

Octupole correlations in light Ba and Xe nuclei

C. M. Petrache¹

¹Université Paris-Saclay, IJCLab, CNRS-IN2P3, Orsay, France

Abstract

In the proton-rich $A \approx 120$ nuclei with the number of valence neutrons close to the maximum $N = 66$ outside the closed $Z, N = 50$ major shells, the proton-neutron interactions are predicted to lead to significant quadrupole deformation of $\beta_2 \approx 0.3$. The nuclei in this region of the nuclide chart are predicted to present pronounced octupole correlations, which are favoured at particle numbers near $N = Z = 56$, primarily due to strong $d_{5/2}$ - $h_{11/2}$ correlations. Calculations with the quadrupole-octupole collective Hamiltonian relativistic Hartree-Bogoliubov (QOCH-RHB) model, as well as experiments aimed to measure the $B(E1)$ reduced transition probabilities from the negative-parity bands to the ground state of even-even Ba and Xe nuclei will be presented.