

Mathematical Interdisciplinary Research @ Warwick



WARWICK
THE UNIVERSITY OF WARWICK

Autumn Term 2015/2016

Monday 30 November 2015

Modelling and simulation of electrochemical flows in Lithium-ion batteries

Organisers: Matteo Icardi, Florian Theil

Talks will be in Room B3.02, Mathematics Institute

12:30-13:00 Lunch in Mathematics Institute Common Room

13:00-13:30 **Christopher Lyness** (Jaguar Land-Rover)

The trouble with batteries: modelling electrochemical systems in a vehicle

13:30-15:00 **Oleg Iliev** (Fraunhofer ITWM)

On some mathematical challenges in studying multiscale electrochemical processes in Li-ion battery

Colin Please (Oxford)

Mathematical modelling of stress distributions in batteries

15:00-15:45 Tea Break in Mathematics Institute Common Room

15:45-16:30 **Markus Schmuck** (Heriot-Watt University)

New upscaled charge transport equations for highly heterogeneous multiphase materials

16:30-17:30 **Michael Auinger** (WMG, Warwick)

Near surface Ion distributions and buffer effects during electrochemical reactions

Akeel Shah (Engineering & WCPM, Warwick)

TBA

Ashwin Rajan (Engineering & WMG, Warwick)

Capacity fade modelling of Li-ion cells under cyclic loading condition

17:30 Discussion

18:30 Dinner