COMPATIBILITY CONDITION FOR MICROSTRUCTURES

JOHN BALL
ball@maths.ox.ac.uk
Mathematical Institute
24-29 St Giles'
University of Oxford
Oxford OX1 3LB, UK

The talk will cover two topics related to the study of microstructure arising from solid phase transformations. The first concerns work with C. Carstensen on generalizations of Hadamard's jump condition for Lipschitz mappings. This involves in particular defining limiting sets of gradients of a Lipschitz mapping or $W^{1,\infty}$ gradient Young measure from either side of a surface at an arbitrary point. The second is joint work with an electron microscopist D. Schryvers (Antwerp) and shows how an understanding of compatibility can be of use in constructing plausible scenarios for macrotwin formation in NiAl alloys.