

ODD-EVEN STAGGERING OF NUCLEAR MASSES: PAIRING OR SHAPE EFFECT?¹

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The odd-even staggering of nuclear masses was recognized in the early days of nuclear physics. Recently, a similar effect was discovered in other finite fermion systems, such as ultrasmall metallic grains and metal clusters. It is believed that the staggering in nuclei and grains is primarily due to pairing correlations (superconductivity), while in clusters it is caused by the Jahn-Teller effect. We find that, for light- and medium-mass nuclei, the staggering has two components. The first one originates from pairing while the second, comparable in magnitude, has its roots in the deformed mean field.

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