

BIOSS Pathway Assembler: Determining the diffusion constant of fluorophores

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Abstract:

We present an experimental and computational approach to determine the diffusion constant of fluorophores using a standard widefield fluorescence microscopy setup. Micro-droplets of fluorophores are injected into a micro-confinement. Low Reynolds-number ensures diffusion to be the dominant transport effect. Simulations of the diffusion kinetics are performed based on Fick's law. In order to obtain quantitative results, the microscope's optics is included into the simulation in terms of the point-spread-function.