

Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

$0\nu\beta\beta$ -decay of ^{48}Ca in the shell model¹ ROMAN SENKOV, MIHAI HOROI, Central Michigan University — We discuss neutrinoless double beta ($0\nu\beta\beta$) decay of ^{48}Ca and test the closure approximation, a widely used approach for $0\nu\beta\beta$ nuclear matrix element calculations. In the shell model framework we calculate $0\nu\beta\beta$ nuclear matrix element of ^{48}Ca using both closure approximations and the nonclosure approach, and we estimate the uncertainties associated with the closure approximation. We also demonstrate that the nonclosure approach can be used to calculate $0\nu\beta\beta$ decay rates of heavy nuclei, such ^{72}Ge or ^{82}Se , thus avoiding unmanageable computational costs.

¹The NUCLEI SciDAC collaboration under the DOE grant No. DE-SC0008529 is acknowledged.

Roman Senkov
Central Michigan University

Date submitted: 30 Jun 2013

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