Geometric Limits and Renormalization
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In joint work with M. Lyubich, we consider the problem of proving a priori bounds for an infinitely renormalizable quadratic polynomial for which the renormalization types converge to a geometric limit. In particular, we show such a bound for the case where each renormalization type is, for some q, the unique parameter in the $1/q$ limb where the critical point is periodic of period $q + 1$. We then describe the difficulty that arises in the more general case, and outline an approach to its solution.