Lavine proved in 1994 that the spectral gap of a Schrödinger operator on an interval with convex potential is minimized when the potential is constant. His result holds for both Neumann and Dirichlet boundary conditions. Viewing the Robin boundary condition as interpolating between the Neumann and Dirichlet cases, we ask: What convex potential minimizes the spectral gap of a Robin Schrödinger operator?

After showing the minimizing potential is a constant, we go further to explore negative values of the Robin parameter (lying outside the interpolating regime). This minimization result implies a sharp lower bound on the spectral gap for each real value of the Robin parameter. (Joint work with Mark Ashbaugh.) (Received February 03, 2020)