

Weakly deformed, axial and triaxial configurations in neutron rich Sulfur isotopes

lundi 8 octobre 2012 17:50 (40 minutes)

The structure of neutron rich Sulfur nuclei has been the recent subject of both experimental and theoretical studies. At $N=28$, experimental data interpreted within the shell model framework suggested a prolate/spherical shape coexistence. Similar interpretation has been proposed at $N=27$ for ^{43}S . Recent beyond mean field calculations suggested a more complicated low-lying structure of neutron rich sulfur isotopes where the triaxial degree of freedom is important.

Within the shell model framework, we performed a systematic study of $^{42,44,46}\text{S}$ and ^{43}S . Coexistence of weakly deformed, axial and triaxial states is found at low excitation energy in these nuclei. Comparison with experimental data is rather satisfactory and agreement with recent beyond mean field calculations is found to be good.

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Classification de Session: Shell evolution of neutron rich nuclei I

Classification de thématique: Shell evolution in the neutron rich nuclei I