DEPARTMENT OF MATHEMATICS
Spring 2023 MATH Colloquium Series

Surprising Connections in Number Theory

Dr. Daniel Martin

Krener Assistant Professor
Dept. of Mathematics, UC Davis

Classical algorithms for approximating real numbers with rational numbers break down over fields with non-Euclidean rings of integers. Such algorithms are needed, however, for applications like lattice reduction in cryptography and gate approximation in quantum computing. In this talk I will present a way around the non-Euclidean obstacle using a new tool arising from the geometry of Minkowski space. This tool and the approximation algorithm it provides have geometric ties to class groups of quadratic fields, Apollonian circle packings, and ideal lattice-based cryptography. I will explore each of these connections, especially the cryptographic application.

Mar. 9, 2023
THURSDAY

4:00 PM
BSS#166

FOR MORE INFO GO TO HTTPS://MATH.HUMBOLDT.EDU/GET-INVOLVED/MATHEMATICS-COLLOQUIUM

WE CORDIALLY INVITE YOU TO THE PRE-COLLOQUIUM TEA IN BSS#312 AT 3:30 PM