

Abstract Submitted
for the OSS05 Meeting of
The American Physical Society

Numerical Simulations in Quantum-dot Cellular Automata Devices¹ IOAN STURZU, TRAVIS BARCLAY, MAHFUZA KHATUN, Department of Physics and Astronomy, Ball State University, Muncie, IN 47306, DOUGLAS TOUGAW COLLABORATION — Fault tolerance simulations for Quantum-dot Cellular Automata (QCA) devices will be presented. A Full basis quantum calculation and Intercellular Hartree Approximation have been implemented using an extended Hubbard model. We have studied manufacturing as well as operational defects for wires and shift registers. Cell defects have been simulated by uniform and normal distributions. Results show temperature dependence of the breakdown displacement factor. A comparison of the results for uniform and normal distribution will be shown.

¹Indiana 21st Century Research and Technology Fund

Mahfuza Khatun
Department of Physics and Astronomy, Ball State University
Muncie, IN 47306

Date submitted: 18 Mar 2005

Electronic form version 1.4