Quantum Dynamics of Coupled Oscillators CHRISTINA C. HORNE, JEAN-FRANCOIS S. VAN HUELE, Brigham Young University — Exact solutions to the Schrödinger equation with time-dependent Hamiltonians are elusive. We will illustrate a method to construct the time evolution operator with a Lie algebra constructed from the different operators of the Hamiltonian in the case of a single driven oscillator. We will then indicate how the dynamics of coupled oscillators can be approached similarly and explore coherence and squeezing in this system. Finally we will explain how this model can be extended to a study of environmental decoherence.

Jean-Francois S. Van Huele
Brigham Young University