Abstract Submitted
for the OSS13 Meeting of
The American Physical Society

Radiation field for a many-body system MINGLIANG ZHANG, DAVID DRABOLD, Department of Phys. and Astronomy, Ohio University, DEPARTMENT OF PHYSICS AND ASTRONOMY TEAM — Semi-classical radiation theory is used to derive possible radiation fields for a group of charged particles obeying quantum mechanics. One of these fields can only be produced by a system with two or more than two charged particles. The polarization of this field is determined by the vector potential of external driving field and the curl of velocity field. We show that the semi-classical results are the zero-order approximation of the non-relativistic quantum electrodynamics in the reaction of radiation fields. A classical analogue is suggested which clearly illustrates the origins of the sources of fields.

Mingliang Zhang
Department of Phys. and Astronomy, Ohio University

Date submitted: 01 Mar 2013 Electronic form version 1.4