

# DALHOUSIE MATHEMATICS COLLOQUIUM

Monday April 8 2019, 3:30 pm, Chase 319

Speaker: Uwe Nagel  
(University of Kentucky)

## *Unexpected curves and line arrangements*

Given a finite set of points, we consider the following interpolation problem: How many, if any, independent polynomials of a fixed degree vanish at each of the given points with some prescribed multiplicity? This is known for points on a line, but open even for points in a plane. We are particularly interested in situations, where the number of such polynomials is greater than the expected number, as suggested by a naive dimension count. We give criteria for the occurrence of such unexpected curves in a special case which connects to properties of arrangements of lines. In particular, this is related to Terao's conjecture on the freeness of line arrangements. This conjecture posits that freeness of a line arrangement depends only on intersections of the lines, that is, freeness is a combinatorial property of a line arrangement.