Abstract Submitted for the DNP07 Meeting of The American Physical Society

Continuum Hartree-Fock based Random Phase Approximation Description of the Isovector Giant Dipole Resonance for 28 O, 60 Ca and 80 Zr EMILIAN NICA, SHALOM SHLOMO, Texas A&M University — Calculations of the nuclear response function for the Isovector Giant Dipole Resonance (IVGDR) have been carried out in the past using the discretized Hartree-Fock Random Phase Approximation (HF-RPA). In many cases they contained violations of self-consistency and a large smearing parameter. To avoid any sources of error we carried out a self-consistent HF-Continuum RPA to determine the IVGDR response function in 28 O, 60 Ca and 80 Zr nuclei. We have also examined the free p-h response in the continuum. The main goal of our research was to determine if the low-lying peaks in the response function were due to resonance or particle threshold effects. We have shown that in some cases the enhancements in the response function at low energies are due to threshold effects. We emphasize that in a discretized HF-RPA these peaks are due to threshold effects and not low-lying resonances.

> Emilian Nica Texas A&M University

Date submitted: 01 Aug 2007

Electronic form version 1.4