

G rard Besson

Title: On the intrinsic geometry of horospheres in negative curvature.

Abstract: There are classical results showing that if a negatively curved closed manifold has its horospheres of constant mean curvature then it is locally symmetric. Here we shall present a rigidity result involving the intrinsic Riemannian structure of these horospheres. More precisely if one of them is scalar-flat then the closed manifold is locally real hyperbolic. The proof is easy and reminiscent of E. Hopf's result (1947). Several questions arose from the approach that we will discuss, in particular concerning replacing the hypothesis on the curvature by the assumption that there is no conjugate points. This is based on a joint work with G. Courtois and S. Hersensky.