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Nuclear structure investigations via the (p,d) neutron removal reaction

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Nuclear structure studies are essential for unraveling the complex interactions between the nucleus and nuclear forces, as well as understanding how shell effects emerge throughout the nuclear chart. High-precision measurements of nuclear properties—including energy levels, spins, parities, and spectroscopic factors—offer valuable insights into the nucleus's internal structure and play a key role in testing and improving nuclear models. In this presentation a detailed investigation of the 36S(p,d)35S neutron-removal reaction using a 66 MeV proton beam will be presented, probing nuclear structure and the Fermi surface of sd nuclei. A strong j-dependence for l = 2 states will be revealed, providing refined insights into spin-orbit splitting and shell rigidity. The findings, including spectroscopic factors of states which includes isobaric analog state contributions, advance our understanding and offer benchmark data for theoretical models.

Apply for student award at which level:

None

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Yes, I ACCEPT

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