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Trends in Thermostatic Properties of Excited Finite Nuclei[1]
MICHAEL QUINLAN, YUN-TSE TSAI, IWONA PAWELCZAK, JAN TÕKE, UDO SCHRÖDER, University of Rochester Departments of Chemistry and Physics
— To help understand the phenomenon of statistical nuclear multifragmentation, evolution of nuclear matter distribution with increasing excitation energy was studied within the framework of nuclear thermodynamics. A schematic Fermi-gas model combined with Thomas-Fermi approximation was used to model nuclear matter characterized by a realistic equation of state (EOS). Trends in bulk matter density, surface diffuseness, surface energy, surface level density parameter, and effective surface tension are discussed. The study demonstrates the role of the diffuse surface domain in stabilizing the excited nuclei against particle evaporation while facilitating Coulomb fragmentation at elevated excitation energies.

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Michael Quinlan
University of Rochester

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