Discrete Mathematics Seminar

Padraig Ó Catháin
WPI

Orthogonal designs

ABSTRACT: We will review Jennifer Seberry's theory of orthogonal designs and work toward her proof of the asymptotic Hadamard conjecture.

Wednesday, February 19, 2020
10:00AM-11:00AM
Stratton Hall 203

Analysis and PDE Seminar Series

Nageswari Shanmugalingam
University of Cincinnati

PRIME END BOUNDARY AND CARATHEODORY’S EXTENSION THEOREM FOR BQS MAPPINGS BETWEEN DOMAINS IN METRIC SPACES

ABSTRACT: Caratheodory created a notion of prime end boundary for simply connected planar domains in order to study boundary behavior of conformal maps from the unit disk to such domains. In this talk we discuss a variant of the prime end boundary adapted to the setting of non-simply connected planar domains and more general domains in non-smooth setting, and an associated Caratheodory-type extension result of "branched quasisymmetric" homeomorphisms between such domains. This talk is based on joint work with Anders Bjorn, Jana Bjorn, and with Jeff Lindquist.

Thursday, February 20, 2020
11:00AM-12:00PM
Stratton Hall 203

Colloquium

Joseph Iverson
Iowa State

Doubly transitive lines

ABSTRACT: A basic problem in discrete geometry asks to arrange lines through the origin of a given vector space without creating sharp angles. A line packing is called optimal when the sharpest angle is made as large as possible. Many of the known optimal packings display extraordinary symmetry, as with lines connecting antipodal vertices of a 20-sided die. This talk focuses on a special case of this phenomenon: doubly transitive lines. Such lines are not only equiangular, but also optimally packed in projective space. Moreover, every sequence of doubly transitive lines naturally carries a special type of association scheme. By leveraging this fact, we provide a partial classification of doubly transitive lines, namely those with almost simple symmetries.

Friday, February 21, 2020
11:00AM - 12:00PM
Stratton Hall 203