Texas Tech University. Applied Mathematics Seminar.

# Quantum Mechanics Without Wavefunctions

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Room: MATH 016. Time: 4:00pm.

**ABSTRACT.** In classical mechanics, a particle, or a collection of particles, is described by a trajectory in configuration space. In the standard formulation of quantum mechanics, the trajectory is replaced by a complex-valued wavefunction. We present a self-contained formulation of (spin-free, nonrelativistic) quantum mechanics that makes no use of wavefunctions or complex amplitudes of any kind. Quantum states are represented as ensembles of real-valued trajectories, described by a remarkable PDE obtained from an action principle and obeying a law of conservation of energy of rather special form.

Joint work with Bill Poirier (Texas Tech). No prior understanding of quantum mechanics is necessary to understand this talk.