Variational problems in Nonsmooth Analysis

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In the last years, elliptic equations involving a nonsmooth term have attracted several outstanding mathematicians and the interest towards this kind of problems has grown more and more, not only for their intriguing analytical structure, but also in view of their applications in a wide range of contexts. Motivated by this wide interest in the literature, the leading purpose of this talk is to present some recent results on nonsmooth elliptic equations, mainly related to a wide class of functionals defined through multiple integrals of Calculus of Variations. Applications to quasilinear boundary value problems will be presented and some open problems briefly discussed; see [1] and [2, Chapter 8] for related topics.

References

[1] C. Alves, G. Molica Bisci, and S. da Silva, *New minimax theorems for lower semicontinuous functions and applications*, ESAIM: Control, Optimisation and Calculus of Variations. DOI: https://doi.org/10.1051/cocv/2024005 (in press).

[2] G. Molica Bisci and P. Pucci, Nonlinear Problems with Lack of Compactness, De Gruyter Series in Nonlinear Analysis and Applications **36** (2021), i+vii, 1–266.