
DEGENERATION OF THE SPECTRAL GAP WITH NEGATIVE ROBIN PARAMETER

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July 12, 2021

The spectral gap of the Neumann and Dirichlet Laplacians are each known to have a sharp positive lower bound among convex domains of a given diameter. Between these cases, for each positive value of the Robin parameter an analogous sharp lower bound on the spectral gap is conjectured. In this talk we show the extension of this conjecture to negative Robin parameters fails by proving that the spectral gap of double cone domains are exponentially small, for each fixed parameter value.