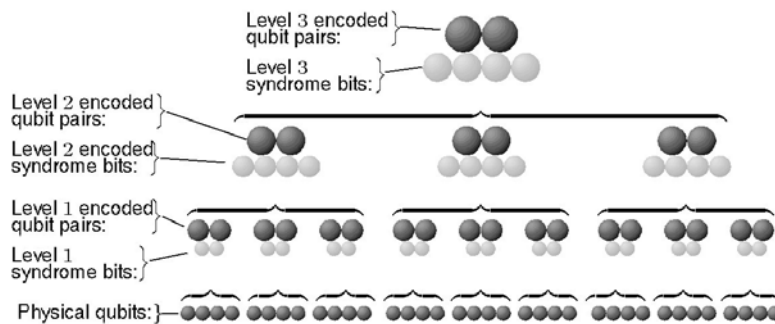# COLLOQUIUM
OF
THE INSTITUTE FOR QUANTUM INFORMATION SCIENCE

3:00pm Wednesday 7 June 2006 in SB 142

Emanuel Knill
NIST Boulder Laboratories
http://www.boulder.nist.gov/

Title: Fault-tolerant architecture for very noisy gates

Abstract: After an overview of the basic questions of fault-tolerant quantum computing, Dr. Knill describes some of the features of a scheme for quantum computing for which there is evidence that it can tolerate over 1% depolarizing error probability per gate.

Bio: Dr. Knill's work consists of developing and applying mathematical and physical tools to better understand the limitations and utilize the capabilities of information processing resources. Dr. Knill uses ideas and results from discrete mathematics, linear and multilinear algebra, information theory, the theory of computation and theoretical physics, which he has applied to automated reasoning, learning theory, numerical methods and the human genome project. Since 1996, his focus has been on quantum information processing, with contributions to quantum coding theory, models of computation, algorithms and technology.

UNIVERSITY OF CALGARY

Institute for
Quantum Information Science
at the University of Calgary