

EINLADUNG

zum Vortrag
von

Prof. Dr. Stefan Howorka

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Hand-held DNA-sequencing and biosensing with nanopores

am

Dienstag, 29. Oktober 2019, um 17:30 Uhr

Ort: Lise-Meitner-Hörsaal, Fakultät für Physik, Universität Wien,
1090 Wien, Strudlhofgasse 4 / Boltzmannngasse 5, 1. Stock

Barrierefreier Zugang: Boltzmannngasse 5, Lift, 1. Stock rechts über den Gang zum Hintereingang des Hörsaals

Abstract

Portable DNA sequencing and biosensing can advance research, bedside-diagnostics, and homeland security. I describe how label-free sensing is achieved with atom-scale designed membrane nanopores. In this strategy, nanopores act as electronic sensors that detect when individual molecules pass the pores' nanoscale hole. The temporary blockages cause changes in ionic pore current. The approach has helped pioneer portable DNA sequencing with protein pores⁽¹⁾ to discriminate individual bases. More recently, synthetic pores have been built by folding DNA strands into defined channels⁽²⁾. The DNA nanopores are relevant as they overcome the narrow size range of protein pores and thereby accommodate folded protein analytes. The DNA nanostructures are also easier to rationally design than proteins⁽³⁾ and thereby enable new applications, also in synthetic biology⁽⁴⁾.

(1) *Nature* 2014 516 250;

(2) *Nat. Nanotechnol.* 2016 11 152;

(3) *Nat. Nanotechnol.* 2017 12 619;

(4) *Science* 2016 352 890; *Nat. Chem.* 2017 9 611;

Kaffee und Getränke werden bereitgestellt

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