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Deformed Shell Model study of LSP Detection Rates with ^{73}Ge as the Detector

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Abstract. The detection rates for the lightest super symmetric particle (a dark matter candidate) are calculated with ^{73}Ge as the detector. The calculations are performed within the deformed shell model (DSM) based on Hartree-Fock states. First the energy levels and ground state magnetic moment for ^{73}Ge are calculated and compared with experiment. The agreement is quite satisfactory. Then the nuclear wave functions are used to calculate the detection rate as a function of detector threshold energy for a given set of SUSY parameters. The results are compared with other theoretical calculations.

Keywords: Dark mater detection, deformed shell model,

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[Full Paper]