



Vienna School  
of Mathematics

# PhD Colloquium

Rossella Giorgio

## Nonlocal-to-local analysis of energies in Micromagnetics

**Abstract:** In this talk we first consider a nonlocal-to-local approximation of exchange energy functionals in Micromagnetics, extending the well-known Bourgain-Brezis-Mironescu formula in order to encompass the scenario where antisymmetric contributions are encoded. The keypoints are a pointwise convergence result and a  $\Gamma$ -convergence argument, obtaining as byproduct a formal justification of the so-called Dzyaloshinskii-Morya interaction term. In the second part of the talk, we focus on the existence of minimizers. In the spirit of the so-called Brown's Fundamental Theorem, we show a characterization of minimizers through a size-dependence on the domain.

This is joint work with E. Davoli, G. Di Fratta and L. Lombardini.

**October 28 2024, 15:30-16:30**

TUForMath Room DAEGH18, Freihaus, TU Wien  
(Wiedner Hauptstraße 8-10)