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Spontaneous knotting of DNA and other biomolecules: dynamical and functional aspects.

Wednesday, 9 December 2015 18:30 (30 minutes)

By using both coarse-grained models and bioinformatics approaches, we shall address a few prototypical examples of the intriguing implications of entanglement and knotting on the functional, mechanical and folding properties of various types of biomolecules. In particular, we shall discuss the kinetics of spontaneous knotting of long ssDNA chains and examine the "topological friction" accompanying their translocation through nanopores equivalent to those used in nanopore sequencing techniques. The broader implications for the ejection of knotted DNA out of viral capsids will also be discussed.

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