Nonlinear potential theoretic methods in nonuniformly elliptic problems.

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Nonuniformly elliptic equations are a classical topic in regularity theory. Here I will present a few new results and techniques via nonlinear potentials leading to a unified approach to Lipschitz continuity of solutions working both in the uniformly and in the nonuniformly elliptic case. In fact, the new approach allows in a sense to reduce nonuniformly elliptic problems to uniformly elliptic ones via renormalized Caccioppoli inequalities in the setting of the Bernstein method, and a suitable control of the constants along the iterations.

From recent, joint work with Lisa Beck (Augsburg) and Cristiana De Filippis (Parma).