A counterexample to Eremenko's conjecture.

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Let f be a transcendental entire self-map of the complex plane. The *escaping set* of f consists of those points that tend to infinity under iteration of f. (For example, all real numbers belong to the escaping set of the exponential map, since they tend to infinity under repeated exponentiation.) In 1989, Eremenko conjectured that every connected component of the escaping set is unbounded.

Eremenko's conjecture has been a central problem in transcendental dynamics in the past decade. A number of stronger versions of the conjecture have been disproved, while weaker ones has been established, and the conjecture has also been shown to hold for a number of classes of functions. I will describe joint work with David Martí-Pete and James Waterman in which we construct a counterexample to Eremenko's conjecture.