

ON THE THEORY OF QUASIREGULAR VALUES

ILMARI KANGASNIEMI

A quasiregular (QR) map is a Sobolev map $f: \mathbb{R}^n \rightarrow \mathbb{R}^n$ satisfying the distortion inequality $|Df(x)|^n \leq K \det(Df(x))$ at almost every x , where $K \geq 1$ is a constant. QR maps form a higher-dimensional class of maps with many similar geometric properties as single-variable holomorphic maps. In this talk, we consider a generalization of the distortion inequality of the form $|Df(x)|^n \leq K \det(Df(x)) + \Sigma(x)|f(x) - y|^n$, where Σ is a real-valued weight function and $y \in \mathbb{R}^n$ is a fixed point. Our recent results show that under various L^p -integrability assumptions on Σ , this condition can be used to prove single-value counterparts to many fundamental results of QR-maps at the point y . The list of generalized results includes the QR-versions of the open mapping theorem, Liouville theorem, and Picard theorem. Joint work with Jani Onninen.