

Anders Björn, Niko Marola: *Moser iteration for (quasi)minimizers on metric spaces*; Helsinki University of Technology, Institute of Mathematics, Research Reports A490 (2005).

Abstract: *We study regularity properties of quasiminimizers of the p -Dirichlet integral on metric measure spaces. Our main objective is to adapt the Moser iteration technique to this setting. However, we have been able to run the Moser iteration fully only for minimizers. We prove Caccioppoli inequalities and local boundedness properties for quasisub- and quasisuperminimizers. This is done in metric spaces equipped with a doubling measure and supporting a weak $(1, p)$ -Poincaré inequality without assuming completeness of the metric space. New here seems to be that we do not assume completeness and only require a weak $(1, p)$ -Poincaré inequality, rather than a weak $(1, q)$ -Poincaré inequality for some $q < p$.*

We also provide an example which shows that the dilation constant from the weak Poincaré inequality is essential in the condition on the balls in the Harnack inequality. This fact seems to be overlooked in the earlier literature on nonlinear potential theory on metric spaces.

AMS subject classifications: Primary: 49N60; Secondary: 35J60, 49J27.

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