

Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Localizing the critical point of random RNA secondary structures¹ WILLIAM BAEZ, RALF BUNDSCHUH, The Ohio State University — Previous numerical studies have found that below the denaturation temperature random RNA secondary structures can exist in one of two phases: a strongly disordered, low-temperature glass phase and a weakly disordered, high-temperature molten phase. The probability of two bases pairing in these phases have been shown to scale with the distance between the two bases as $-3/2$ and $-4/3$ in the molten and glass phases, respectively. In this study, we characterize the scaling behavior of various sub-strand lengths within the molecule for a range of temperatures both far from and near the critical point. We anticipate that this approach allows to more accurately determine the critical point and to measure the critical exponents of the system right at the phase transition.

¹This material is based upon work supported by the National Science Foundation under Grant No. 1105458.

William Baez
The Ohio State University

Date submitted: 08 Nov 2012

Electronic form version 1.4