Abstract Submitted
for the APR06 Meeting of
The American Physical Society

Constructing the Phase Diagram of Infinite Nuclear Matter LUCIANO MORETTO, LARRY PHAIR, JIM ELLIOTT, KYRILL BUGAEV, Lawrence Berkeley National Laboratory — The low-energy portion of the phase diagram of finite nuclear matter has been obtained. This was achieved by analyzing the fragmentation yields of the EOS and ISiS collaborations using Fisher's droplet formalism corrected for finite size effects. The critical exponents, the surface energy coefficient, and the critical temperature associated with the liquid-vapor phase transition have all been extracted from the data. Using the ideal gas law, one can construct pressure-temperature and temperature-density coexistence curves for infinite nuclear matter. At much lower energies, compound nucleus reactions are also described by the Fisher formalism when one considers the ensemble average of first-chance emission of rare particles. A pressure-temperature correlation inferred from the mean emission times (measured by the ISiS collaboration) agrees very well with the pressure-temperature correlation inferred from the fragment yields.

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Date submitted: 12 Jan 2006 Electronic form version 1.4