

Special Seminar



Speaker: Rod Gover
University of Auckland

Tuesday, March 12, 2013
2:00 pm
125 Hayes Healy Hall

Title: Compactification, projective geometry, and Einstein metrics

Abstract:

Conformal compactification, as originally defined by Penrose, has long been recognised as an effective geometric framework for relating conformal geometry, and associated field theories “at infinity”, to the asymptotic phenomena of an interior (pseudo-)Riemannian geometry of one higher dimension. It provides an effective approach for analytic problems in GR, geometric scattering, conformal invariant theory, as well as the AdS/CFT correspondence of Physics. For many of these applications it should be profitable to consider other notions of geometric compactification. For manifolds M with a complete affine connection ∇ , I will define a class of compactifications based around projective geometry (that is the geodesic path structure of ∇). This applies to pseudo-Riemannian geometry via the Levi-Civita connection and provides an effective alternative to conformal compactification. The construction is linked to the solutions of overdetermined PDE known as BGG equations and via this is seen to a part of a very general picture.

This is joint work with Andreas Cap.