Abstract Submitted
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Short lifetime determination via GRETINA and CHICO2[1] JING LI, Argonne National Laboratory — A deep inelastic experiment was performed at ATLAS with a 170-MeV ^{48}Ca beam bombarding a 1 mg/cm^2 ^{70}Zn target to investigate the shape-driving effects of the νg9/2 orbital in the region at N=40. The heavy ion counter CHICO2 was used to detect the target-like and projectile-like products simultaneously. The γ rays, emitted in flight by both reaction products, were detected by GRETINA. The combination of GRETINA and CHICO2 allowed for a proper Doppler reconstruction. The thin target provides sensitivity for fast transitions. A new level was identified in ^{70}Zn; its lifetime was determined by a new method. The same detector setup was used for a multi-step Coulomb excitation experiment with a 284-MeV ^{70}Zn beam on a ^{208}Pb target. The Coulomb-excitation analysis was performed using the coupled-channel least-square search code, GOSIA [1]. Most lifetimes of the excited states obtained in the present analysis agree well with the published data except for the 4^1_+ state with a measured lifetime as 1.9(2) ps, which is much shorter than the reported value of 4.2(12) ps [2]. A detailed account of the technique and the results will be presented.[1] T. Czosnyka et al, Am. Phys. Soc 28(1983)745 [2]G. Gurdal et al., Nuclear Data Sheets, 136(2016)1-162.

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