Multifractal eigenfunctions in a singular quantum billiard

Jon Keating

University of Oxford and London Mathematical Society
keating@maths.ox.ac.uk

Spectral statistics and questions relating to quantum ergodicity in star graphs are closely related to those of Šeba billiards (rectangular billiards with a singular point scatterer) and other intermediate systems. In intermediate systems, it has been suggested in the Physics literature that quantum eigenfunctions should exhibit multifractal properties. I shall discuss the proof that this is the case for Šeba billiards. The work I shall report on was done jointly with Henrik Ueberschaer.