

Abstract Submitted  
for the APR05 Meeting of  
The American Physical Society

**Critical analysis of data from peripheral Si+Sn reaction at 50 MeV/nucleon - probing N/Z degree of freedom** M. JANDEL, S. WUENSCHHEL, S.J. YENNELLO, G.A. SOULIOTIS, D.V. SHETTY, E. BELL, A. KEKESIS, J. IGLIO, B. STEIN, S. SOISSON, Cyclotron Institute, Texas A&M University, College Station, TX — Evidence of nuclear liquid-gas phase transition in small mass systems  $A \sim 36$  has been reported previously [1], where the minimum of the critical topological exponent  $\tau$  as a function of temperature of the multifragmenting source has been checked by two theoretical models which include liquid-gas phase transition, with good agreement. We will present an analysis of the fragmentation of quasiprojectiles obtained in the reactions  $^{28}\text{Si} + ^{124,112}\text{Sn}$  at 30 and 50 MeV/nucleon [2]. We will show that apparent critical behavior is present also in smaller systems where the charge of the reconstructed quasiprojectiles is  $Z=12-15$ . We extracted the critical exponent  $\tau$  as well as the second moment of charge distribution  $S_2$ . The minimum of  $\tau$  and maximum of  $S_2$  lie in the vicinity of excitation energy of quasiprojectiles  $E^* \sim 5$  MeV/nucleon. The dependence of  $\tau$  and  $S_2$  on N/Z degree of freedom of quasiprojectile will be discussed. [1] Y. G. Ma et al., Phys. Rev. **C69**, 031604(R) (2004) [2] R. Laforest et al., Phys. Rev. **C59**, 2567 (1999)

Marian Jandel  
Cyclotron Institute, Texas A&M University, College Station, TX

Date submitted: 18 Jan 2005

Electronic form version 1.4