



UNIVERSITY OF RHODE ISLAND

Department of Mathematics
and Applied Mathematical Sciences



Applied Mathematics and Scientific Computing Seminar

Location: Lippitt Hall 204

Time: Wednesday, April 16, 2025, 1:00pm

(different room and day)

Identifications in the Rabbit Regions of the Cubic Parameter Curves

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Abstract: In work by Estabrooks, Sharland, and Bonifant [1], the Basilica escape region of the period two cubic parameter curve is described as a quotient space with respect to some number theoretic equivalence relation on the internal angles of the main hyperbolic component of the period one cubic parameter curve. The overall conjecture is that all zero-kneading escape regions have a description as a quotient of a disk with respect to some equivalence relation as above. After describing how the basilica method can be adapted to the $1/3$ -rabbit, a generalization to any p/q -Rabbit region of the period q cubic parameter curve is made. Progress toward describing the primitive zero-kneading escape regions is also made. This information allows us to start to describe the internal structure of the connectedness locus without appeals to computer graphics or numerical methods.

[1] A. Bonifant, C. Estabrooks, and T. Sharland. *Relations Between Escape Regions in the Parameter Space of Cubic Polynomials*. Arnold Math J., 9:245–265, 2022.