

# **From mathematics in DNA cage to dynamics in protein cage**

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With the rapid development of structural nanotechnology, DNA and natural polypeptides have become versatile building blocks for assembling well-ordered structures. DNA and protein cages constitute the basis for molecular machines, and the mathematical modeling and analysis of these cages is of fundamental importance and remains highly challenging. In comparison with DNA cage, the study of protein cage in nanotechnology is relatively new. At the beginning, I will give a brief introduction of DNA cages, as well as a mathematical model called “Polyhedral links”. The main topic of the talk will focus on the first application of Elastic network model in protein nanotechnology. It provides dynamic insights into artificial protein cages, including their collective motions and signal-processing properties, which may be important for the further application and protein design.