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Christine E Heitsch* (heitsch@math.gatech.edu), Georgia Institute of Technology, School of Mathematics, Atlanta, GA 30332-0160. *Strings, Trees, and RNA Folding*.

An RNA molecule is a linear biochemical chain which folds into a three dimensional structure via a set of 2D base pairings known as a nested secondary structure. Reliably determining a secondary structure for large RNA molecules, such as the genomes of most viruses, is an important open problem in molecular biology. Using strings and (plane) trees as a combinatorial model of RNA folding, we give mathematical results which yield insights into the interaction of local and global constraints in RNA secondary structures and suggest new directions in understanding the folding of RNA viral genomes. (Received September 22, 2009)