Contribution ID: **856** Type: **Oral**

Relativistic corrections to the form factors of three-nucleon nuclei.

Tuesday, 12 October 2021 11:30 (15 minutes)

Three-nucleon nuclei(3He and 3H) were considered in the framework of the relativistic covariant Bethe-Salpeter approach. The amplitudes of states of nuclei obtained from the solution of the Bethe-Salpeter-Faddeev equation were used to calculate the form factors of the triton and helion. The form factors of three-nucleon nuclei are calculated for the momentum transfer square up to 50 fm^-2 using various models of nucleon factors - a dipole fit, a relativistic harmonic oscillator model, and a vector dominance model. When calculating the form factors, relativistic corrections are taken into account, such as the Lorentz transformations of the arguments of the wave function and the propagator, a simple pole in the propagator, and the Lorentz transformations of the arguments of the wave function of the finite nucleus. The calculation results showed a significant contribution of relativistic corrections. The calculation using multi-rank potentials reproduces the diffraction minimum observed in the experimental data, while taking relativistic corrections into account improves the agreement with experiment.

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Session Classification: Theoretical Physics

Track Classification: Theoretical Physics