Contribution submission to the conference Bochum 2009

Complete dipole response in ^{208}Pb from high-resolution polarized proton scattering at 0°* — •Iryna Poltoratska for the EPPS0-Collaboration — Institut für Kernphysik, Technische Universität Darmstadt, Germany

In proton scattering at angles close to 0° one can selectively study dipole modes which, apart from the isovector giant dipole resonance, are poorly understood. Recent experimental progress at RCNP Osaka, Japan [1], allows measurements with intermediate-energy polarized beams at very forward angles including 0° combined with high energy resolution of the order $\Delta E/E \approx 8 \cdot 10^{-5}$. This new experimental opportunity was applied to study soft electric dipole modes such as Pygmy Dipole Resonance (PDR) and the so-called toroidal mode. The preliminary data analysis indicates that at very forward angles 1^- states are strongly excited via Coulomb interaction. The extracted B(E1) transition strengths are in a good agreement with data obtained from a nuclear resonance fluorescence experiment [2]. E1/M1 contributions are separated based on multipole decomposition of a cross section angular distributions and utilizing spin-transfer observables.

[1] A. Tamii et al.,Nucl. Phys. A 788 (2007) 53c.
[2] N. Ryezayeva et al., Phys. Rev. Lett. 89, 272502 (2002).

* Supported by DFG contracts SFB 634 and 446 JAP 113/26710-2.

Part: HK
Type: Gruppenbericht;Group Report
Topic: Nuclear Structure and Dynamics
Email: iryna@ikp.tu-darmstadt.de