Quantum Information with Solid-State Devices

VO 141.246
SS2012
Dr. Johannes Majer

Lecture 3

ATOMINSTITUT

TU WIEN

Motivation

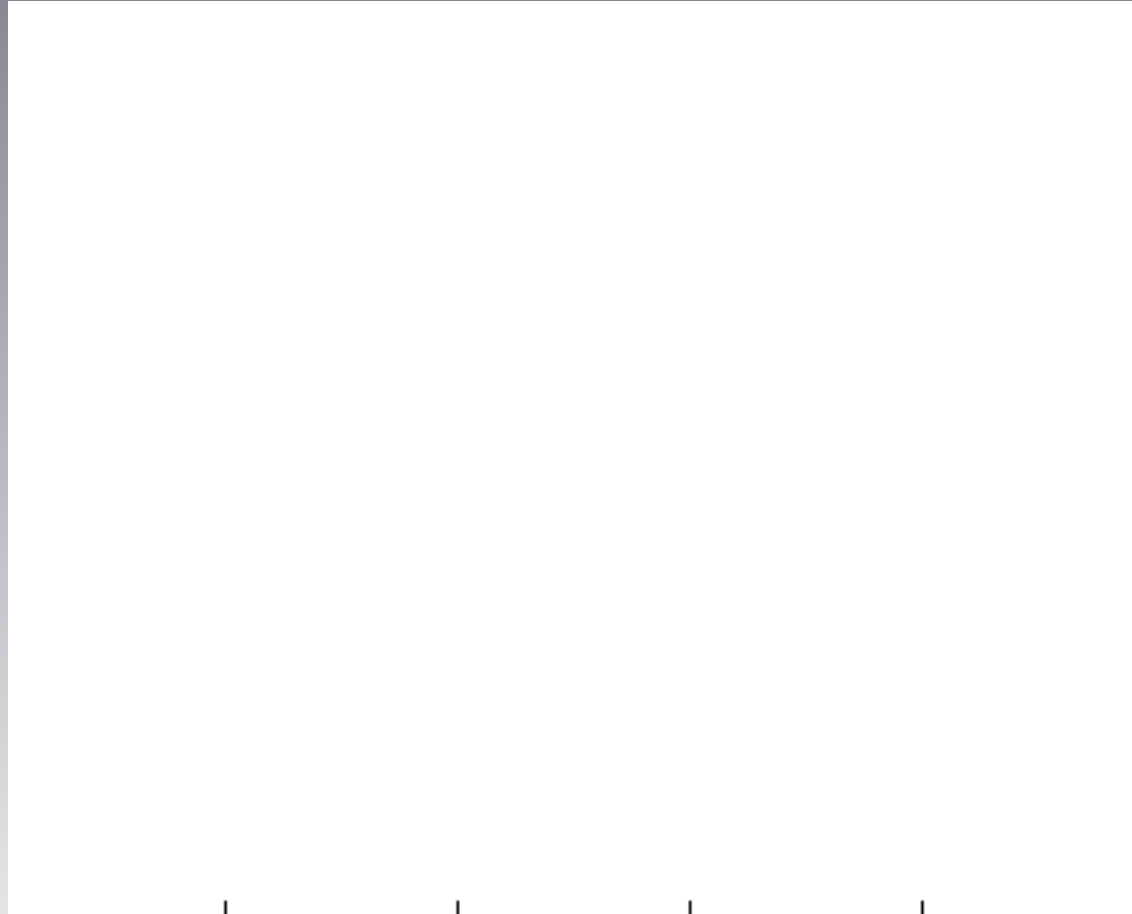Solid-state qubit +environment $\longrightarrow$ open quantum system

can we describe the qubit with few parameters?
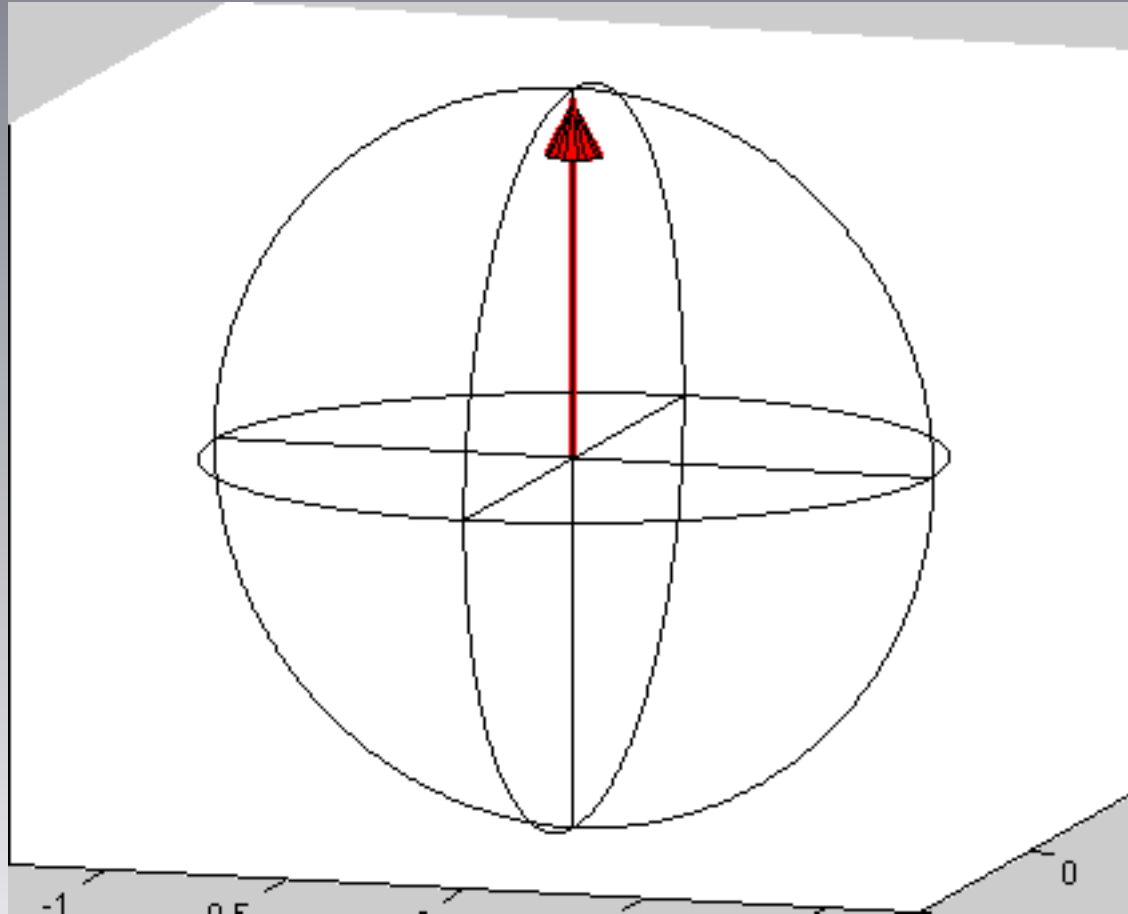
dephasing rate, relaxation time, ...

how to measure them?

relaxation measurement, Ramsey, Hahnecho

Relaxation

Relaxation

Measurement of the Excited-State Lifetime of a Microelectronic Circuit

K. W. Lehnert,[1,*] K. Bladh,[2] L. F. Spietz,[1] D. Gunnarsson,[2] D. I. Schuster,[1] P. Delsing,[2] and R. J. Schoelkopf[1]
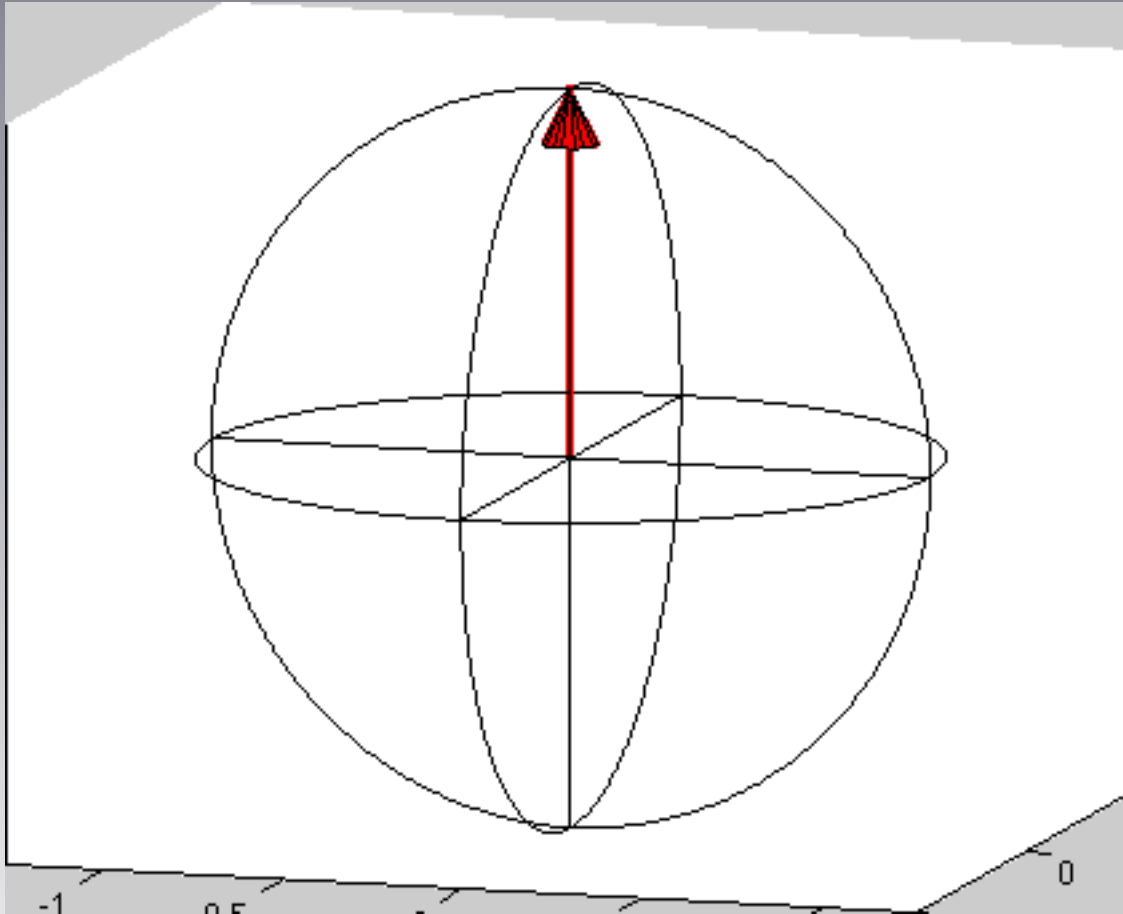
[1]Department of Applied Physics and Physics, Yale University, New Haven, Connecticut 06511
[2]Microtechnology Center at Chalmers MC2, Department of Microelectronics and Nanoscience, Chalmers University of Technology and Göteborg University, SE-412 96, Göteborg, Sweden
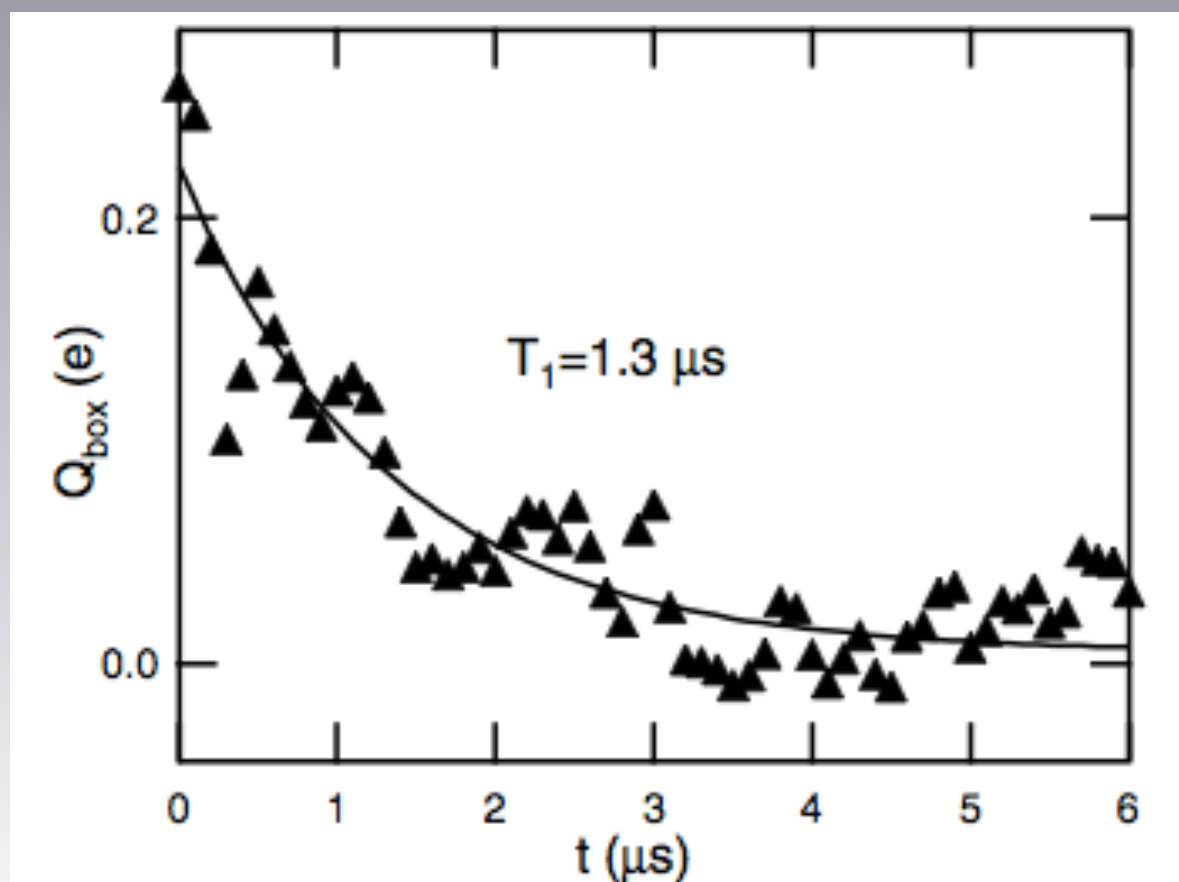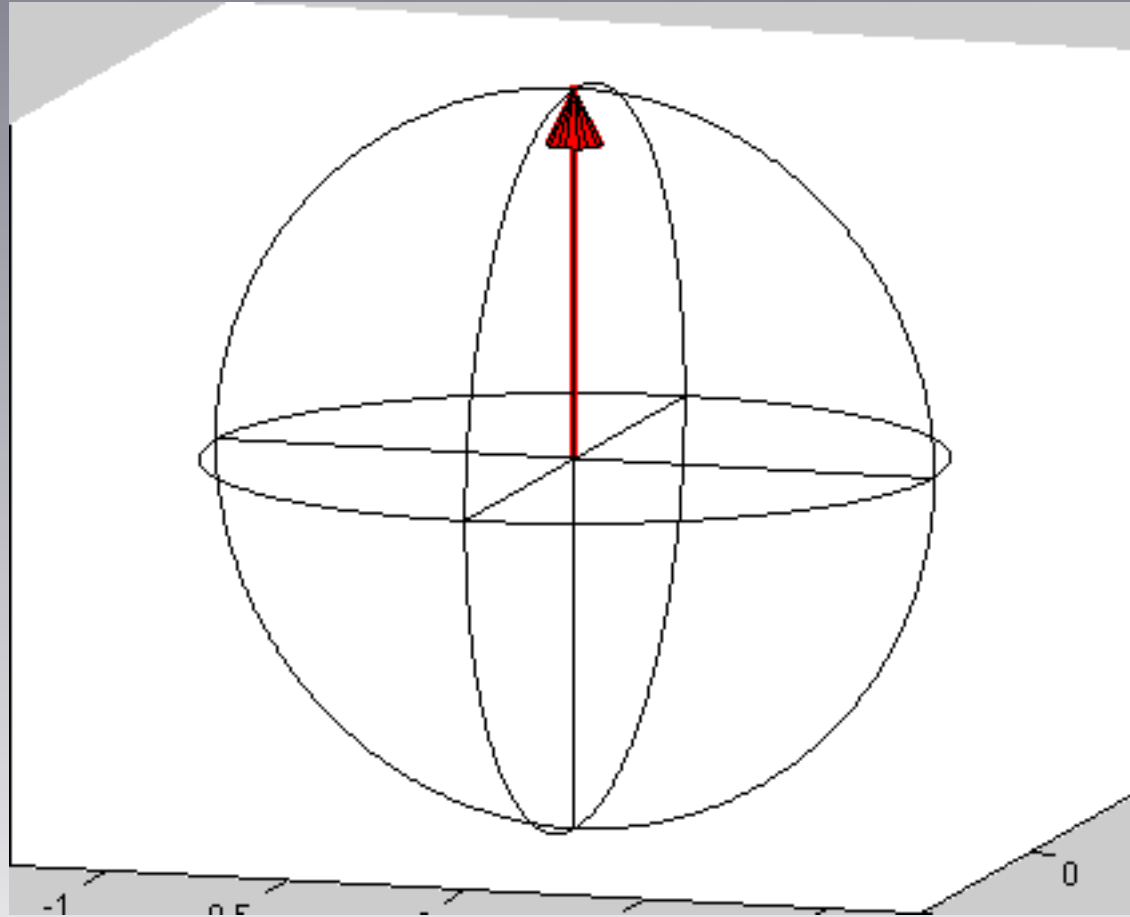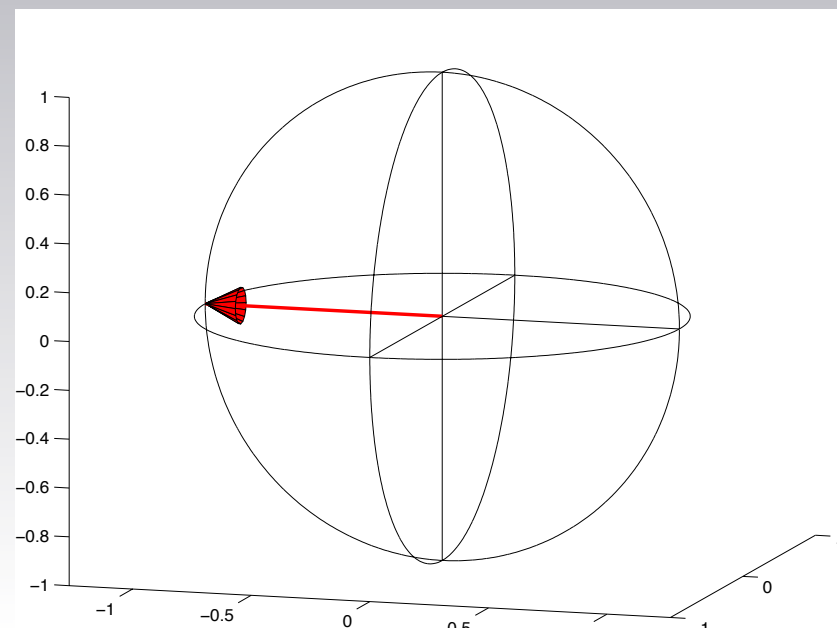
Ramsey Oscillations
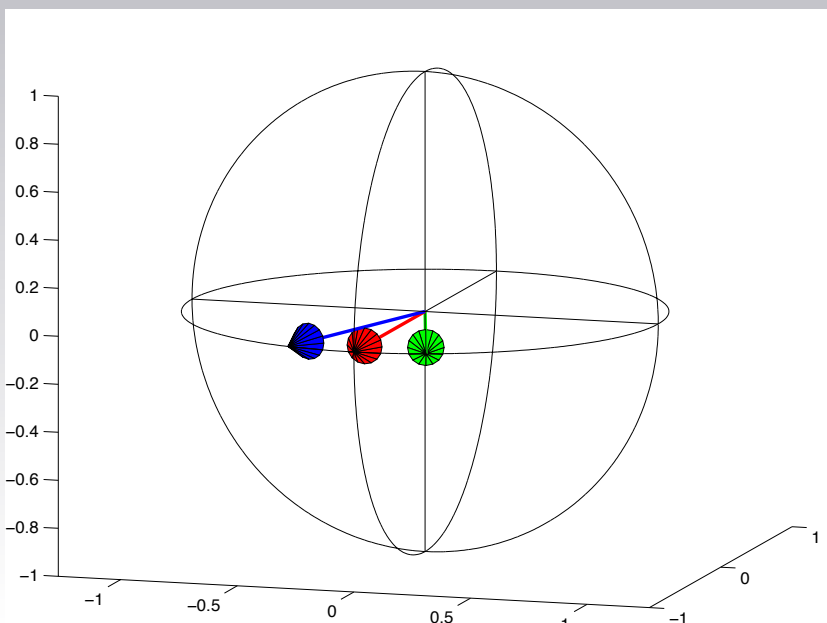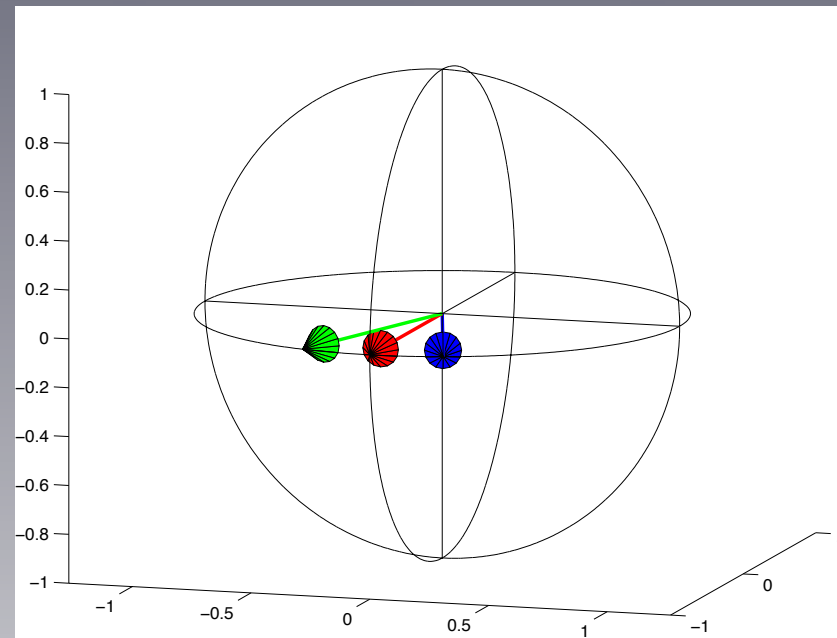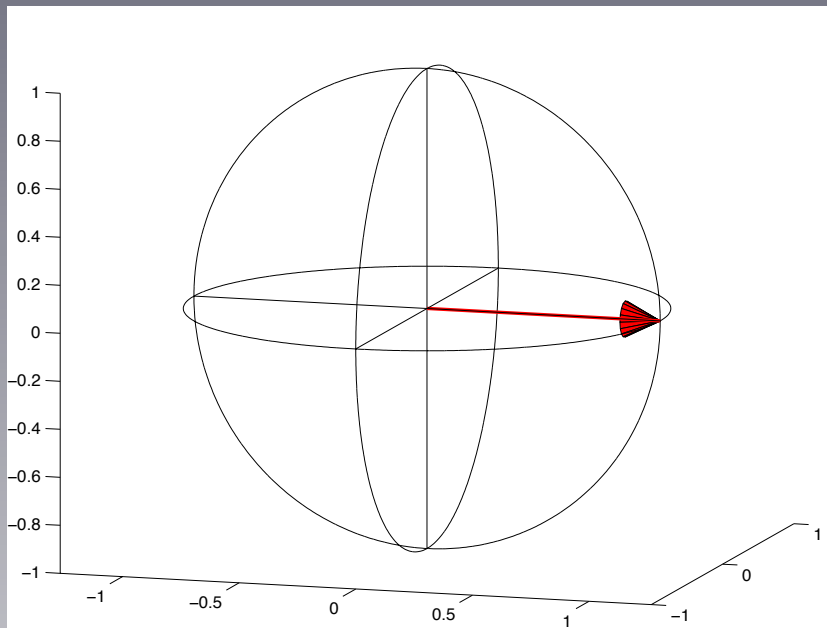
Ramsey Oscillations

Manipulating the Quantum State of an Electrical Circuit

D. Vion,* A. Aassime, A. Cottet, P. Joyez, H. Pothier,
C. Urbina,† D. Esteve, M. H. Devoret‡

Hahn Echo

Rabi