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Watching Mobility Engendered by Actin Polymerization AH-YOUNG JEE, STEVE GRANICK, TSVI TLUSTY, Institute for Basic Science — We have been investigating hydrodynamic flows engendered in molecular systems by active motion. In fact, active directed motion is ubiquitous as a transport mechanism within cells and other systems, sometimes by the action of molecular motors as they move along cytoskeletal filaments, sometimes by the polymerization and depolymerization of filament themselves. To probe this situation, we have employed fluorescence correlation spectroscopy (FCS) in the STED mode (stimulation emission-depletion), this super-resolution approach allowing us to investigate molecular mobility as averaged over a spectrum of space scales: from areas of the optical diffraction limit or larger, to regions as small as 30 40 nm. This comparison of FCS-STED measurements when the projected area investigated varies by a factor of ¿10, reveals remarkable scale dependence of the mobility that we infer.

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