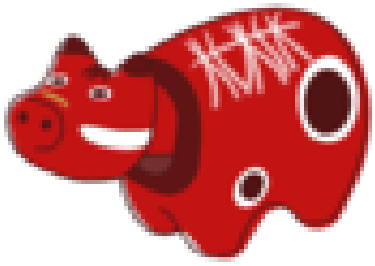

Contribution ID: **77** Type: **not specified**

Weak-binding and continuum-coupling effects on the structure of neutron-rich nuclei

The structure of nuclei far from the stability line is a central theme of research in Nuclear Physics. Key to this program has been the worldwide development of advanced radioactive beam facilities and novel detector systems, which provide the tools needed to produce and study these exotic nuclei.

One of the intellectual drivers guiding current experimental and theoretical research concerns the effects of weak binding and coupling to the continuum on the evolution of collective motion towards the neutron dripline.

We have studied the coupling of weakly bound (halo) valence neutrons to a deformed core using a Weak-Coupling phenomenological approach and the Particle-Rotor model. Despite its simplicity, our phenomenological model captures the main physical ingredients and provides a framework that allows us to examine possible coupling schemes involving a core and halo.

I will illustrate our results using the known properties of ^{38,40}Mg to discuss the impact of weak binding on the low-lying excitation spectrum, one proton removal reaction cross sections and transition probabilities.

I will also discuss some ideas for future experiments that will shed further light on this interesting topic.

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Type of contribution

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no

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