



McMaster University



University of Toronto



University of Waterloo

THE FIELDS INSTITUTE FOR RESEARCH IN MATHEMATICAL SCIENCES

SEMINAR SERIES ON CONTROL THEORY

SPEAKER:

PATRICK McDONALD
Ohio State University

On the Topic:

"Analytic surgery for manifolds degenerating along a hypersurface "

will be held

Friday, March 13th, 1992 at 3:30 p.m.

at

**Fields Institute
3rd Floor, Uni-Park 3
185 Columbia Street West
Waterloo**

Let M be a compact Riemannian manifold with metric G . Let $S \subset M$ be an embedded orientable hypersurface with defining function s . Consider a one parameter family of metrics on M of the form:

$$G_\epsilon = ds^2 + (s^2 + \epsilon^2) G.$$

where ϵ is a real parameter belonging to $(0,1)$. We analyse the corresponding family of Laplace-Beltrami operators:

$$\Delta_\epsilon = d\delta_\epsilon + \delta_\epsilon d,$$

as the parameter ϵ tends to 0. In particular we construct a pseudodifferential operator calculus on the product space $M \times (0,1)$ which contains a parametrix for Δ_ϵ with error term of uniform finite rank in ϵ .