A Model for Folding and Aggregation in RNA Secondary Structures[1] VISHWESHA GUTTAL, RALF BUNDSCHUH, The Ohio State University — We study the statistical mechanics of RNA secondary structures designed to have an attraction between two different types of structures as a model system for heteropolymer aggregation. The competition between the branching entropy of the secondary structure and the energy gained by pairing drives the RNA to undergo a '*temperature independent*' second order phase transition from a molten to an *aggregated phase*. The aggregated phase thus obtained has a macroscopically large number of contacts between different RNAs. The partition function scaling exponent for this phase is $\theta \approx 1/2$ and the crossover exponent of the phase transition is $\nu \approx 5/3$. The relevance of these calculations to the aggregation of biological molecules is discussed.

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Date submitted: 16 Jan 2006   Electronic form version 1.4