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**No Core Shell Model systematics of the Fermi beta-decay matrix element** MICHAEL KRUSE, ERICH ORMAND, Lawrence Livermore National Laboratory — We study the systematics of the Fermi beta-decay matrix element by using the No Core Shell Model (NCSM). We employ the chiral N3LO NN interaction and calculate the A=6 triplet T=1 states for He-6, Li-6 and Be-6. Although the Fermi transition is energetically forbidden for A=6, it does provide us with a good testing ground of extrapolation techniques which we intend to employ for the A=10 system. The B-10 to C-10 transition has been measured experimentally and has also been calculated with various theoretical methods including the NCSM. The T=1 Coulomb-displacement energies lie on a parabolic curve as given by the isobaric mass multiplet equation. We calculate the b-coefficients and notice a strong correlation with the charge radius of the nuclei. The isospin mixing correction for the Fermi transition is typically linearly proportional to the size of the basis (Nmax) and thus cannot be easily extrapolated. We will present a technique in which we extrapolate the b-coefficients as well as the radius to a "converged" result, which we in turn use to estimate the corresponding isospin mixing correction. We will also present results on the giant isovector monopole transition.

Michael Kruse
Lawrence Livermore National Laboratory

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