

Contribution submission to the conference Darmstadt 2008

α -Cluster states in the electron scattering* — •MAKSYM CHERNYKH¹, HANS FELDMEIER², THOMAS NEFF², PETER VON NEUMANN-COSEL¹, and ACHIM RICHTER¹ — ¹Institut für Kernphysik, Technische Universität Darmstadt, Germany — ²Gesellschaft für Schwerionenforschung (GSI), Darmstadt, Germany

The possible existence of α -cluster condensation is an intriguing question for the understanding of the nuclear structure in light nuclei. A study of the second 0^+ state (Hoyle state) in ^{12}C with high-resolution electron scattering including measurements at the S-DALINAC is presented.

Recently, an $^{16}\text{O}(\alpha, \alpha')$ measurement was performed [1], where evidence for a new α -condensed 0^+ state at an excitation energy $E_x = 13.6 \pm 0.1$ MeV based on a wavelet analysis of the spectra was claimed. We present an independent analysis of high-resolution electron scattering data on ^{16}O in the relevant excitation energy region using similar wavelet techniques.

[1] T. Wakasa et al., Phys. Lett. B653 (2007) 173.

*Supported by the DFG through SFB 634.

Part: HK
Type: Vortrag;Talk
Topic: Kernphysik/Spektroskopie;Nuclear Physics/Spectroscopy
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