

CQCT/Sandia Cooperative Research and Development Agreement (CRADA)

February 18, 2008

**Thomas D. Tarman
Sandia National Labs**

**Albuquerque, New Mexico USA
tdtarma@sandia.gov**



What is a CRADA?

- **A formal agreement regarding joint research between our institutions**
 - Areas of research
 - Defines information sharing
 - Provides statement of benefits to our countries
- **Main sections**
 - Statement of work
 - Terms and conditions
 - Background intellectual property
- **Requires approval by the U.S. Department of Energy**



Reasons for Joint Research

- Engage in in-depth conversations otherwise constrained by IP concerns
- Joint publications
- Provide access to facilities
- Sharing of personnel



CQCT/SNL CRADA Statement of Work

- **Qubit fabrication**
 - **Single ion detection, low temperature insulator, novel reservoir, novel donor, process flow integration**
- **Read-out electronics**
 - **RF-SET realization and novel designs**
- **Control and decision classical electronics**
 - **Electronics organization and cryo-electronics eval**
- **Modeling**
 - **Large number of atom models and models for qubit control**
- **Logical qubit**
 - **Initial exploratory discussions**
 - **Error correction modeling**



CQCT/SNL CRADA Mechanics

- **In-kind CRADA**
 - Each institution funds its CRADA activities
- **Formal information sharing**
 - Documents (paper and electronics) are transmitted between CRADA points of contact (David Varvel and myself)
 - Documents shared under the CRADA are to stay within the CRADA teams at each institution
- **Joint publications are reviewed at each institution**



CRADA Status

- **Reached general agreement on Terms and Conditions, Statement of Work, and Economic Benefits**
- **Information sharing details are established**
- **Sandia's CRADA lawyers are ready for final processing to obtain U.S. DOE approval**
- **Initiating discussion on detailed activities under the CRADA**
 - **Sharing of intellectual property must wait for CRADA approval, though**