

GAMOW-TELLER STRENGTH DISTRIBUTIONS IN fp -SHELL NUCLEI¹

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We use the shell-model Monte Carlo method to calculate complete $0f_{7/2}1p$ -shell response functions for Gamow-Teller (GT) operators and obtain the corresponding strength distributions using a Maximum Entropy technique. The approach is validated against direct diagonalization for ^{48}Ti . Calculated GT strength distributions agree well with data from (n, p) and (p, n) reactions for nuclei with $A = 48\text{--}64$. We also calculate the temperature evolution of the GT_+ distributions for representative nuclei and find that the GT_+ distributions broaden and the centroids shift to lower energies with increasing temperature.

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