The Math/Stats Colloquium
Department of Mathematics and Statistics
San José State University

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UC Santa Cruz

The arithmetic of arithmetic Coxeter groups

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Abstract: In the 1990s, John H. Conway developed a visual approach to the study of integer-valued binary quadratic forms. His creation, the *topograph*, sheds light on classical reduction theory, the solution of Pell-type equations, and allows tedious algebraic estimates to be simplified with straightforward geometric arguments. Nowadays, Conway's topograph can be seen to arise from a coincidence between an *arithmetic group* and a *Coxeter group*. In this talk, I will survey Conway's approach to integer binary quadratic forms, and show how similar coincidences yield new number theoretic results. These results are joint work with Chris D. Shelley and Suzana Milea.

    Background: One course in abstract algebra.

About the speaker: Marty Weissman is a professor of mathematics at UC Santa Cruz. He received his PhD under Benedict Gross at Harvard University in 2003, before moving west to Berkeley for a postdoc, then down the coast to join the faculty at UC Santa Cruz. His research lies at the intersection of number theory, geometry, and representation theory, and most recently, in the visualization of mathematics.

Colloquium broadcast via Zoom, 3pm Pacific/6pm Eastern
Email tim.hsu@sjsu.edu for an invitation

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