COLLOQUIUM

Nov. 6, 2025

Place: Neckers 156

Time: 3:30pm

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Refresments immediately following in the Math Library.

Two Truths and Lie Color Algebra

Abstract:

People play the game Two Truths and a Lie to learn more about someone. In this colloquium, you can learn more about Lie color algebras, a class of generalized Lie algebras that have held my attention over the last three decades.

The idea of Lie color algebras was first introduced in Rimhak Ree's 1960 paper "Generalized Lie Elements." These algebras didn't receive sustained attention until about twenty years later, when physicists began using them to model supersymmetry under the name color Lie superalgebras. The structure extends the familiar sign rules of Lie superalgebras to more general gradings by abelian groups.

Over the years, my research has returned again and again to one central object: the universal enveloping algebra of a Lie color algebra. Questions about primeness, domains, and structural properties have led me to explore how these enveloping algebras behave and what they reveal about the underlying Lie color structures. Along the way, I've developed new constructions, including a method for enhancing Lie color algebras that produces new simple examples with desirable algebraic properties.

Rather than a comprehensive survey, this colloquium traces the development of Lie color algebras through the lens of my own research. I'll highlight key ideas and results that have shaped my thinking and share some recent progress on how these algebras can be extended and analyzed through their enveloping algebras.

Familiarity with Lie theory would be helpful but is not essential background for this talk. Curiosity about how algebraic structures evolve and interact is what's most important.