PARIS LODRON UNIVERSITÄT SALZBURG | Mathematik

Gastvortrag

Freitag, 22. Oktober 2021
Uhrzeit: 10:00 Uhr
Seminarraum II

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The Bounded Slope Condition and regularity properties for minimizers of functionals depending on lower order terms

Abstract:

The Bounded Slope Condition is a classical suffcient condition to obtain existence of solutions of problems of the Calculus of Variations in the class of Lipschitz functions. In the last two decades it has been applied also in the framework of Sobolev spaces to obtain various regularity results. Two papers may be considered the milestones of this new point of view: A. Cellina, *On the bounded slope condition and the validity of the Euler Lagrange equation*, SIAM J. Control. Optim. (2001); F. Clarke, *Continuity of solutions to a basic problem in the calculus of variations*, Ann. SNS (2005).

These two papers have inspired other authors to work on this subject in different directions. Most of the regularity results in this framework hold for functionals depending only on the gradient of the admissible functions.

In this talk I consider functional depending also on lower order terms having a special structure of the following type

$$\mathcal{F}_1(u) = \int_\Omega f\big(\nabla u(x)\big) + g\big(x, u(x)\big)\, dx \qquad (1)$$

$$\mathcal{F}_2(u) = \int_\Omega f(\nabla u(x) - g(x))\, dx \qquad (2)$$

and I present some recent results obtained in collaboration with Flavia Giannetti for the functional (1) and with Sebastiano Don, Luca Lussardi, Andrea Pinamonti for functional (2).

Eingeladen von Verena Bögelein