



**Institut für Mathematik  
und Wissenschaftliches Rechnen  
Karl-Franzens-Universität Graz**



## EINLADUNG

zum Vortrag von

**Prof. Giovanni PISANTE**

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**Titel:** Second order variational analysis for a non local isoperimetric problem in microphase separation

**Zeit:** Freitag, 11. April 2014, 11:00 Uhr

**Ort:** SR 11.32  
Institut für Mathematik und Wissenschaftliches Rechnen  
Heinrichstraße 36, 8010 Graz

### **Abstract:**

In this talk we consider a non-local isoperimetric problem arising as the sharp interface limit of the Ohta-Kawasaki free energy introduced to model microphase separation of di-block copolymers. We can perform a second order variational analysis that allows us to provide a quantitative second order minimality condition. This analysis shows indeed that critical configurations with positive second variation are strict local minimizers of the nonlocal energy functional. Moreover we provide, via a suitable quantitative inequality of isoperimetric type, an estimate of the deviation from minimality for configurations close to the minimum in the  $L^1$  topology. Aim of the presentation will be to explain how to perform variations for non-local variational functionals and to sketch how to combine the regularity theory for quasi minimizers of the area functional and a suitable penalization argument to prove the quantitative minimality estimate. The presentation is based on a joint work with Vesa Julin.

Prof. Klemens **Fellner**