Department of Mathematics and Computer Science

Friday, October 2, 2015, 4:10 pm

COLLOQUIUM TALK

Speaker: Alejandra Alvarado

Old Main 2231

Approximating Coefficients of Shabat Polynomials

Abstract:

In 1984, Alexander Grothendieck, inspired by a result of Gennadii Belyĭ (1951 - 2001) from 1979, constructed a finite, connected planar bipartite graph via rational functions $\mathbb{P}^1(\mathbb{C}) \to \mathbb{P}^1(\mathbb{C})$ with critical values $\{0, 1, \infty\}$ by looking at the inverse image of the triangle formed by these three points. He called such graphs Dessins d'Enfants. Conversely, Riemann's Existence Theorem implies that every finite, connected planar graph arises in this way. We are interested in constructing Shabat Polynomials (generalized Chebyshev polynomials), the Belyĭ functions corresponding to trees. This construction comes down to finding the roots of a system of nonlinear equations.

SNACKS IN FACULTY LOUNGE AT 3:30 PM.
EVERYONE WELCOME (EVEN IF YOU ARE UNABLE TO ATTEND THE TALK)