

**Meeting:** 1004, Bowling Green, Kentucky, SS 4A, Special Session on Knot Theory and Its Applications

1004-52-133      **Stephen D Levene\*** (sdlevene@utdallas.edu), Institute of Biomed. Sci. and Technology, University of Texas at Dallas, PO Box 830688, Richardson, TX 75083, and **Travis Thompson, Nicola E Dundas** and **Isabel K Darcy**. *Chirality of DNA Knots and Protein-DNA Complexes Determined by Atomic-force Microscopy and Surface Reconstructions*. Preliminary report.

Proteins such as recombinases and topoisomerases can knot circular DNA molecules. The standard method for uniquely identifying the topology of knotted DNAs requires coating of the DNA with E. coli RecA protein and visualization by electron microscopy. This approach is technically demanding, tedious, and error-prone. We are developing a new technique to easily and rapidly identify DNA knots from atomic-force micrographs using mathematical surface-reconstruction techniques. Applications of this approach to the analysis of DNA knots generated by site-specific recombination and also to protein-DNA complexes containing knotted DNA structures will be presented. (Received January 21, 2005)