PIMS Lethbridge Analysis Seminar Series

Friday - September 23, 2016
12:00 noon
Room: D634

Alexey Popov
University of Lethbridge

Title: Isometries of the Toeplitz Matrix Algebra and the Preserver Problems

Abstract:

In this talk we will outline a large class of problems in Analysis (in particular, Matrix Analysis) called the Preserver Problems and then concentrate on a specific preserver problem: study the structure of isometries defined on the algebra A of upper-triangular Toeplitz matrices. We will use a range of ideas in algebra, operator theory and linear algebra to show that every linear isometry T from A to M_n is of the form T(A)=UAV, where U and V are two unitary matrices. This implies, in particular, that every such an isometry is a complete isometry and that a unital linear isometry A->M_n is necessarily an algebra homomorphism.

The talk will be aimed at a wide audience, and no background beyond an upper-level Linear Algebra course will be assumed.

OPEN TO ALL INTERESTED PERSONS!