Evolution of Vector Fields on Flexible Curves and Surfaces

Speaker: Georg Dolzmann, the University of Regensburg

Time: Course I: Thursday, April 11, 11:00am-12:00pm
      Course II: Thursday, April 11, 4:00-5:00 pm

Venue: Room 264, Geography Building, Zhongbei Campus,
       East China Normal University

ABSTRACT

In this lecture we discuss some recent progress on a model system consisting of a flexible surface and a vector field defined on the surface in the case in which an interaction between the vector field and the surface is present. In the first part, the model will be introduced, the governing equations will be derived and some qualitative features of the model will be illustrated in the special situation of curves. In the second part, recent approaches towards the existence of solutions will be introduced and short term existence will be established. Under additional assumptions some long term existence results can be stated. This is joint work with Christopher Brand (Regensburg).

BIOGRAPHY

Georg Dolzmann is a professor for mathematics at the University of Regensburg, Germany. After finishing his Ph.D. in Bonn he held postdoctoral appointments in Freiburg and Leipzig and served on the faculty of the Department of Mathematics at the University of Maryland at College Park before accepting his position in Regensburg in 2006. His main research focuses on calculus of variations and nonlinear partial differential equations with an emphasis on nonconvex variational problems and applications to materials science. His further research interests include analytical and numerical methods for problems in elasticity and plasticity.