via the CHFS route, these materials can be made directly or via further heat-treatment of intimately mixed precipitates (to form known “difficult to make” or hitherto unknown solid-state phases). As well as the use of CHFS for materials discovery in a range of applications, the talk will discuss the design and operation of a scaled-up CHFS Pilot Plant capable of Kg/h synthesis of nanoceramics. The talk will also include nanomaterials for catalysis, transparent oxide conductors and energy storage (Li ion batteries).

講演者略歴 :

Feb.1995–Feb.1996, Postdoctoral Research, Department of Chemistry, Imperial College

Feb. 1996– Oct 1999, PDRA, Department of Chemistry, University of Nottingham

Oct 1999–Oct 2001, Experimental Officer in Biomedical Materials IRC in Biomedical Materials, Queen Mary University

Oct 2001–Oct 2006, EPSRC Advanced Research Fellow and Lecturer, Department of Materials, Queen Mary University

Oct 2006–Apr 2007, Senior Lecturer in Materials Chemistry, Department of Materials, Queen Mary University

May 2007–, Reader in Materials Chemistry, Department of Chemistry, University College London

October 2011, Full Professor in Materials Chemistry, Department of Chemistry, University College London

参加申込・予約は不要です。直接会場にお越しください。
お問い合わせ先: 共通事務管理課 共通事務第三係 (E-mail: ms-secr)