

ENERGY DEPENDENCE OF CROSS SECTIONS FOR STRETCHED STATES EXCITED IN (p,n) REACTIONS

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We measured cross section angular distributions at 100 and 200 MeV for the excitation of the "stretched"  $6^-$  ( $\pi f_{7/2}, \mu d_{5/2}^{-1}$ ) state of  $^{28}\text{P}$  and the "stretched"  $9^+$  ( $\pi g_{9/2}, \mu g_{9/2}^{-1}$ ) state of  $^{88}\text{Y}$  excited in the (p,n) reaction on  $^{28}\text{Si}$  and  $^{88}\text{Sr}$ , respectively. The  $6^-$  state is a  $1\hbar\omega$  excitation; the  $9^+$  state is a  $0\hbar\omega$  excitation, which cannot be excited in elastic scattering. Stretched states are particle-hole states with the particle and hole both in "stretched" orbits ( $j_p = l_p + 1/2$ ;  $j_h = l_h + 1/2$ ) coupled to the highest possible total spin ( $J = j_p + j_h + 1$ ). Stretched states are excited primarily by the isovector-tensor part of the nucleon-nucleon effective interaction mediating the (p,n) reaction.

In studies at 135 MeV we found that the quenching of  $0\hbar\omega$  stretched excitations (observed as a reduction

of DWIA normalizations from unity) is generally much smaller than that observed for  $1\hbar\omega$  stretched excitations.<sup>1</sup> By comparing the cross sections for the excitation of these two states as a function of energy, we expect to determine whether this difference in quenching is a nuclear structure effect or a subtle reaction mechanism effect. As part of this project we recently measured cross sections for these two reactions at 300 and 400 MeV at TRIUMF with the new CHARGEEX (p,n) facility. Data from both experiments are being analyzed.

1) B.D. Anderson, J.W. Watson, and R. Madey, in Proceedings of the Workshop on "Nuclear Structure at High Spin, Excitation, and Momentum Transfer," Bloomington, Indiana (Oct., 1985), AIP Conf. Proc. 142, 155 (1986).