SOCIÉTÉ CHIMIQUE DE GENÈVE

Biological nanopores for single-molecule analysis

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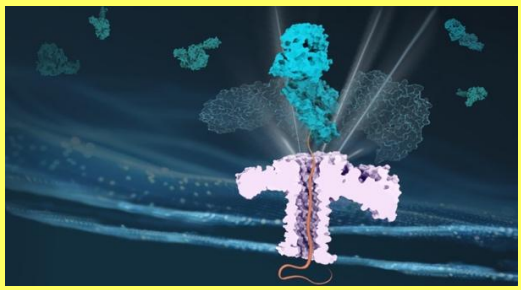
The nanopore technique is an electrophoretic approach that can identify a single molecule as they pass through a nanometer-scale pore. By measuring the ionic current changes induced by the target molecule, various chemical and physical properties - such as size, mass, composition, structure, sequence and conformation - can be obtained.

This technique has become a powerful tool for single-molecule analysis in many fields, including metal ion detection, single-molecule chemistry, polymer size discrimination, nucleic acid sequencing, and protein/peptide/glycan analysis. In this presentation, I will first discuss our work on optimizing the structure of biological nanopores to improve sensing resolution. Next, I will highlight applications of engineered nanopores in molecular sensing and sequencing, including decoding digital information stored in macromolecules and detecting biomarkers for neurodegenerative diseases. Finally, I will demonstrate how we leverage this method to explore fundamental biophysical questions.



Cette conférence sera précédée par l'assemblée générale :

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