

Solid-State Quantum Computing

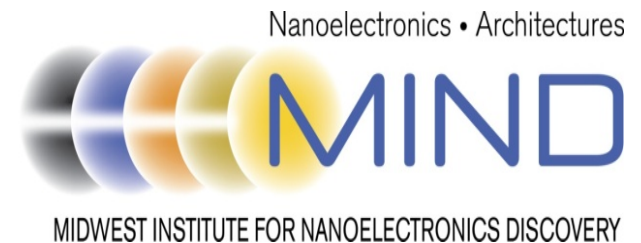
- Discussion -

Wolfgang Porod,

Center for Nano Science and Technology

University of Notre Dame

<http://www.nd.edu/~ndnano>



NANO-TEC ● Athens, Greece ● 13 October 2011

Questions related to Technology

- Will there ever be “robust” Qubits?
 - Qubits have competing requirements
 - Need to be isolated, yet need interactions to control them
- What will be “best” technology for Qubits?
 - Probably needs to be solid-state
 - Josephson junctions? Quantum dots? Single spins?
- Will there ever be “enough” Qubits?
 - Need 100’s of Qubits to be useful

Questions related to Computing

- If you had a QC, what would you do with it?
 - Very few algorithms, basically for factoring (Shor)
- Can error correction be done in a feasible way?
 - Need for error correction may consume most resources
- Will there be a “*window of opportunity*” for QC?
 - “Exponential” increase in hardware complexity?

Günter Mahler (Stuttgart)