

独立行政法人理化学研究所 仁科加速器研究センター 第146回 RIBF核物理セミナー RIKEN Nishina Center for Accelerator Based Science The 146<sup>th</sup> RIBF Nuclear Physics Seminar

Morphometrical studies on the Island of Inversion

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In the neutron-rich Ne, Na, and Mg (proton number Z=10 to 12) isotopes around neutron number N=20, a region known as the Island of Inversion, the standard independent particle model shell filling is disturbed by neutron intruder configurations caused by a reduced N=20 shell gap. These intruder configurations give rise to increased collectivity and deformation.

Although the boundaries of the Island of Inversion were predicted more than twenty years ago, only the advent of the New Generation rare isotope facility RIBF enabled the experimental quest for the southern and eastern borderlines. My presentation will focus on recent in-beam gamma-ray spectroscopy results on the very neutron-rich fluorine and magnesium isotopes and discuss their deformation and association to the Island of Inversion. In particular, experimental evidence towards an extension to the fluorine isotopes (Z=9) will be presented. The results indicate an N=20 shell quenching even for the unbound Z=8 nucleus <sup>28</sup>O.

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