Speaker: **Lynn Zechiedrich**
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Title: **: Biological applications that utilize DNA Topology**

Abstract:

The long, rich history of topology in mathematics has proven extremely useful for the study of DNA. DNA, the genetic blueprint for life, undergoes tremendous flux as it is packaged, replicated, segregated, transcribed, recombined and repaired. Extremely long and skinny, DNA is prone to entanglement. Every time it is copied, the two resulting "daughter chromosomes" are entangled. And nearly all organisms maintain duplex DNA in a slightly underwound state. Linking number (Lk), the major descriptor for DNA apart from base pair sequence, defines the three forms of DNA topology, which are known to biologists as knots, catenanes, and supercoils. Changes in Lk have dramatic effects on biological processes.

In this talk I will provide an overview of DNA topology and the biological ramifications of topology, including exciting new developments in the application to medicine.

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