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Symmetry Energy of Hot Heavy Fragments Produced in the Multifragmentation of Neutron-Rich Systems at Fermi Energies G.A. SOULIOTIS, A.S. BOTVINA, D.V. SHETTY, A.L. KEKSIS, M. VESELSKY, S.J. YENNELLO, Cyclotron Institute, Texas A&M University — Mass spectrometric data of the isotopic distributions of heavy projectile-like fragments (heavy IMFs: A=20-40 and heavy residues: A=40-60) from peripheral collisions of heavy neutron-rich beams on a variety of targets are systematically compared with model calculations appropriate for this energy regime (part of the data are presented in [1]). The model approach consists of a deep-inelastic transfer code (DIT) for the dynamical stage of the collision and the Statistical Multifragmentation model (SMM05) for the de-excitation stage. The comparisons indicate a gradual evolution of the symmetry energy coefficient of the binding energy of the hot primary fragments from 25 MeV around E*/A=2 MeV and below (compound nucleus regime) towards 15 MeV at about E*/A=4 MeV and above (bulk multifragmentation). The robustness of the above result to the input parameters of the calculation is explored in detail. Comparison of our calculations with literature data on heavy fragments at higher energies will also 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 core-collapse supernova environments will be discussed. [1] G.A. Souliotis et al, nucl-ex/0603006.

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