

KAIST CMC Annual Lecture Series

Interfaces in Solid and Liquid Crystals

Date: 2016. **04.05**, 17:00~18:00
04.06, 11:00~12:00,
15:00~16:00

Venue: Rm **1501**, Natural Science B/D **E6-1**,
KAIST, Daejeon

Invited Lecturer

Sir John Ball

(University of Oxford)

Fundamental contributor to Nonlinear Elasticity and
Calculus of Variations

President of IMU from 2003-06

Abstract: Martensitic phase transformations are solid phase transformations involving a change of shape of the underlying crystal lattice at a critical temperature or load. When a new phase is nucleated in a martensitic phase transformation, it has to fit geometrically onto the parent phase. Likewise, microstructures in individual grains of a polycrystal have to fit together across grain boundaries. Striking recent experiments have highlighted the crucial role compatibility plays in metastability and hysteresis. The lectures will describe some mathematical issues involved in understanding such questions of compatibility and the nature of the interfaces between parent and product phases. Whereas planar interfaces are typical in martensitic phase transformations, the defects usually observed and studied in liquid crystals are point and line singularities. Nevertheless there are situations when planar interfaces and related microstructures arise for liquid crystalline materials, and these will also be described and discussed.

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