## Abstract Submitted for the NWS15 Meeting of The American Physical Society

Conductivity Manipulation through Quantum Entanglement JOHN PAUL HANSEN, YOU QIANG, University of Idaho, HANSEN/QIANG TEAM — Modern research has shown that single atoms of n-type semiconductors can retain the entangled spin states of photons via exciton spin, due to the exchange-interaction principle. By changing the spin states of just one the excitons via photo-stimulation, both of the materials' conductivities can be altered nonlocally. In our experiment, two bulk cadmium sulphide (CdS) samples were placed in classically separated environments and then excited by two separate beams of entangled light produced in beamlike generation. Although classically isolated, both samples had simultaneous responses to a photostimulation made on just one sample. The conductivity of the excited sample was found to be proportional to that of the second sample, times a predictably fluctuating scalar. Each excited sample datum corresponds with an accuracy of 99.8% to those of the responding sample, by the scalar, and can only be predicted with respect to the responding sample resistivity. These results indicate an entangled connection of the majority of the electrons in the bulk CdS, and suggest that the conductivities of two separated bulk n-type semiconductors can become mutually dependent, and subject to nonlocal manipulation through quantum entanglement.

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