

1095-37-219

Nathaniel D Emerson* (nemerson@usc.edu), USC Department of Math, 3620 South Vermont Avenue, KAP 406, Los Angeles, CA 90089-2532. *Automorphisms of Cubic Polynomials Outside the Shift Locus*. Preliminary report.

The cubic shift locus, \mathcal{S}_3 , consists all cubic polynomials where both critical points tend to infinity under iteration. A cubic polynomial is topologically conjugate to the one-sided shift on 3 symbols if and only if it is in the shift locus. Thus any automorphism of the polynomial that is compatible with the dynamics, induces an automorphism of the 3-shift. The automorphism group of the 3-shift, denoted Aut_3 , has a surprisingly rich algebraic structure. Blanchard, Devaney and Keen showed that there is a surjective homomorphism from $\pi_1(\mathcal{S}_3)$ to Aut_3 .

We consider the *mixed* cubic polynomials, \mathcal{E}_3^1 , which have one critical point with bounded orbit and one critical point that tends to infinity under iteration. Mixed polynomials are only semi-conjugate to the 3-shift. We present some preliminary results generalizing their results to these polynomials. In particular, we show that there is a surjective homomorphism from $\pi_1(\mathcal{E}_3^1)$ to Aut_3 . (Received September 09, 2013)