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Distribution of angular momentum transfers from (p, d) and (p, t) reactions in the high excitation energy continuum region of gadolinium nuclei THOMAS TARLOW, CORNELIUS BEAUSANG, RICHARD HUGHES, University of Richmond, TIMOTHY ROSS, University of Kentucky, KRISTEN GELL, GARGI VYAS, University of Richmond — The structure of even and odd Gd nuclei at low/moderate spins and up to high excitation energies in the vicinity of the $N = 90$ shape change region have been probed using the (p, t) and (p, d) reactions on even-even targets. The proton beam, at a beam energy of 25 MeV, was provided by the 88-Inch Cyclotron at Lawrence Berkeley National Laboratory. Outgoing charged particles, between ~ 30 and 60 degrees, were detected by the STARS silicon telescope while coincident gamma-rays were detected with the clover Ge detectors of the Lib-erace Array. The measured angular distributions for outgoing deuterons and tritons are well reproduced by DWBA calculations for discrete low-lying states, whereas at higher excitations of (2 – 9) MeV the angular momentum distribution of the continuum region should be represented by a distribution of L-transfer values. The angular distribution of the continuum region has been investigated in the present work. Weighted linear combinations of calculated (DWBA) angular distributions for L-transfer values of $\Delta L=0$ to $6\hbar$ are compared to the experimental angular distribution in a chi-square minimization technique to find the best fitting distribution of angular momentum transfers in gadolinium nuclei. Preliminary results will be presented.

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