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Marshall Williams* (mcwill@uic.edu). *Geometric and analytic quasiconformality in metric measure spaces.*

We prove the sharp equivalence between analytic and (lower) geometric definitions of quasiconformality for a homeomorphism $f: X \rightarrow Y$ between metric measure spaces X and Y . Our result holds in great generality, assuming no metric hypotheses on either space.

Assuming in addition only a doubling condition on the measure ν , our results show that “annular quasiconformality” (quasipreservation of the modulus of certain annular condensers) implies (lower) quasiconformality. This yields a very short, though not entirely conceptually new, proof of Tyson’s theorem that quasisymmetric mappings are geometrically quasiconformal. (Received August 11, 2010)