



The Department of Mathematics
Presents

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Thursday, February 16, 2017
@ 3:00PM in S 145

Arrangements of lines: when the combinatorics fails to understand topology

Abstract:

Zariski gave a pair of six-degree polynomials with the same types of singularities but whose complements have different fundamental groups. This motivates the search for similar "Zariski pairs" of line arrangements: two collections of lines with the same combinatorial intersection data but whose (complex projective) complements have different fundamental groups. Rybnikov produced one with thirteen lines in 1998 by gluing two smaller arrangements together. I will describe results from the literature that show that no such pair exists on nine lines or fewer. Together with Amram, Sun, Teicher, Ye, and Zarkh, we investigate arrangements of ten lines.

This talk is accessible to those without backgrounds in combinatorics, topology, or algebraic geometry.