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Double beta decay shell model nuclear matrix elements for ^{48}Ca including sd-shell orbitals[1] MIHAI HOROI, Department of Physics, Central Michigan University, Mount Pleasant, MI 48859, USA — There is a significant discrepancy between the neutrinoless double beta decay nuclear matrix element (NME) for ^{48}Ca calculated in the shell model and by other methods, such as the Interacting Boson Model (IBM-2) or the Generator Coordinate Method (GCM). In particular, the shell model NME calculated in the pf valence space it's significantly smaller than the IBM-2 and the GCM results. These last two methods use significantly larger model spaces, an argument often used to justify the discrepancy. We investigated the NME in the extended sd-pf valence space and we found a small increase, but not as much as suggested by the IBM-2 and GCM results.

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