

Partial regularity results for minimizers of non autonomous functionals with nonstandard growth conditions

Flavia Giannetti

University of Naples "Federico II", Italy
giannett@unina.it

The talk is based on the joint work with A. Passarelli di Napoli, M.A. Ragusa and A. Tachikawa

I will talk about partial regularity properties of the local minimizers of integral functionals of the type

$$\int_{\Omega} \Phi \left((A_{ij}^{\alpha\beta}(x, u) D_i u^{\alpha} D_j u^{\beta})^{1/2} \right) dx,$$

where $\Omega \subset \mathbb{R}^n$ is a bounded domain, $u : \Omega \rightarrow \mathbb{R}^N$, $n, N \geq 2$, Φ is an Orlicz function satisfying both the Δ_2 and ∇_2 conditions and the function $A(x, s) = (A_{ij}^{\alpha\beta}(x, s))$ is uniformly continuous.

I will also discuss the case of integral functionals whose integrand exhibits the dependence on the x variable both in the coefficients and in the exponent. More precisely, I will deal with the regularity properties of the local minimizers of integral functionals of the type

$$\int_{\Omega} \Phi^{p(x)} \left((A_{ij}^{\alpha\beta}(x, u) D_i u^{\alpha} D_j u^{\beta})^{1/2} \right) dx,$$

where $p(x) : \Omega \rightarrow (1, +\infty)$ is a continuous function.