Contribution ID: **348** Type: **Invited Speaker / Conférencier invité**

Modelling Materials Microstructure Across Scales using Phase Field Methods

Thursday 19 June 2014 09:45 (30 minutes)

Phase field crystal models and their recent extension to periodic order parameters will be summarized. Their application to new results in non-equilibrium kinetics and phase transformations in materials science will be reviewed. In particular, we review new results from applications of this modeling paradigm to solute trapping during rapid solidification of alloys, defect-mediated solid-state precipitation, and magneto-crystalline interactions. We close with a discussion of new complex amplitude representations of PFC models and how these can be used for multi-scale simulations using adaptive mesh refinement methods.

Author: PROVATAS, Nikolas (McGill University)

Presenter: PROVATAS, Nikolas (McGill University)

Session Classification: (R1-5) Computational Materials Mini-symposium I - DCMMP-DMBP / Mini-symposium sur les matériaux numériques I - DPMCM-DPMB

Track Classification: Condensed Matter and Materials Physics / Physique de la matière condensée et matériaux (DCMMP-DPMCM)