

Abstract Submitted  
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**Force generated by polymerization of actin filaments: an entropic role?** JEAN BAUDRY, CORALINE BRANGBOUR, OLIVIA DU ROURE, EMMANUÈLE HELFER, MARC FERMIGIER, PAUL M. CHAIKIN, MARIE-FRANCE CARLIER, JEROME BIBETTE, LCMD, ESPCI TEAM, PMMH, ESPCI TEAM, LEBS, CNRS TEAM, NYU PHYSICS TEAM — Actin polymerization drives protrusions at the cell surface and leads to cell motility. Using magnetic colloids, we measure how the chemical reaction of polymerization generates mechanical forces. Rapid force- distance measurement gives us access to the filaments organization between colloids, whereas long experiments at constant forces give the force-velocity relation of growing actin filaments. A simple model based on entropic forces seems to explain our observations.

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