Thematic Session

Session title: Nonlinear PDEs with applications in materials science and biology

Organizers:

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Description of the topic:

The session will be devoted to recent trends in analysis of nonlinear problems arising in materials science and biology. Typically, these systems display a complex and multiscale behaviour. In order to efficiently compute and predict the observable dynamics, it is important to derive mesoscopic and/or macroscopic models which capture the effective behaviour of the system. The effective models can be then investigated by a combination of analytical and numerical tools. Analytical methods provide tools for derivation of such models and for study of their well-posedness, spatio-temporal dynamics, especially stability and dependence on characteristic scales (spatial and temporal), geometry, initial data and key parameters. The session is designed to provide an overview of recent results in analysis of partial differential equations models arising in applications.

2011 Mathematic Subject Classification:

35Q35, 35Q92