

# Colloquium

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## ON THE CONCENTRATION OF EIGENFUNCTIONS

Friday, February 2, 2018

3:00 p.m. in ES-143

(tea & coffee at 2:30 p.m. in ES-152)

ABSTRACT. I shall present some results in global harmonic analysis that concern properties of eigenfunctions on compact Riemannian manifolds. Using local arguments we can show that  $L^p$  norms of eigenfunctions over the entire manifold are saturated if and only if there are small balls (if  $p$  is large) or small tubular neighborhoods of geodesics (if  $p$  is small) on which the eigenfunctions have very large  $L^p$  mass. Neither can occur on manifolds of nonpositive curvature, or, more generally, on manifolds without conjugate points.