

# WCPM/CSC joint seminar

## Screw dislocation mobility: linking Monte Carlo models to Discrete Dislocation Dynamics

Tom Hudson

Mathematics Institute  
University of Warwick

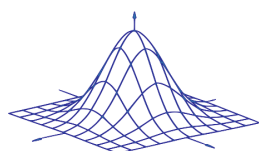
Monday, 17th October, 1 p.m.

D202 Seminar room, School of Engineering, 2<sup>nd</sup> Floor

**Abstract:** Dislocations are topological line defects found in crystals, and are an important feature of the plastic behaviour of such materials. Understanding their ensemble behaviour is therefore key to producing predictive models of crystal plasticity. Discrete dislocation dynamics (DDD) is a simulation technique which is used to study the motion of dislocations, and by tracking the positions of dislocations only, can access time-scales well beyond those currently achievable with Molecular Dynamics. In this talk, I will present and illustrate some recent mathematical results which provide a rigorous foundation for DDD by showing that it describes the limiting behaviour of a thermodynamically-motivated Kinetic Monte Carlo model for dislocation motion in a relevant physical parameter regime.



More info: <http://warwick.ac.uk/wcpm/seminars>



WCPM

Warwick Centre for Predictive Modelling

