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**Torin Greenwood\*** ([greenwood@math.gatech.edu](mailto:greenwood@math.gatech.edu)), School of Mathematics, Georgia Institute of Technology, 686 Cherry Street, Atlanta, GA 30332-0160. *Using Experimental Data to Deconvolve Structural Signals.*

The combinatorial arrangement of RNA base pairings encodes functional information, and a sequence is typically predicted to fold to a single minimum free energy conformation. But, an increasing number of RNA molecules are now known to fold into multiple stable structures. Discrete optimization methods are commonly used to predict foldings, and adding experimental data as auxiliary information improves prediction accuracy when there is a single dominant conformation. In this talk, we describe the challenges of extending the thermodynamic prediction approaches with experimental data to multimodal structural distributions. We also analyze the experimental data independently with a statistical framework, determining how the data can be improved to successfully deconvolve multimodal signals. (Received September 24, 2017)