Abstract Submitted
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Probing the Asymmetry Dependence of the Nuclear Caloric Curve in Fusion-Evaporation Reactions[1] ALAN B. MCINTOSH, LAUREN A. MCINTOSH, KRIS HAGEL, SHERRY J. YENNELLO, Texas AM University Cyclotron Institute — The nuclear caloric curve, the relation between temperature and excitation, is an emergent property of the nuclear equation of state. Some theoretical models predict the caloric curve depends on the neutron excess, but the magnitude and even sign of this dependence varies between models. We aim to characterize the asymmetry dependence of the nuclear caloric curve experimentally. Since the caloric curve emerges from the microscopic interaction, knowledge of the asymmetry dependence of the caloric curve may constrain the asymmetry energy in the nuclear equation of state. Our previous experimental measurement, using multi-fragmentation reactions, has shown that the nuclear caloric curve shifts to lower temperatures as the system becomes more neutron rich. We have conducted an experiment to study this effect in an independent way, using fusion-evaporation reactions of 78,86Kr + 12C @ 15, 25, 35 MeV/u. Light charged particles were measured to extract the temperature and heavy residues were measured to select on fusion. The experimental setup, calibration, and analysis of nuclear temperatures in the fusion reactions will be discussed.

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