

# A rigidity theorem of Henon maps and beyond

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Classically the holomorphic dynamics was studied for rational endomorphisms of the Riemann sphere. In the past three decades, this field of research has flourished to a great extent and the holomorphic dynamics in higher dimensions has attracted a lot of attention. In particular, the polynomial automorphisms in higher dimensions mushroomed as a central theme of study in this category. In  $\mathbb{C}^2$ , the most important polynomial automorphisms are the class of Henon maps. In this talk, we shall see a rigidity theorem of Henon maps: It says that any automorphism of  $\mathbb{C}^2$  which preserves the Julia sets of a given Henon map has to be a Henon map and these two Henon maps commute up to a linear automorphism. This result is a higher dimensional analogue of a classical rigidity theorem of the Julia sets of polynomial maps in  $\mathbb{C}$ . In the later part of the talk we shall see a few more related results and some open problems.