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'4-string tangle analysis of DNA-protein complexes'. Preliminary report.

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An n-string tangle is a three dimensional ball with n-strings properly embedded in it. Protein-DNA complexes have been modeled by tangles. In this model, the protein is represented by the three dimensional ball and the protein-bound DNA is represented by the strings embedded in the ball. Recently, Darcy, Luecke and Vazquez used a 3-string tangle model to analyze the topological structure of DNA bound by Mu proteins. Their analysis is based on Pathania,Jayaram, and Harshey's experimental data of the Mu protein-DNA complex that consists of three DNA segments containing five nodes. Motivated by 3-string tangle analysis, we address a possible model of a protein binding DNA at four sites. The latest results of the topological 4-string tangle model for this case will be discussed. (Received March 04, 2009)