

# Magic numbers, shell model and the inspiring experimental data

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The magic numbers that inspired Maria Goeppert-Mayer and Hans Jensen to propose the shell model were deduced from early experimental observations. The success of the model, at the beginning only able to describe the structure of nuclei near the closed

shells, has been extended in the last decades to the description of well deformed nuclei

with several valence particles in large model spaces. The possibility to extend gammaspectroscopy studies to nuclei very far from stability has shown an evolution in the shell structure with the disappearing of the historical magic numbers with the development of new regions of deformation and the appearance of new magic numbers.

After a brief historical introduction, the experimental data that has inspired the continuous development and improvement of the shell model calculations will be shown and discussed

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