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Exploring the Evolution of the Symmetry Energy of Hot fragments from the Compound Nucleus towards Bulk Multifragmentation G.A. SOULIOTIS, A.S. BOTVINA, D.V. SHETTY, A.L. KEKSIS, E. BELL, M. JANDEL, M. VESELSKY, S.J. YENNELLO, Cyclotron Institute, Texas A&M University — High-resolution mass spectrometric data on the isotopic distributions of projectile-like fragments (heavy IMFs and heavy residues) from peripheral collisions of heavy neutron-rich beams (86Kr and 64Ni at 25MeV/nucleon) on a variety of targets are systematically compared with calculations of a hybrid model appropriate for this energy regime. The model consists of a well-tested deep-inelastic transfer model (DIT) for the dynamical stage of the collision and the latest version of the Statistical Multifragmentation model (SMM05) for the deexcitation stage. SMM05 allows the variation of the symmetry energy of hot primary fragments as a function of excitation energy (E*/A). The comparisons point to a gradual evolution (a linear decrease - to first approximation) of the symmetry energy coefficient of the binding energy from ∼25MeV/nucleon around E*/A=2 MeV/nucleon and below (essentially characterizing the compound nucleus regime) towards ∼15 MeV/nucleon at E*/A 4 MeV/nucleon (corresponding to mulk multifragmentation). Comparison of the present results with recent multifragmentation studies will be presented. Consequences of the observed gradual decrease of the symmetry energy to the distribution of hot exotic nuclei in the multifragmentation of neutron-rich systems and in supernova environments will be discussed.

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