

Variational Gaussian approximation for quantum dynamics

Caroline Lasser (TU München)

The talk considers the time-dependent Schrödinger equation with smooth magnetic and electric potentials in semiclassical scaling. We analyse nonlinearly parametrized approximations by single Gaussian wave packets via the Dirac–Frenkel variational principle. We derive ordinary differential equations of motion for the parameters of the variational solution. We present L^2 -error bounds and unexpectedly accurate observable error bounds.

This is joint work with S. Burkhard, B. Dörich, and M. Hochbruck.