Meeting: 1002, Pittsburgh, Pennsylvania, SS 7A, Special Session on Knots and Macromolecules

1002-92-213 **Isabel K Darcy*** (idarcy@math.uiowa.edu), Department of Mathematics, University of Iowa, 14 MLH, Iowa City, IA 52242, and **John Luecke** and **Mariel Vazquez**. *The shape of DNA bound by Mu transposase.*

We will analyze an experiment by Pathania, Jayaram, Harshey (Cell, Vol. 109, 425-436) in which Mu Transposase binds 3 segments of DNA and a second protein, Cre recombinase, knots the DNA. We will discuss how the shape of DNA bound by Mu Transposase can be mathematically determined assuming an upper bound on the number of crossings trapped by this protein. We will also discuss how these results can be extended to other protein-DNA complexes. (Received September 14, 2004)