1035-53-1414 **Karin Melnick*** (karin.melnick@yale.edu), CT , and **Charles Frances**. *Conformal actions of nilpotent Lie groups on compact Lorentz manifolds.* Preliminary report.

Any compact Riemannian manifold with noncompact conformal group is conformally equivalent to the round sphere, by a celebrated theorem of Lelong-Ferrand. The Lorentzian Lichnerowicz conjecture asserts that a compact Lorentz manifold for which the conformal group does not preserve any Lorentz metric in the conformal class is conformally flat. I will present a bound on the degree of a connected nilpotent group of conformal automorphisms of a compact Lorentz manifold consistent with this conjecture. Further, if the maximal degree is attained, then a nonempty open subset of the manifold is conformally flat. Our results hold more generally for compact pseudo-Riemannian manifolds. This is joint work with Charles Frances. (Received September 19, 2007)