

THE PARAMETER SPACE OF $f(z) = z^3 + cz^2$ AND SYMBOLIC DYNAMICS

$$f_0(z) = z^3 + 3z^2$$

In 1991 P. Blanchard, R. Devaney and L. Keen using the work of J. Ashley showed that there is a surjection from the fundamental group of the disconnected locus in the parameter space for degree d polynomial maps onto the automorphism group of the one-sided shift on d symbols. When d is greater than 2, M. Boyle, J. Franks and B. Kitchens had shown that the automorphism groups are infinitely generated by generators of finite order. When d is greater than 2 the Julia set of the polynomial can be totally disconnected, connected or a Cantor set of mixed points and circles (indeterminate). I will consider the family of maps $f(z) = z^3 + cz^2$ when the Julia set is indeterminate and show how one loop in the parameter space induces an automorphism of the Julia set that can be described symbolically.