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

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Searching for Rigidity in Algebraic Starscapes

Wed Mar 09, 2022, via Zoom

Abstract: The creation and study of plots of algebraic integers has a rich and collaborative history, bringing together pure and computational mathematics with digital art. These images exhibit deep relationships between geometry and arithmetic, and serve as invitations to explore the mysterious patterns lying within the integers. We will cover some history of the visual geometry of algebraic numbers, and then explore the effect of emphasizing algebraic integers according to arithmetic invariants arising in Galois theory, exhibiting previously hidden geometries in these number starscapes. Finally, we will explain how the resulting imagery informs and inspires research questions in algebraic number theory. This work is joint with Shuchang Shu.

Background: Only familiarity with complex numbers. A course in abstract algebra would be helpful but not necessary.

About the speaker: Gabriel Dorfsman-Hopkins (he/they) received their PhD from the University of Washington in 2019, and is currently an RTG Postdoctoral Scholar at the University of California, Berkeley. They conduct research in the fields of arithmetic and p-adic analytic geometry as well as along the intersection of art and math.

Colloquium broadcast via Zoom, 3:00pm Pacific
Email `tim.hsu@sjsu.edu` for an invitation

For our full schedule, see: `http://www.timhsu.net/colloq/`