

Rigidity, uniformity, and the Mandelbrot set

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One of the most famous – and still not fully understood – objects in mathematics is the Mandelbrot set. It is defined as the set of complex numbers c for which the dynamical system given by iteration of $f_c(z) = z^2 + c$ has a connected Julia set. But this object turns out to be related to many different areas of mathematics. Inspired by recent results in arithmetic geometry, I will describe how the tools of arithmetic intersection theory can be applied in the setting of these complex dynamical systems. The new work is joint with Myrto Mavraki and Hexi Ye.