

Triple configuration coexistence in ^{44}S

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Results from our publication on the nuclear structure of ^{44}S were presented as well as a short review of the previous experimental works.

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The neutron-rich $N = 28$ nucleus ^{44}S was studied using the two-proton knockout reaction from ^{46}Ar at intermediate beam energy at the National Superconducting Cyclotron Laboratory in East Lansing, Michigan, USA. We report the observation of four new excited states, of which one is a strongly prolate deformed 4^+ state, as indicated by a shell-model calculation. Its deformation originates in a neutron configuration which is fundamentally different from the “intruder” configuration producing the ground state deformation. Consequently, we do not have three coexisting shapes in ^{44}S , but three coexisting configurations, corresponding to zero, one and two neutron particle-hole excitations. For more information see the full article in [1].

References

- [1] D. Santiago-Gonzalez, I. Wiedenhöver, V. Abramkina, M.L. Avila, T. Baugher, D. Basing, B.A. Brown, P.D. Cottle, A. Gade, T. Glasmacher, K.W. Kemper, S. McDaniel, A. Rojas, A. Ratkiewicz, R. Meharchand, E.C. Simpson, J.A. Tostevin, A. Volya, D. Weisshaar, *Triple configuration coexistence in ^{44}S* , Phys. Rev. C, June 2011, doi 10.1103/PhysRevC.83.061305