

Abstract Submitted
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New measurements of γ -ray branching ratios in the β^+ decay of ^{32}Cl ¹ MARK HERNBERG, University of Iowa, DAN MELCONIAN, Texas A&M University — We have determined the γ -ray branching ratios in the β^+ decay of ^{32}Cl using a high-purity Germanium (HPGe) detector at the Texas A&M University Cyclotron. Our experiment was motivated by a recent measurement of isospin symmetry breaking correction (δ_c) in ^{32}Ar which has implications for the extraction of V_{ud} from other superallowed decays. The experimental result for this superallowed decay [$\delta_c = (2.0 \pm 0.8)\%$] agrees with the theoretical predictions but is not a stringent test of theory. By measuring the γ -ray branching ratios in the β^+ decay of ^{32}Cl (a decay product of ^{32}Ar) the detector efficiencies can be better determined allowing for a more precise determination of δ_c . Furthermore these branching ratios are important in the study of various nuclear decay schemes and transition rates. Previous measurements of the β^+ decay of ^{32}Cl are 35 years old and contain uncertainties of up to 40%. Our preliminary results agree with past data and additionally we've identified previously unseen branches and reduced the uncertainties by an order of magnitude.

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