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Velocities of Neutron-Rich Fragments of ^{136}Xe on ^{nat}C at $E/A = 30MeV/u$ collected at 1.36 T-m and $\theta_{lab} \geq \theta_{grazing}$. A. SICKLES, Gonzaga University, T.W. O'DONNELL, University of Michigan, and the BIGSOL COLLABORATION at the University of Michigan at Ann Arbor and NSCL/Michigan State University — We determine the fragment yields as a function of velocity for multiple-charge-state reaction products of 30 MeV/u ^{136}Xe on a thick carbon target, collected at 1.36 T-m and over an angular range from $0.7° \leq \theta_{lab} \leq 6°$. We previously reported this run to include very neutron-rich nuclei, near the limits of particle stability (the neutron drip-line), including small count rates of: $^{80}_{29}$Cu, $^{76}_{28}$Ni, $^{68}_{25}$Mn and $^{66}_{24}$Cr. The experiment took place at the National Superconducting Cyclotron Laboratory (NSCL) using the U of M at Ann Arbor's superconducting-solenoid, BigSol, configured as an isotope spectrometer. To obtain fragment yields as a function of velocity, three corrections are made: 1) for energy losses in the thick target using the SRIM program, 2) for missing equilibrium-charge-state fractions using the formulas of Baron et al, and 3) for angular acceptance using code developed for BigSol. The presence of *multiple* charge states at constant Bρ ($\Delta(B\rho)/B\rho \approx 1.6\%$) gives each isotope's yield at multiple velocities. The present reaction is of interest for RNB production as high primary-beam fluxes are available at this relatively low energy, the BigSol device identified all charge states and isotopes, and numerous existing facilities can produce such beams. These veolcities will next be compared with relevent studies in the literature and with models to understand and optimize the mechanism(s) involved.
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