



Guest Lecture

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Nano-NMR based flow meter

Friday, February 22, 2019, 09:15

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Microfluidic channels are now a well established platform for many purposes, including bio-medical research and Lab on a Chip applications. Yet, the nature of flow within these channels is still uncertain. There have been prior evidence that the mean drift velocity in these channels deviates from the regular Navier-Stokes solution with 'no slip' boundary conditions. On top of the fundamental fluid mechanics interest, understanding these effects, is also of practical importance for the future development of microfluidic and nanofluidic infrastructure.

In this talk I will introduce a theoretical proposal which is based on a nano-NMR setup for measuring the mean drift velocity near the surface of a microfluidic channel in a non intrusive fashion. I will discuss different possible protocols, and provide a detailed analysis of the measurement's sensitivity in each case. This scheme out-performs current fluorescence based techniques.



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