

1134-37-272

Nathaniel D Emerson* (nemerson@usc.edu), University of Southern California, Department of Mathematics, 3620 S. Vermont Ave., KAP 104, Los Angeles, CA 90089-2532. *On the Topology of the Cubic Mixed Locus.*

We describe the topology of a locus of cubic polynomials in a parameter space. We consider the *cubic mixed locus*, that is cubic polynomials which have one critical point with unbounded orbit and one critical point with bounded orbit. Let \mathcal{E} be the subset of the cubic mixed locus such that the connected component of the Julia set of the polynomial containing the critical point with bounded orbit is aperiodic. We show that \mathcal{E} has uncountably many path components, each of which is conformally equivalent to the Riemann surface of $\sqrt[n]{z}$ with the closed unit disk removed for some n .

We study the dynamics of polynomials using the combinatorial system of a tree with dynamics. Given a polynomial in \mathcal{E} , we define a family of polynomials in \mathcal{E} with the same tree with dynamics, that depends continuously on two real parameters. We show that each of these families is an immersed Riemann surface, and is a path components of \mathcal{E} . The conformal type of the Riemann surface can be determined from the tree with dynamics. (Received September 12, 2017)