RECENTLY DEVELOPED APPROACHES TO CALCULATE NUCLEAR STRUCTURE NEED TESTS BY NOVEL EXPERIMENTAL METHODS

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At present, *ab initio* calculations cover a broad range of light nuclei. Recently they were developed to include descriptions of new phenomena, such as elastic and inelastic nucleon scattering (see[1] and references therein)

Therefore the various experimental data can be compared with the direct calculations which based on the bare nucleon interaction. However, calculations of nuclear structure need knowledge of parameters of the *N–N* interaction which cannot be properly fixed from the *N–N* scattering (for example, having a large orbital momentum between nucleons). Therefore the *ab initio* calculations of nuclear structure give possibility to fix the needed parameters of the *N-N* interaction and understand the importance of three-(four) body forces in nuclei. A test of these new theoretical approaches will be made by using resonance reactions induced by rare beams. I will consider several examples of such tests [2-7]

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