Abstract Submitted
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Characterizing N-Z equilibration in nuclear reaction with sub-zeptosecond resolution[1] ANDREA JEDELE, ALAN MCINTOSH, ALIS MANSO RODRIGUEZ, LAUREN HEILBORN, LARRY MAY, MICHAEL YOUNGS, ANDREW ZARRELLA, SHERRY YENNELLO, Cyclotron Institute Texas AM Univ — The process of neutron-proton (N-Z) equilibration is governed by the symmetry energy component of the nuclear equation of state. The extent of equilibration is governed by the contact time and the gradient of the potential driving the equilibration. We have examined correlations between the largest two fragments of the PLF* (both isotopically identified) produced in collisions of 70Zn+70Zn, 64Zn+64Zn and 64Ni+64Ni at 35A MeV. Using the rotation angle between the fragments as a clock, we observe the N-Z composition of the fragments evolve from initially dissimilar to converging exponentially, consistent with first-order kinetics. The rate constant is 3 zs-1, corresponding to a mean equilibration time of 0.3 zs. This technique enables new insight into the nuclear equation of state.

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