

Abstract Submitted
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Effect of neutron-excess on above-barrier fusion cross-sections in $^{12,13,14,15}\text{C} + ^{12}\text{C}$: Evidence for increasing neutron dynamics¹ ROMUALDO DESOUZA, VARINDERJIT SINGH, SYLVIE HUDAN, Indiana Univ - Bloomington, ZIDU LIN, Arizona State University - Tempe, CHARLES HOROWITZ, Indiana Univ - Bloomington — Examination of the average fusion cross-section at energies above the fusion barrier for $^{12,13,14,15}\text{C} + ^{12}\text{C}$ reveals that the fusion cross-section increases more rapidly than can be simply attributed to the increased size. Comparison with static barrier penetration models suggests that dynamics are the origin of this increased cross-section. Calculations with a time-dependent Hartree-Fock model also fail to describe the observed trend suggesting that for neutron-rich nuclei, neutron dynamics may play a larger role than is presently accounted for.

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