THE PARTICLE-HOLE DISPERSIVE OPTICAL MODEL AND ITS APPLICATION TO THE DESCRIPTION OF THE SIMPLEST PHOTONUCLEAR REACTIONS

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The particle-hole dispersive optical model (PHDOM) was developed recently to describe in a semimicroscopic way main properties of high-energy (*p*-*h*)-type excitations (including giant resonances) in "stiff" spherical nuclei of medium-heavy mass [1, 2]. Within the model the *p*-*h* strength distribution (Landau damping) and coupling of (*p*-*h*)-type states to the single-particle continuum are described microscopically (using Landau-Migdal *p*-*h* interaction and a phenomenological mean field partially consistent with this interaction), while coupling to many-quasiparticle configurations (the spreading effect) is treated phenomenologically (and in average over the energy) in terms of the imaginary part of the effective optical-model potential. The imaginary part determines also the respective real part via a proper dispersive relationship [1-3].

We present some results of description within the PHDOM of photo-absorption, direct + semi-direct (DSD) photoneutron and inverse reactions accompanied by excitation of the isovector giant dipole and quadrupole resonances (IVGDR and IVGQR, respectively) in a few neutron-closed-shell nuclei. In this description we use additionally isovector velocity-dependent separable forces. The presented approach is an extension of our previous study [4], where a simplified semimicroscopic model was exploited. In description of the partial (γ, n) and inverse DSD reactions accompanied by IVGDR excitations the specific adjustable parameters are not used. Within the model we describe also asymmetry of the above-mentioned DSD-reaction differential cross sections in the IVGQR region. Being determined by the interference of *E*1- and *E*2-reaction amplitudes, the asymmetry is a proper subject for studying IVGQR in photonuclear reactions. The calculations results are found to be in satisfactory agreement with the corresponding experimental data.

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