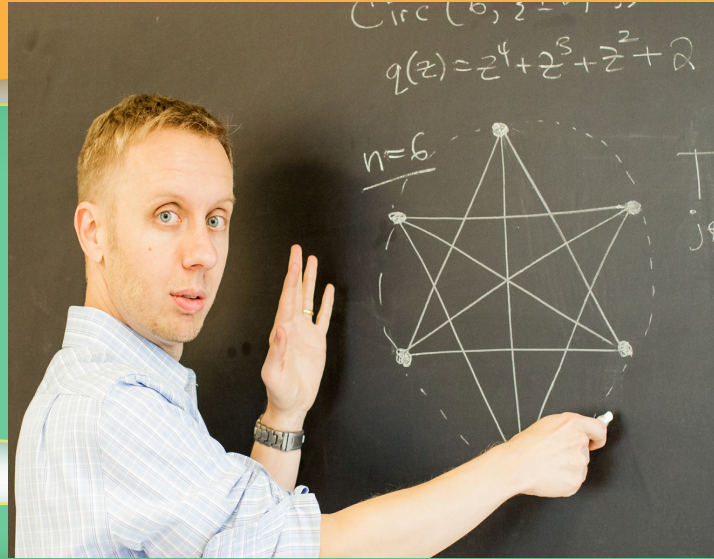


Department of Mathematics and Statistics Colloquium

Louis A. Deaett

Department of Mathematics
Quinnipiac University



Vector coloring graphs with symmetry

A graph is a collection of points (vertices) with line segments (edges) connecting certain pairs. A circulant graph has n vertices placed around a circle so that one n th of a full rotation preserves the set of edges. We study a way of encoding a graph by “coloring” the vertices with vectors in space. For a circulant graph, we want these vectors to share its nice rotational symmetry. Like many a pursuit of symmetry, this leads to algebra: We need a polynomial with positive coefficients that vanishes on a precise set of complex roots of unity! The key question of how many dimensions are necessary to find vectors that encode our graph can now be studied in terms of these polynomials.

TUESDAY, November 17th

SCIENCE CENTER 199

Refreshments 4:15

Talk 4:30

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