Abstract Submitted
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Nonlinear dynamics of a strongly driven single spin solid state qubit [1] S. N. COPPERSMITH, University of Wisconsin-Madison, Madison, WI 53706, USA, THIBAUT JULLIEN, P. SCARLINO, E. KAWAKAMI, QuTech and Kavli Institute of Nanoscience, TU Delft, Lorentzweg 1, 2628 CJ Delft, The Netherlands, D. R. WARD, D. E. SAVAGE, M. G. LAGALLY, MARK FRIESEN, M. A. ERIKSSON, University of Wisconsin-Madison, Madison, WI 53706, USA, L. M. K. VANDERSYPEN, QuTech and Kavli Institute of Nanoscience, TU Delft, Lorentzweg 1, 2628 CJ Delft, The Netherlands — This talk will discuss how dynamical systems theory can yield new insight into some exotic behavior found in experiments on strongly driven quantum spins in silicon/silicon-germanium heterostructures. Spin resonance experiments were performed by using ac voltages to drive an electron wavefunction in a strong magnetic field gradient. Nontrivial dependence of the resonance frequency on applied power, including the observation of multiple resonant frequencies at one power, are shown to be consistent with frequency-dependent attenuation in the high-frequency lines. The method of analysis is very similar to that presented in the course on nonlinear dynamics that Leo Kadanoff developed at the University of Chicago in the early 1990's.

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