

On efficient computation of parabolic Julia sets

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Julia sets are some of the most drawn objects in Mathematics. The computational complexity of the task of drawing the Julia set may vary dramatically with the parameter. Most programs for computing Julia sets work well when the underlying dynamics is hyperbolic but experience an exponential slowdown in the parabolic case.

In this talk we describe an interpolation technique that combines symbolic and numerical computation to yield a poly-time algorithm for computing Julia sets with parabolic orbits.