

Special Issue

Gas Flows in Microsystems, Volume II

Message from the Guest Editors

The last decades have witnessed a rapid development of micro-electro-mechanical systems (MEMS) involving gas microflows in various fields: micro heat exchangers for chemical applications or electronic components cooling, fluidic micro-actuators for active flow control purposes, micronozzles for propulsion of nano and picosats, micro gas analysers or separators, vacuum generators and Knudsen micropumps, etc. These flows are rarefied due to the small MEMS sizes and the rarefaction can be increased by low pressure conditions. The flows relate to the slip flow, transition or free molecular regimes, and can involve monatomic or polyatomic gas. Heat and mass transfer are strongly impacted by rarefaction effects and temperature driven microflows offer new opportunities for designing original MEMS for gas pumping or separation. Accordingly, this Special Issue seeks to showcase research papers, short communications, or review articles that focus on novel theoretical models or numerical data, and on new experimental developments, for improving knowledge on gas microflows. Papers dealing with the development of original gas MEMS are also welcome.

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