

1063-53-154

**Vincent Bonini\*** (vbonini@calpoly.edu), Department of Mathematics, California Polytechnic State University, San Luis Obispo, CA 93407, and **José Espinar** and **Jie Qing**. *Correspondences of Hypersurfaces in Hyperbolic Poincaré Manifolds and Conformally Invariant PDEs.*

In this talk we focus on a preliminary result for hyperbolic Poincaré manifolds, which serve as prototypical models for asymptotically hyperbolic manifolds. We derive an explicit relationship between the eigenvalues of the Schouten tensor of a conformal representative of the conformal infinity of a hyperbolic Poincaré manifold and the principal curvatures on the level sets of its uniquely associated defining function. This work considerably simplifies the arguments and generalizes the results of Espinar, Gálvez and Mira on hypersurfaces in hyperbolic space  $\mathbb{H}^{n+1}$  and gives a correspondence between Weingarten hypersurfaces in hyperbolic Poincaré manifolds and conformally invariant equations on the conformal infinity. In particular, we obtain an equivalence between Christoffel-type problems for hypersurfaces in hyperbolic Poincaré manifolds and scalar curvature problems on the conformal infinity. (Received August 14, 2010)