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Isoscalar Giant Dipole Resonance within Fermi Liquid Drop Model OLEKSIY POCHIVALOV, SHALOM SHLOMO, Cyclotron Institute, Texas A&M University, College Station, TX 77843, USA — Recent highly accurate experimental data on Isoscalar Giant Dipole (ISGDR) and Monopole (ISGMR) Resonances in nuclei renewed interest in correct microscopic description of collective excitations. Hartree-Fock based Random-Phase-Approximation (HF-RPA) is a successful method of describing collective excitations in nuclei. However, recent fully self-consistent HF-RPA calculations, which reproduce the centroid energies of the ISGMR, systematically overestimate by 1.5-2.5 MeV results for the ISGDR energy comparing with experimentally obtained data. Also, the HF-RPA model does not provide description of the widths of giant resonances. We consider these issues within the semi-classical generalization of the mean field theory, namely, Fermi-Liquid-Drop-Model (FLDM). In this presentation, we provide description of the FLDM formalism in its application to ISGDR and ISGMR calculations. We present results of FLDM calculations for centroid energy and widths of the ISGDR and ISGMR in the four nuclei, namely, 90Zr, 116Sn, 144Sm, and 208Pb and compare with available experimental data.

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