Quandles: An introduction and applications

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007 Kemeny Hall, 4:00 pm
(Tea 3:30 pm 300 Kemeny Hall)

Abstract

A quandle is a set that has a binary operation for which each element is idempotent, and the set acts upon itself as automorphisms. The axioms were described independently in the early 1980s by David Joyce and Sergei Matveev. Quandles algebraically model the Reidemeister moves for knot diagrams. Recent (since 1998) developments of applications have been found using quandle cocycles.

In this talk, I will give the definitions and basic examples, describe the knot quandle, and sketch the definition of the cocycle invariants. Towards the end of the talk, I plan to give a list of a number of applications. I won't assume much intimacy with topology or knot theory.

This talk should be accessible to undergraduates.