Schrödinger's Equation

We know that Schrödinger unitary evolution evolves an eigenstate $|\psi_e\rangle$ of the Hamiltonian by a time varying phase change given by $e^{i\lambda_e t}|\psi_e\rangle$ where λ_e is the eigenvalue of the Hamiltonian corresponding to the eigenstate $|\psi_e\rangle$. λ_e is the energy when the state is in such an eigenstate and the Schrödinger equation dictates that such eigenstates evolve with a complex phase that progresses proportional to $\lambda_e t$.

There is a substantial body of theoretical and experimental evidence that indicates many systems of interest, when they do evolve unitarily, evolve according to the specific unitary evolution found via Schrödinger's equation. This subject will be further discussed in substantially more detail within the next volume of the Progress on the Physics of Quantum Measurement series.