SimonFest California Institute of Technology March 27 – 31, 2006

## Bound State Problems in Quantum Mechanics

## DIRK HUNDERTMARK University of Illinois at Urbana-Champaign

**Abstract.** We give a review of semi-classical estimates for bound states and their eigenvalues for Schrödinger operators. Motivated by the classical results, we discuss their recent improvements for single particle Schrödinger operators as well as some applications of these semi-classical bounds to multi-particle systems, in particular, large atoms and the stability of matter.