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Nuclear matter properties at the scission points during quasi- and fusion-fission processes[1] S. ZHU, Brookhaven National Laboratory, K. ZHAO, CIAE, China, R. V. F. JANSSENS, UNC Chapel Hill, J BECKER, LLNL, M. P. CARPENTER, ANL, D. CLINE, U. of Rochester, A. GADE, NSCL/MSU, A. B. HAYES, BNL, T. LAURITSEN, ANL, E. A. MCCUTCHAN, BNL, D. SEWERYNIAK, ANL, A. A. SONZOGNI, BNL, X. WANG, ANL, C. Y. WU, LLNL — The angular correlations of complementary fragments produced in the reaction of a ^{48}Ca beam (285 MeV) on a ^{208}Pb target (1mg/cm^2) were measured with the CHICO detector at ATLAS. The deep-inelastic and fission (quasi-fission and fusion-fission) reaction products can be separated by their respective behavior in the angular correlation of the fragments. The results have been simulated with the Improved Quantum Molecular Dynamics (ImQMD) model. It is found that the angular correlations are sensitive to the properties of nuclear matter in quasi- and fusion-fission reactions, but not in deep-inelastic processes. The data are reproduced more satisfactorily by calculations with a nuclear saturation density ρ_0=0.13 fm^{-3} and a corresponding incompressibility for infinite nuclear matter of K_∞=260 MeV, which are noticeably different from the generally-adopted values of ρ_0=0.16 fm^{-3} and K_∞=230 MeV. This indicates that the deformation at the sission point is larger during fission.

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