

Abstract Submitted  
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**Chemotaxis in Microfluidic Devices: What does a cell see?**

CARSTEN BETA, TONI FROEHLICH, GABRIEL AMSELEM, EBERHARD BODENSCHATZ, MPI for Dynamics and Self-Organization, Goettingen — The use of microfluidic devices is increasingly popular in the study of chemotaxis due to the exceptional control of the flow field and the concentration profiles on the length scale of individual cells. One aspect often forgotten is that the cells are attached to the inner surfaces of the microfluidic channel. The flow field is perturbed and distorted as the fluid is flowing around/over the cells. Depending on the flow speed and dynamics (steady flow - increasing flow - decreasing flow) the cell membrane is not exposed to the “nominal” concentration profiles, but may see a very different signal. The underlying physics will be discussed and “optimal” flow conditions will be identified.

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