**Meeting:** 1001, Evanston, Illinois, SS 16A, Special Session on Spectral Problems of Differential Operators

1001-35-349 **Peter A. Perry*** (perry@ms.uky.edu), Department of Mathematics, University of Kentucky, Lexington, KY 40506-0027, and **Dorothee Schueth** (schueth@math.hu-berlin.de), Institut für Mathematik, Humboldt-Universität zu Berlin, Unter den Linden 6, D-10099 Berlin, Germany.

*Continuous Families of Complete, Negatively Curved Metrics with the Same Scattering Data.*

Compact manifolds of negative curvature are known to be spectrally rigid by the work of Guillemin-Kazhdan, Min-Oo, and Croke-Sharafutdinov. The examples we construct show that, by contrast, there are metrics arbitrarily close to the usual Poincaré metric on real hyperbolic $n$-dimensional space, $n \geq 9$, which admit nontrivial continuous deformations that preserve the scattering phase and the scattering resonances. Our construction uses the Riemannian submersion method as previously developed by Carolyn Gordon and Dorothee Schueth. (Received August 31, 2004)