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Possible umbrella-like antimagnetic rotation (UAMR) mode in Pd isotopes

The tilted axis cranking model based on covariant density functional theory is used to study the $\pi g_{9/2}^{-4} \nu h_{11/2}$ bands in odd-A $^{101,103}\text{Pd}$ and the $\pi g_{9/2}^{-4} \nu h_{11/2}^2$ bands in even-even $^{102,104}\text{Pd}$. The experimental energy spectra and B(E2) values are reproduced well in the self-consistent and microscopic calculations. By investigating microscopically the composition and orientation of angular momentum, an umbrella-like antimagnetic rotation (UAMR) mode resulting from the coupling of four $g_{9/2}$ proton holes to one or two aligned $h_{11/2}^2$ neutron particles is clearly illustrated for the first time.

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