
STEVE ZELDITCH, Northwestern University

Intersections of nodal sets and curves and geometric control

Many years ago, Toth and I proved that for real analytic plane domains, the number of zeros of an eigenfunction on a “good” real analytic curve was bounded by the frequency. ‘Good’ is a kind of non-degeneracy condition resembling a Carleman lower bound on the curve. My talk first gives a generalization to all dimensions: in any dimension and for any real analytic metric, the number of zeros of the restriction of the eigenfunction to a ‘good curve’ is bounded by the frequency. Moreover we give a robust criterion for a curve to be ‘good’ in dimension two. Roughly speaking it is good if it is asymmetric with respect to geodesics and if the flowout of the unit sphere bundle along the curve fills out the unit sphere bundle in measure. The same criterion is valid for hypersurfaces in higher dimensions. Joint work with J. Toth.