

Active matter in complex media

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1. Introduction

The microalga *Chlamydomonas Reinhardtii* is used here as a model microswimmer to study the effect of complex environments on its swimming. Its motion can be modeled by a persistent random walk where we can extract an analogous diffusion coefficient. In our experiments, we model a complex medium by a series of microfabricated pillars. Their diffusivity is analysed by means of particle tracking. Relevant statistical observables allowed us to quantify the bias involved by the presence of pillars as a function of pillars density. Particularly, as the interpillar-distance is shortened, the mean correlation time of direction gets shorter, so does the diffusion coefficient. This provides the first bases of understanding on active matter in complex environments.