

# Department of Mathematics and Statistics

## Colloquium Announcement

Wednesday  
March 8th 2017  
University of Saskatchewan

ARTS Building  
Room 101  
3:30 PM

Vertex algebras, chiral algebras, and factorization algebras

Guest Speaker: Dr. Emily Cliff  
University of Illinois at Urbana-Champaign

### Abstract:

The definition of a vertex algebra was formulated by Borcherds in the 1980s to solve algebraic problems, but these objects turn out to have important applications in mathematical physics, especially related to models of 2d conformal field theory. In the 1990s, Beilinson and Drinfeld gave geometric formulations of the definition, which they called chiral algebras and factorization algebras. These different approaches each have advantages and disadvantages: for example, the definition of a vertex algebra is more concrete and has so far been better studied; on the other hand, the geometric approach of chiral algebras and factorization algebras allows for transfer of knowledge between the fields of geometry, physics, and representation theory, and furthermore admits natural generalizations to higher dimensions. In this talk we will introduce all three of these objects; then we will discuss the relationships between them, especially focusing on how information from any one approach can lead to new understanding in the others.



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