

The collective modes' investigations at CCB IFJ PAN, experimental setup and scientific program

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The Bronowice Cyclotron Center (CCB) is the proton beam facility at the Institute of Nuclear Physics Polish Academy of Sciences devoted mainly to conduct hadron therapy. Additionally it offers the possibility of using proton beams for nuclear physics research. Performed so far investigations of gamma decay of collective modes in stable ²⁰⁸Pb nuclei concerned giant resonances and pygmy states excited using inelastic scattering of proton beam at 85 and 155 MeV energy.

The experimental method was based on coincidence measurement of high-energy gamma rays and energy of scattered protons. For high-energy gamma rays detection large volume BaF₂ detectors of the HECTOR array or large volume LaBr₃ scintillators coupled to clusters of PARIS phoswiches were used. Scattered protons were measured by the KRATTA array (triple Si+CsI+CsI telescopes) positioned at forward angles. During the talk the experimental method, possible improvements and idea of future investigations will be presented.