

Correlating the nuclear Schiff moment of ^{129}Xe with the magnetic moment

We compute the nuclear Schiff moment that is induced from the nucleon electric dipole moment by using the nuclear shell model. Our study establishes the strong correlation of the leading order contribution with the magnetic moment for ^{129}Xe . It may considerably reduce the theoretical uncertainty. We evaluate the influence of relevant single particle levels outside the standard model space and the next-to-leading order contribution. It is found that those secondary effects do not disturb the useful correlation. We also perform a shell-model calculation of ^{199}Hg , which provides a higher sensitivity to the neutron electric dipole moment than previous predictions.

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