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**Investigation of Vibrational Structure using SAUTs** CORNELIUS BEAUSANG, University of Richmond, R.B. CAKIRLI, Yale University and Istanbul University, R.F. CASTEN, Yale University, V. NIKOLOVA, University of Richmond — A recent paper by Cakirli et al. [1] investigating the vibrational structure of the nucleus  $^{98}\text{Ru}$  pointed out the importance that limits on intensities of Spin Allowed Unobserved Transitions (SAUTs) can have on the interpretation of specific levels and indeed the entire structure of the nucleus. SAUTs, refer to transitions, which are allowed by angular momentum selection rules, but whose intensities are too weak to be observed, between various levels of suggested multi-phonon multiplets. In some cases the ratio of  $B(E2)$  values, obtained from the intensity limits set from the non-observation of otherwise allowed transitions, e.g. between suggested levels of a three-phonon multiplet and levels in a two-phonon multiplet allowed for the reinterpretation of these states. In this work we undertake a (partial) survey of existing data in the literature to determine if meaningful, useful limits on SAUTS can aid in the interpretation of other vibrational and transitional nuclei.

[1] R.B. Cakirili, et al., Phys. Rev. C **70** 044312 (2004)

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