Biological nanopores in nanotechnology

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Biological nanopores are emerging as next-generation sensors for biological molecules. In this lecture I will introduce what are proteins and protein nanopores and explain why they are ideal materials to use in nanotechnology. We will then briefly review the basic concepts of nanopore analysis and nanofluidic transport [1]. Arguably, the most successful application of biological nanopores is the low-cost and high-speed sequencing of DNA [2]. Therefore, after a brief historical overview of nanopore analysis, I will explain how DNA is sequence using nanopores proteins can be re-engineered to control the motions of polymers across a nanoscale aperture to allow the sequence of DNA. Finally, I will provide a quick overview on the next frontier of nanopore analysis [3,4].

References
Journal of Physics: Condensed Matter, 30(20), 204002, 2018

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