

1116-37-2706

Raluca Tanase* (raluca.tanase@stonybrook.edu), Institute for Mathematical Sciences, Stony Brook University, Stony Brook, NY 11794-3660. *Julia sets and discrete group actions.*

Consider the standard family of complex Hénon maps $H(x, y) = (p(x) - ay, x)$, where p is a polynomial of degree $d \geq 2$ and a is a complex parameter. Any polynomial automorphism of \mathbb{C}^2 with nontrivial dynamics is conjugate to a composition of Hénon maps, hence the dynamics of the Hénon map is both interesting and challenging to study. Let U^+ be the set of points that escape to infinity under forward iterations. The boundary J^+ of U^+ is a complicated fractal object on which the Hénon map behaves chaotically. J. Hubbard and R. Oberste-Vorth gave a complete description of the analytic structure of U^+ as a quotient of $(\mathbb{C} - \overline{\mathbb{D}}) \times \mathbb{C}$ by a discrete group of automorphisms Γ isomorphic to $\mathbb{Z}[1/d]/\mathbb{Z}$. We show how to extend the group action to the boundary and represent the Julia set J^+ as a quotient of $\mathbb{S}^1 \times \mathbb{C}/\Gamma$ by an explicit equivalence relation. We analyze this extension for quadratic Hénon maps that are perturbations of hyperbolic polynomials or polynomials with a parabolic fixed point. (Received September 22, 2015)