Abstract Submitted for the DNP08 Meeting of The American Physical Society

Electromagnetic two-body currents of one- and two- pion range<sup>1</sup> SAORI PASTORE, Department of Physics, Old Dominion University, Norfolk, VA 23529, JOSÉ GOITY, Department of Physics, Hampton University, Hampton, VA 23668 - Jefferson Lab, Newport News, VA 23606, ROCCO SCHIAVILLA, Department of Physics, Old Dominion University, Norfolk, VA 23529 - Jefferson Lab, Newport News, VA 23606 — The nuclear electromagnetic two-body current operator is calculated up to next-to-next-to-leading order in chiral perturbation theory. A number of low-energy electronuclear observables including np radiative capture cross section at neutron thermal energies, deuteron magnetic moment and isoscalr and isovector magnetic moments of <sup>3</sup>H and <sup>3</sup>He are calculated. The matrix elements are evaluated using nuclear wave functions obtained from realistic Hamiltonians involving the Argonne  $v_{18}$  and CD Bonn two-nucleon and the Urbana IX three-nucleon interactions.

<sup>1</sup>The support of the U.S. Department of Energy, Office of Nuclear Physics, under contract DE-AC05-06OR23177, is gratefully acknowledged.

Saori Pastore Department of Physics, Old Dominion University, Norfolk, VA 23529

Date submitted: 13 Aug 2008

Electronic form version 1.4