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Max Engelstein, Robin Neumayer* (neumayer@math.northwestern.edu) and **Luca Spolaor**. *Quantitative stability for minimizing Yamabe metrics*.

The Yamabe problem asks whether, given a closed Riemannian manifold, one can find a conformal metric of constant scalar curvature (CSC). An affirmative answer was given by Schoen in 1984, following contributions from Yamabe, Trudinger, and Aubin, by establishing the existence of a function that minimizes the so-called Yamabe energy functional; the minimizing function corresponds to the conformal factor of the CSC metric.

We address the quantitative stability of minimizing Yamabe metrics. On any closed Riemannian manifold we show—in a quantitative sense—that if a function nearly minimizes the Yamabe energy, then the corresponding conformal metric is close to a CSC metric. Generically, this closeness is controlled quadratically by the Yamabe energy deficit. However, we construct an example demonstrating that this quadratic estimate is false in the general. This is joint work with Max Engelstein and Luca Spolaor. (Received January 18, 2021)