UNIVERSITÀ DI PARMA

DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE

SEMINARIO

Eleonora Ficola (Universität Hamburg)

Martedì 19 marzo 2024, ore **14.30**

Sala Riunioni e Seminari, Plesso di Matematica

AnaGrAM - Analysis, Geometry, and Algebra Meetings

Minimizing anisotropic total variation functionals depending on measures

Aim of the talk is to present an existence result to the anisotropic 1-Laplace problem

$$\text{div}\left[\nabla_\xi \varphi(\,\cdot\,, \nabla u)\right] = \mu \quad \text{on } \Omega$$

with Dirichlet boundary datum $u_0 \in \text{L}^1(\partial\Omega)$ and μ a signed, Radon measure on Ω. Our approach consists in proving the existence of BV-minimizers for the corresponding integral functional Φ_{u_0}. In doing so, we characterize the appropriate assumptions for the measure μ in order to obtain lower-semicontinuity of the anisotropic functional Φ_{u_0}, and discuss a refined LSC in the related parametric case. We further prove that the definition of Φ_{u_0} is consistent with the original one set in the Sobolev space $\text{W}^{1,1}_{u_0}(\Omega)$ and provide some illustrative examples. Finally, further research directions will be sketched to include a broader class of functionals with linear growth (joint work with Thomas Schmidt, Universität Hamburg).

Organizzatore: Paolo Baroni

FONDAZIONE CARIPARMA