Statistical Behaviors of Quantum Spectra in Superheavy Nuclei

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Abstract: From the point of view of the interplay between order and chaos, the most regular single-particle motion of neutrons has been found in the superheavy system with $Z=120$ and $N=184$ based on the Skyrme-Hartree-Fock model and in the system with $Z=120$ and $N=172$ based on the relativistic mean-field model. It has been shown that the statistical analysis of spectra can give valuable information about the stability of suprheavy systems. In addition it may yield deep insight into the single-particle motion in the mean field formed by the superheavy system.

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