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A structure theorem for semi-parabolic Hénon maps

Consider the parameter space $\mathcal{P}_\lambda \subset \mathbb{C}^2$ of complex Hénon maps $H_{c,a}(x,y) = (x^2 + c + ay, ax)$, $a \neq 0$, which have a semi-parabolic fixed point with one eigenvalue $\lambda = e^{2\pi ip/q}$. We give a characterization of those Hénon maps from the curve $\mathcal{P}_\lambda$ that are small perturbations of a quadratic polynomial p with a parabolic fixed point of multiplier λ. We prove that there is an open disk of parameters in $\mathcal{P}_\lambda$ for which the semi-parabolic Hénon map has connected Julia set J and is structurally stable on J and J^+. The set J^+ in a bidisk $\mathbb{D}_r \times \mathbb{D}_r$ is a trivial fiber bundle over J_p, the Julia set of the polynomial p, with fibers biholomorphic to $\mathbb{D}_r$. This is joint work with Raluca Tanase.