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Collet–Eckmann and Misiurewicz maps

A well studied type of non-uniformly expanding maps are the Collet–Eckmann maps (CE), introduced in the 1980s by P. Collet and J-P. Eckmann. These maps has positive Lebesgue measure in the space $\mathcal{R}_d$ of rational functions for any degree $d \geq 2$, which was shown in my thesis in 2004. A special type of CE-maps are the so-called Misiurewicz maps, which have no parabolic cycles and the critical set on the Julia set is non-recurrent (they are also assumed to be non-hyperbolic). These maps have Lebesgue measure zero but full Hausdorff dimension in $\mathcal{R}_d$ for any $d \geq 2$. Moreover, every Misiurewicz map can be approximated by a hyperbolic map (answering a conjecture by Herman). Some results of this type also extends to semi-hyperbolic maps, which do not have any parabolic cycles and for which every critical point on the Julia set is non-recurrent (instead of the whole critical set).