

## Chemical Potential And Symmetry Energy For Intermediate Mass Fragment Production In Heavy Ion Reactions Near Fermi Energy

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Ratios of differential chemical potential values relative to the temperature,  $(\mu_n - \mu_p)/T$ , extracted from isotope yields of thirteen reaction systems at 40 MeV/nucleon are compared to those of a quantum statistical model to determine the temperature and symmetry energy values of the fragmenting system. The experimental  $(\mu_n - \mu_p)/T$  values are extracted based on the Modified Fisher Model. Using the density value of  $\rho/\rho_0 = 0.65$  from the previous analysis, the temperature and symmetry energy values of  $T = 4.3 \pm 0.4$  MeV and  $a_{\text{sym}} = 23.6 \pm 1.2$  MeV are extracted in a frame work of a quantum statistical model. These values agree well with those of the previous work, in which a self-consistent method was utilized with antisymmetrized molecular dynamics simulations. The extracted temperature and symmetry energies are discussed together with other experimental values published in literature.