Advances in Radioactive Isotope Science



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The Difference a Few Neutrons Makes in the Fusion of Light Nuclei: Structure and Dynamics

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Fusion of neutron-rich light nuclei at near barrier energies involves the interplay of both structure and dynamics. Examination of fusion for an isotopic chain of nuclei provides a means to access the low density tail of the neutron density distribution and the polarizability of nuclear matter. Development of a new technique that allows measurement of the fusion cross-section at near barrier energies will be presented. The direct measurement of fusion residues with this technique is used to extract the fusion cross-section. The measured fusion excitation functions for 18,19O + 12C and 39,47K + 28Si will be shown and the observed fusion enhancement will be compared with theoretical model predictions.

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