

RESULTS FROM SHELL-MODEL MONTE CARLO STUDIES¹

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We review results obtained using shell-model Monte Carlo (SMMC) techniques. These methods reduce the imaginary-time many-body evolution operator to a coherent superposition of one-body evolutions in fluctuating one-body fields; the resultant path integral is evaluated stochastically. After a brief review of the methods, we discuss a variety of nuclear physics applications. These include studies of the ground-state properties of pf -shell nuclei, Gamow-Teller strength distributions, thermal and rotational pairing properties of nuclei near $N = Z$, γ -soft nuclei, and $\beta\beta$ -decay in ^{76}Ge . Several other illustrative calculations are also reviewed. Finally, we discuss prospects for further progress in SMMC and related calculations.

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