

Microrheology of Complex Fluids

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Abstract:

An overview will be given of some of the microrheology research performed in my group at the University of Manchester [1,2]. Specifically I will discuss the techniques of particle tracking microrheology, optical coherence tomography picorheology and optical coherence tomography velocimetry [3]. The methods will be illustrated with examples from inside cells (amoeba) [4], bacterial biofilms [5], shear banding complex fluids [6] (polymers and colloids) and comb polyelectrolytes (mucins [7], aggrecan [8] and polystyrene sulphonate [9]). I will also briefly consider two alternative techniques of particle tracking data analysis applied to vesicle transport in live cells; angular correlations [10] and first passage probabilities [11, 12].

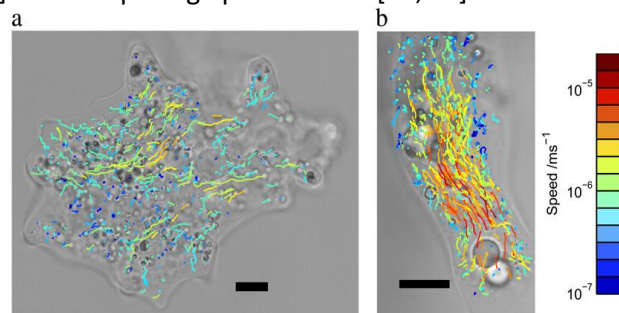


Figure 1. The motion of two amoeba cells (a and b) followed using high speed particle tracking [4].

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