Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Nonlinear interlevel optical phenomena in quantum dots VICTOR BONDARENKO, YANG ZHAO, WSU — Nonlinear interlevel optical phenomena caused by the electron-electron interaction in quantum dots are investigated theoretically within the semiclassical density matrix formalism. A special attention is paid to the intrinsic optical bistability. Obtained analytical relations and results of numerical simulations reveal role of driving charasteristic parameters of quantum dot systems as well as of the incident radiation in the phenomena. Self-consistent treatment of the electron-electron interaction is shown to be of crucial importance. A proper microscopical treatment is shown to be needed for accurate description of the phenomena.

Victor Bondarenko
WSU

Date submitted: 22 Nov 2006 Electronic form version 1.4