

GAS FLOWS IN FLUIDIC MICROSYSTEMS: FROM THEORY TO APPLICATIONS

Microfluidics is a relatively recent field of research that has significantly grown during the last decades. Although it was initially focused mainly on liquids microflows, the applications of gaseous microflows are nowadays of high importance.

Internal gas flows can be rarefied either by decreasing pressure or by reducing the characteristic dimensions of the flow, as is the case inside fluidic microsystems. These rarefied flows present particularities, such as the thermal transpiration phenomenon that can be exploited to generate flows by means of a simple temperature gradient.

Following an introduction on the impact and the market of microfluidics, the presentation will focus on the case of gaseous microflows. The first part will be devoted to the main applications of gaseous microfluidics and introduce the theoretical particularities of gas microflows. The second part will present the experimental challenges, as well as the current fabrication capabilities, illustrated by the case of a specific appealing fluidic microsystem: the Knudsen micropump, able to generate a flow without any pressure gradient nor mechanical moving part.



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12:00H

CFMAC Confence Hall (Serrano 121) - Free entry

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