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Bonn, Germany. *Conformal Deformations of Singular Metrics To Constant Scalar Curvature: The  
Negative Curvature Case*. Preliminary report.

Julie Rowlett and I studied a version of the Yamabe problem for certain incomplete metrics of negative scalar curvature, in the complement of a submanifold  $\Lambda$  of a compact manifold  $X$ . These metrics  $g$  have conical singularities near zero-dimensional components of  $\Lambda$ , and near higher-dimensional components the space together with the metric resembles a product of a cone with a smooth, compact manifold.

We showed that if  $(X, g)$  is such a singular space, with scalar curvature  $S(g) < 0$ , then  $g$  can be deformed within the same singularity type to a new metric  $\tilde{g} = u^{4/(n-2)}g$  having  $S(\tilde{g}) \equiv -1$  if and only if the restriction of the original metric  $g$  to the link of the cone has scalar curvature identically equal to  $m(m-1)$ , where  $m$  is the dimension of the link. This condition can be interpreted as a restriction on the cone angle. (Received August 21, 2009)