Contribution ID: **67** Type: **Poster presentation**

Investigation of the low-lying dipole response of ^{62}Ni using the NRF technique

Systematic studies along isotopic and isotonic chains are essential for understanding the characteristics of the low-lying dipole response in atomic nuclei. Such studies can provide valuable insights into the influence of factors such as shell structure and neutron excess on dipole strength. Since photons transfer only small angular momenta, real-photon scattering, commonly denoted as Nuclear Resonance Fluorescence (NRF), is a powerful technique to study the dipole response below the neutron separation threshold of a nucleus [1]. The semi-magic nickel isotopic chain (Z = 28) is particularly well suited for a systematic study, as it comprises four stable, even-even isotopes spanning a wide range of neutron-to-proton ratios. The dipole response of ^{58}Ni, ^{60}Ni, and ^{64}Ni has already been analysed in NRF experiments [2-5], leaving the investigation of ^{62}Ni as one of the final steps in completing the systematic. To this end, a (γ, γ') bremsstrahlung experiment on ^{62}Ni was conducted at the γELBE facility of the Helmholtz-Zentrum Dresden-Rossendorf with a maximum photon energy of $E_{textnormalmax} = 8.7$ MeV [6]. Preliminary results from this measurement will be presented. This work is supported by the DFG(ZI 510/10-2).

[1] A. Zilges *et al.*, Prog. Part. Nucl. Phys. **122** (2022) 103903.
[2] F. Bauwens *et al.*, Phys. Rev. C **62** (2000) 024302.
[3] M. Scheck *et al*, Phys. Rev. C **88** (2013) 044304.
[4] M. Scheck *et al.*, Phys. Rev. C **87** (2013) 051304(R).
[5] M. Müscher *et al.*, Phys. Rev. C **109** (2024) 044318.
[6] R. Schwengner *et al.*, Nucl. Instr. and Meth. A **555** (2005) 211.

Primary author: SCHÜTTLER, Tanja (Institute for Nuclear Physics, University of Cologne)

Co-authors: ZILGES, Andreas (Institute for Nuclear Physics, University of Cologne); SAVRAN, Deniz (GSI Helmholtzzentrum für Schwerionenforschung GmbH); KLUWIG, Florian (Institute for Nuclear Physics, University of Cologne); MÜSCHER, Miriam (Institute for Nuclear Physics, University of Cologne); SCHWENGNER, Ronald (Helmholtz-Zentrum Dresden-Rossendorf)

Presenter: SCHÜTTLER, Tanja (Institute for Nuclear Physics, University of Cologne)

Session Classification: Poster Session