

ESCAPING FATOU COMPONENTS OF TRANSCENDENTAL SELF-MAPS OF THE PUNCTURED PLANE

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We study the escaping set of transcendental self-maps of the punctured plane. The orbits of these points accumulate to zero and/or infinity following what we call essential itineraries. It can be shown that for every essential itinerary, there are points in the Julia set that escape following that itinerary. Therefore, it is a natural question to ask whether there are examples of Fatou components that escape in each possible way as well. Using approximation theory we are able to construct functions with wandering domains and Baker domains that do this. We also study some concrete examples.