

ALGEBRA
SEMINAR

Norms of Roots of Trinomials

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Abstract: The behavior of norms of roots of univariate trinomials

$$z^{s+t} + pz^t + q \in \mathbb{C}[x].$$

with respect to the choice of coefficients $p, q \in \mathbb{C}$ is a classical late 19th and early 20th century problem. In 1908, P. Bohl characterized the parameter space, but only in an algebraic way. By using amoeba theory we uncover a beautiful geometric and topological structure in the corresponding parameter space. More precisely, we show that norms of roots of trinomials are geometrically characterized by hypo-epitrochoids and its parameter space is topologically characterized by torus knots.

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MATHEMATICS AND COMPUTER SCIENCE
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