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**Hamid Hezari\*** (hamid\_hazari@yahoo.com) and **Gabriel Riviere**. *Small scale quantum ergodicity and applications*.

In a joint work with Gabriel Riviere, we improve the  $L^p$  bounds of eigenfunctions of the Laplacian on negatively curved manifolds. Our improvement is by a power of logarithm for a full density sequence of eigenfunctions. We also derive improvements on the size of the nodal sets. Our proof is based on a new quantum ergodicity property of independent interest, which holds for families of symbols supported in balls whose radius shrinks at a logarithmic rate. In the case of a rational torus, this quantum ergodicity property holds in fact for symbols supported in balls with a radius shrinking at a polynomial rate. (Received September 15, 2015)