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Marshall C. Williams* (mcwill@uic.edu). *Analytic inverse quasiregularity and Poletsky's inequality*. Preliminary report.

We introduce a definition of “analytic inverse quasiregularity” for a discrete open mapping $f: X \rightarrow Y$ between locally compact metric measure spaces. This definition turns out to be equivalent to Poletsky’s inequality (the “ K_I -inequality”). As an application, we prove that if X and Y are Ahlfors Q -regular, then the metric definition of quasiregularity implies our analytic inverse definition. This then proves Poletsky’s inequality, generalizing a result of Onninen and Rajala, who proved the inequality when X is a domain in \mathbb{R}^n and Y is an n -regular cohomology manifold. (Received January 19, 2011)