

— 第894回九大原子核セミナー —

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演題 : Two-nucleon and three-nucleon systems in three-dimensions

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場所 : 理学部 物理大学院講義室 (理学部2号館2階2263室)

概要

Recently a new formalism for treating two- and three-nucleon bound states in a three-dimensional approach has been proposed. Starting from the so-called operator forms for the deuteron and triton wave functions, the spin degrees of freedom are removed by suitable operations and only scalar expressions depending on momenta remain. This method can be also extended to nucleon-nucleon scattering, where the nucleon-nucleon t-matrix is represented by six spin-momentum operators accompanied by six scalar functions of momentum vectors. I present the formulation and provide numerical examples for the deuteron and nucleon-nucleon scattering observables. I also show how this new formulation can be used to describe electron scattering off the deuteron. A comparison to results from a standard partial wave decomposition proves the reliability of this new formulation.

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