## **Advances in Radioactive Isotope Science**



Contribution ID: 311 Type: Invited Presentation

## Where is the Neutron Drip-line for Oxygen?

Wednesday, 31 May 2017 09:50 (25 minutes)

The presence of neutron and proton shell closures in the nucleus  $^{28}$ O, together with strong continuum coupling effects, make neutron-rich oxygen isotopes a unique laboratory for testing nuclear models. In this work, we investigate neutron-rich oxygen isotopes using the Gamow Shell Model and the Density Matrix Renormalization Group method with an effective finite-range two-body interaction optimized to the bound states and resonances of  $^{23-26}$ O assuming a core of  $^{22}$ O. Our results suggest the existence of narrow excited states in  $^{25}$ O and  $^{27}$ O decaying by neutron and gamma emission, and a near-threshold ground-state for  $^{28}$ O.

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