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Perturbative Corrections to the Shell Model Operator for Neutrinoless Double-Beta Decay JONATHAN ENGEL, University of North Carolina, GAUTE HAGEN, Physics Division, Oak Ridge National Laboratory — We use many-body perturbation theory to correct the bare double-beta decay operator for configurations that are outside the shell-model space. We sum high-energy ladder diagrams to all orders in the nuclear potential and also evaluate low-energy ladders, core-polarization, and 4-particle 2-hole graphs to first order in the G-matrix. Though the individual graphs can change the bare shell-model matrix element significantly in ^{82}Se , the sum of all graphs produces only a relatively modest increase.

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