Normal forms for conformal vector fields on pseudo-Riemannian manifolds
Karin Melnick (University of Maryland)

Date / Time / Location: Tues. January 31, 2012, 10:00 - 11:00, JD35.

Abstract:

Isometries of a Riemannian or pseudo-Riemannian manifold fixing a point are conjugate to their differential via the exponential map. No such linearization exists in general for conformal transformations fixing a point. The main theorem of this talk asserts that on a real-analytic Lorentzian manifold $M$, any conformal vector field vanishing at a point has linearizable flow, or $M$ is conformally flat. This result leads to a normal form for any such vector field near its singularity. (Joint work with Charles Frances.)