$S_t \circ c(h)(a_s)_{ti} c(s) + \mathfrak{S}_e m^i n(a_r)$

Department of Mathematics, University of Utah

An eigenvalue estimate of Payne & Weinberger for spherical domains and its application to a Brownian pursuit problem

Andrejs Treibergs
University of Utah

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We generalize a lower bound of Payne & Weineberger for the first Dirichlet eigenvalue for domains in the plane to spheres. The estimate is based on an isoperimetric inequality for domains in a wedge.

An application is to give a conceptual alternative to our ad-hoc bound establishing the $n = 4$ case of a conjecture of Bramson & Griffeath in a Brownian pursuit problem. They conjectured that the expected time of capture of n policemen chasing one crook, all doing independent standard Brownian motions on the line is finite exactly for $n > 3$. Li & Shao reduced the problem to an eigenvalue estimate and proved the conjecture for $n > 4$.

This is joint work with Jesse Ratzkin.