



Pacific Institute for the  
Mathematical Sciences

# PIMS Distinguished Speakers Series

**CLIFTON CUNNINGHAM**

**Associate Professor, Mathematics & Statistics  
University of Calgary**



**TITLE:** Spin

**ABSTRACT:** Using a demonstration developed for a Beakerhead exhibit, this talk explores the mathematics responsible for a curious behaviour of electrons: rotation by 720 degrees returns the particle to its original state, but rotation by 360 degrees does not. Along the way we encounter fundamental groups, covering spaces, a little differential geometry and finally make our acquaintance with spin groups.

**BIO:** Clifton Cunningham received his PhD under James Arthur in 1997 and worked at the University of Massachusetts (Amherst) and the Ecole Normale Supérieure (Paris) before coming to the University of Calgary in 2000. His research concerns certain aspects of the Langlands Programme as it relates to the interplay between number theory, analysis and algebraic geometry; progress in this area often finds applications in cryptography.

**Friday—April 13, 2018**

**12:00 to 12:50 pm**

**D-634**

**\*\* PIZZA \*\***