1046-57-521   **Angela Angeleska**, **Natasa Jonoska** and **Masahico Saito*** (`saito@math.usf.edu`). *Knot theoretical methods for RNA-template guided DNA recombinations.*

RNA-template guided DNA recombinations are modeled by DNA molecules form spatial 4-valent graphs, with rigid vertices representing recombination sites. We propose using methods in knot theory to investigate properties of such graphs, that are of interest from a biological point of view. A polygonal Hamiltonian path, for example, represents a resulting DNA sequence after recombinations, and defines smoothings similar to the ones for virtual knot diagrams colored by two colors as studied by Kauffman. Relations and differences of these two types of smoothings are discussed, through problems motivated from biology and methods used in knot theory. (Received September 05, 2008)