Contribution ID: 175

Type: Oral

## Study of the structure of 16,180 nuclei in the alpha-cluster model by hyperspherical functions and Feynman's path integrals

Wednesday 2 July 2025 16:50 (20 minutes)

The light nuclei <sup>16,18</sup>O used as target and projectile nuclei in the many experimental studies of the nuclear reactions. The study of the structure of these nuclei is necessary for theoretical description of such reactions. Wave functions of the ground state of the <sup>16,18</sup>O nuclei in the alpha-cluster model are calculated using Feynman's path integrals and hyperspherical functions [1,2]. Cubic spline interpolation is applied for solving hyperradial equations [1]. The <sup>16</sup>O nucleus is described as 4-body system 4 $\alpha$ . The alpha-alpha interaction in the <sup>16</sup>O nucleus is changed in comparison with well-known Ali-Bodmer potential [3]. The <sup>18</sup>O nucleus is described as 3-body system consisted from <sup>16</sup>O-like cluster and two neutrons [4]. In addition, the shell model of the deformed nuclei is used to calculate the nucleon states in the <sup>16,18</sup>O nucleus for comparison against alpha-cluster model.

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Session Classification: 1. Experimental and theoretical studies of nuclei

Track Classification: Section 1. Experimental and theoretical studies of nuclei.