ILMARI KANGASNIEMI, University of Cincinnati

On the theory of quasiregular values

A quasiregular (QR) map is a Sobolev map f between domains of $\mathbb{R}^n$ 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 e.g. the QR-versions of the open mapping theorem, Liouville theorem, Picard theorem, and the small K -theorem. Joint work with Jani Onninen.