University of Victoria | Graduate Studies

Notice of the Final Oral Examination for the Degree of Doctor of Philosophy

of

PETER WILLIAMSON

M. Math (University of Waterloo, 2009)
BSc (University of Victoria, 2007)

"Cuntz-Pimsner Algebras Associated with Substitution Tilings"

Department of Mathematics and Statistics

Thursday, December 8, 2016
9:00 A.M.
David Turpin Building
Room A136

Supervisory Committee:
Dr. Ian Putnam, Department of Mathematics and Statistics, University of Victoria (Supervisor)
Dr. John Phillips, Department of Mathematics and Statistics, UVic (Member)
Dr. Marcelo Laca, Department of Mathematics and Statistics, UVic (Member)
Dr. Michel Lefebvre, Department of Physics and Astronomy, UVic (Outside Member)

External Examiner:
Dr. Paul Muhly, Department of Mathematics, The University of Iowa

Chair of Oral Examination:
Dr. Graham Voss, Department of Economics, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies\

Abstract

A Cuntz-Pimsner algebra is a quotient of a generalized Toeplitz algebra. It is completely determined by a *C**-correspondence, which consists of a right Hilbert A-module, E, and a *-homomorphism from the *C**-algebra A into L(E), the adjointable operators on E. Some familiar examples of *C**-algebras which can be recognized as Cuntz-Pimsner algebras include the Cuntz algebras, Cuntz-Krieger algebras, and crossed products of a *C**-algebra by an action of the integers by automorphisms. In this dissertation, we construct a Cuntz-Pimsner Algebra associated to a dynamical system of a substitution tiling, which provides an alternate construction to the groupoid approach found in [3], and has the advantage of yielding a method for computing the K-Theory.