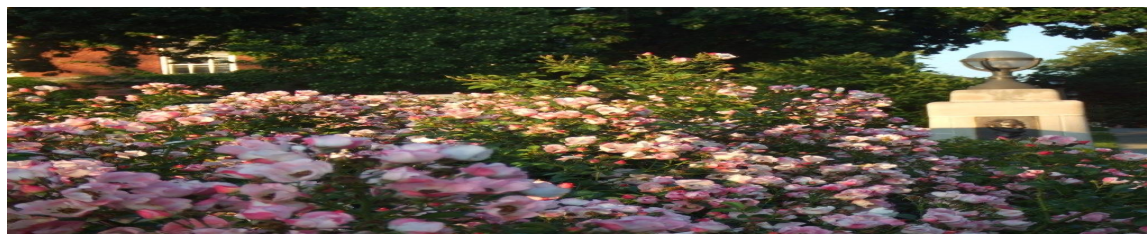


ISU ALGEBRA SEMINAR



SPRING 2018 SCHEDULE

Thursdays, 1:00 PM-1:50 PM at STV 352

Date: March 29, 2018

Speaker: Professor Gaywalee Yamskulna

Talk Title: When Beauty and her cousins meet Mathieu-Zhao

Abstract: The theory of vertex operator algebras and their modules has been showing its powers in the solution of concrete mathematical problems and in the understanding of conceptual but subtle mathematical and physical structures of conformal field theories. The main original motivation for the introduction of the notion of vertex operator algebra arose from the problem of realizing the Monster group as a symmetry group of a certain infinite-dimensional graded vector space with natural additional structure. In this talk, I will first provide a gentle introduction of vertex operator algebras, properties and examples. Next, I will discuss relationships between theory of vertex operator algebras and Mathieu subspaces of associative algebras. The notion of Mathieu subspaces is a generalization of the fundamental notion of ideal and was introduced by Zhao in 2009. This new notion provides a uniform setting for several hard conjectures. Finally, I will describe connections between Heisenberg vertex operator algebras and the Jacobian Conjecture. This conjecture is a famous problem on polynomials in several variables and is the number 16 in Stephen Smale's 1998 list of Mathematics Problems for the Next Century.

