

# Chemical Engineering Seminars – MT 2006

***Week 5: Tuesday 7 November, 4:15 pm  
Lecture Room 2, Thom Building, Engineering Science***

## “Population Balances: From Micro-scale to Macro-scale”

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### **Abstract**

In my seminar I shall discuss models for the synthesis of titania, carbon black/soot, and the agglomeration of powders. The models are solved with stochastic particle methods also called Direct Simulation Monte Carlo which can easily account for various internal coordinates like full fractal structure of a particle as well as chemical composition.

### **Bio-sketch**

**Dr Markus Kraft** became a lecturer in the Department of Chemical Engineering, University of Cambridge, in July 1999, and Reader in October 2004. He obtained the academic degree ‘Diplom Technomathematiker’ at the University of Kaiserslautern in 1992 and completed his Doctor rerum naturalium with *summa cum laude* in Chemistry at the same University in 1997. He has been working for several years on combustion, numerical issues connected with Monte Carlo methods and the application of wavelet and wavelet packed analysis at the University of Kaiserslautern, the University of Karlsruhe, and the Weierstrass Institute for Applied Analysis and Stochastics in Berlin. Dr Kraft has been awarded by the Royal Academy of Engineering with the ExxonMobile teaching fellowship and the Sugden Award (together with Dr Michael Balthasar) by the British Section of the Combustion Institute. As head of the computational modelling group in the Department of Chemical Engineering he develops together with the members of his group new mathematical models for two-phase flows, particle technology, and combustion.