Deviations from the Alaga rules in deformed Hf nuclei

E.A. McCUTCCHAN, R.F. CASTEN, V. WERNER, B. SHORAKA, E. WILLIAMS, Yale University — Branching ratios from excited $K = 0,2$ states in axially symmetric deformed nuclei can usually be described, in first order, using the Alaga rules. Some well-deformed nuclei, however, show significant deviations from the Alaga rules particularly when the first excited $K = 0$ and 2 excitations are similar in energy. To further investigate this behavior, an experiment was performed to measure intensities from excited $K = 0,2$ states in $^{172}$Hf. Low-lying non-yrast states of $^{172}$Hf were populated in $\beta$ decay and studied through off-beam $\gamma$ ray spectroscopy. The $^{172}$Ta parent nuclei were produced through the $^{165}$Ho($^{12}$C, 5n) reaction. Results will be presented and compared to the systematics of the region. Work supported by U.S. DOE Grant No. DE-FG02-91ER-40609.