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# PLEIJEL'S THEOREM FOR SCHRÖDINGER OPERATORS

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We will discuss some recent results regarding the number of nodal domains of Laplace and Schrödinger operators. Improving on Courant's seminal work, Pleijel's original proof in 1956 was only for domains in  $\mathbb{R}^2$  with Dirichlet boundary conditions, but it was later generalized to manifolds (Peetre and Bérard-Meyer) with Dirichlet boundary conditions, then to planar domains with Neumann Boundary conditions (Polterovich, Léna), but also to the quantum harmonic oscillator (C.) and to Schrödinger operators with radial potentials (C. - Helffer - Hoffmann-Ostenhof). In this recent work, we proved Pleijel's asymptotic upper bound for a much larger class of Schrödinger operators which are not necessarily radial. In this talk, I will explain the problems that arise from studying Schrödinger operators as well as the successive improvements in the methods that led to the current results.