Contribution ID: **249** Type: **Oral report**

# A SEMI-MICROSCOPIC DESCRIPTION OF $0^+$ GIANT RESONANCES IN THE EVEN $^{112-124}$Sn PARENT NUCLEI

*Friday 24 September 2021 15:45 (25 minutes)*

The semi-microscopic particle-hole dispersive optical model (PHDOM), originally formulated and successfully implemented for describing main properties of various giant resonances in medium-heavy closed-shell nuclei (see Ref. [1] and references therein), is extended to account for nucleon pairing in open-shell spherical nuclei. In the present work (which is a direct continuation of the incomplete study of Ref. [2]), nucleon pairing in even-even parent nuclei is approximately (in the "high-energy limit") taken into account within a simplest version of the BCS-model. The extended PHDOM version is implemented for describing properties of isoscalar and isovector (charge-exchange) giant monopole resonances (ISGMR and IVGMR$^{(\mp)}$, respectively), and the isobaric analog resonance (IAR) in the even $^{112-124}$Sn parent nuclei. For ISGMR and IVGMR$^{(\mp)}$, the strength functions and one-body "projected"transition density both related to an appropriate probing operator, and probabilities of direct one-nucleon decay are evaluated within the model. For IAR, the main object for studying is the anomalously small spreading width. In describing IAR and IVGMR$^{(\mp)}$, we use the "Coulomb description"of isospin-forbidden processes, which is incorporated into PHDOM [3]. In calculations, most of model parameters (related to a mean field, Landau-Migdal forces, and particle-hole self-energy term responsible for the spreading effect) are taken from independent data [1]. Only the spreading strength parameter (chosen as the universal quantity for nuclei under consideration) is adjusted to describe reasonably the observable values of the ISGMR total width and IAR spreading width. These and other calculation results are compared with available experimental data.
This work was supported in part by the Russian Foundation for Basic Research, under grant no. 19-02-00660.

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**Session Classification:** Section 1. Experimental and theoretical studies of the properties of atomic nuclei

**Track Classification:** Section 1. Experimental and theoretical studies of the properties of atomic nuclei.