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Motility in multicomponent fluids¹ ROBERT MAGERLE, STEPHAN WEISS, NICOLAUS REHSE, Technische Universitaet Chemnitz — During annealing in air thin films of polystyrene-block-polypropylene and similar block copolymers decompose and form a phase separating multi-component polymeric fluid where domains coarsen similar as in a binary mixture. At a certain threshold of domain size, two domains form a droplet which starts to move spontaneously across the surface. We show that a chemical reaction with oxygen is required for this motion for which we have determined the effective activation energy. We discuss a model for droplet motion and speculate about the relevance of the underlying physics for the motility of biological cells and their ultra-cellular compartments.

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