investigation of 3p-nh states by using the (α,p) reaction to examine states in ^{12}B and ^{14}C.

1) W. Bertozzi et al., to be published.

2) R.S. Henderson et al., Aust. J. Phys. 32, 411 (1979).

A STUDY OF THE $^{24}Mg(^{6}Li,t)^{27}Si$ REACTION AT 75 MeV

H. Nann, D.W. Miller, A.D. Bacher, D.W. Devins, and W.P. Jones
Indiana University Cyclotron Facility, Bloomington, Indiana 47405

B.M. Spicer, G.G. Shute, V.C. Officer, S.F. Collins, P.R. Andrews and J.M.R. Wastell
University of Melbourne, Parkville, Victoria 3052, Australia

Recent studies of the $^{28}Si(p,d)^{27}Si$ reaction at high momentum transfer carried out at IUCF (E_p = 135 MeV)[1] and at LAMPF (E_p = 800 MeV)[2] show that four previously unknown states at 7.12, 8.37, 9.62 and 11.65 MeV in excitation are strongly populated. It has been surmised that these states are high-spin states excited in two-step processes with the first step being inelastic scattering to the known $(d_{5/2}^{-1},f_{7/2})_{T=0}$ one-particle, one-hole states at 6.88, 8.41, 9.70, and 11.58 MeV in ^{28}Si and the second step being the pickup of a $1d_{5/2}$ neutron.

We have studied the $^{24}Mg(^{6}Li,t)^{27}Si$ reaction at 75 MeV bombarding energy with the aim of shedding some additional light on the nature of these states in ^{27}Si. The $(^{6}Li,t)$ reaction was chosen, since it is well known that this reaction is highly selective in populating high-spin states.

Angular distributions for the most strongly excited states between 6 and 15 MeV in excitation were measured from 6° to 26° in 4° steps. The reaction products were momentum analyzed with the QDDM magnetic spectrometer. Three different magnetic field settings were required to cover this excitation energy region.

The data are in the process of being analyzed. A preliminary result is that only the 8.37 and 11.65 MeV states are strongly populated in the $^{24}Mg(^{6}Li,t)^{27}Si$ reaction. The 7.12 and 9.62 MeV states are weakly populated in this reaction.

1) D.W. Miller et al., private communication (IUCF Experiment #8).

2) J.R. Shepard and C.A. Whitten, Jr., private communication; G.R. Smith, Ph.D. thesis, University of Colorado, 1979, unpublished.