

Using TIRM to study cell membranes

Laurent Helden¹

¹ *2. Physikalisches Institut, Universität Stuttgart, Pfaffenwaldring 57, 70550 Stuttgart, Germany*

In this project I plan to use the technique of total internal reflection microscopy (TIRM) which is established to measure interactions between colloidal particles and a plane glass substrate to study a) the interactions of (functionalized) colloidal particles with the cell membrane and b) fluctuations of the cell membrane by tracking the motion of particles attached to the cell.

The proposed technique should allow a) to get insight into the dynamics of particles binding to a cell membrane and b) enable to analyze the fluctuation spectra of the cell membrane itself. The latter allow conclusions on the (visco-) elastic properties of the cells by an analysis of the power spectrum.

Due to their flat geometry endothelial cells seem to be a promising starting point for experiments.