

On computational aspects of the Feigenbaum fixed point of the period doubling renormalization.

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I will discuss two themes related to the Feigenbaum fixed point F of the period doubling renormalization. In the first part of my talk I will show that the Julia set of F is poly-time computable which is the first example of a poly-time computable Julia set for holomorphic maps with a recurrent critical point (joint work with M. Yampolsky). In the second part I will present a probabilistic criteria to show (using a computer) that this Julia set has zero measure and Hausdorff dimension less than two (joint work with S. Sutherland).