

## Ternary Decay of Projectile-Like Fragments Produced in Non-Central Collisions of Xe+Sn at E/A =50 MeV

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The simultaneous measurement of neutrons and charged particles produced in peripheral and mid-peripheral collisions in a heavy-ion cross-bombardment reaction at intermediate energy,  $^{124,136}\text{Xe} + ^{112,124}\text{Sn}$  at  $E/A = 50$  MeV, was performed at the Grand Accélérateur National d'Ions Lourds facility in Caen, France [1, 2]. Ternary breakup of excited projectile-like fragments produced in these collisions into intermediate-mass fragments is examined. Charge correlations reveal that symmetric breakups occur with significant probability. By selecting on the parallel velocity of the heaviest fragment we select a decay channel with minimal dynamical character. Calculations with the statistical decay code GEMINI failed to reproduce the experimental charge correlations for any suitable combination of excitation energy and spin considered. A statistical multifragmentation model (SMM) that assumes breakup of low density nuclear matter was able to reproduce the observed charge correlations as well as the average atomic numbers of the individual fragments. The experimental  $\langle N \rangle / Z$  and isotopic distributions of fragments with  $Z \leq 14$  were compared to the results of the SMM calculations. Describing the  $\langle N \rangle / Z$  of heavy fragments ( $Z > 6$ ) within SMM suggests that a reduction of the symmetry energy parameter from  $\gamma = 25$  MeV to 14 MeV is necessary. We also observe that the yield of neutron-rich isotopes of heavy fragments is particularly sensitive to the symmetry energy.

[1] S. Hudan *et al.*, Phys. Rev. C **80**, 064611 (2009).

[2] A.B. McIntosh *et al.*, Phys. Rev. C **81**, 034603 (2010).