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Tuneable Rheological Properties of Fluorinated Pickering Emulsions LAURA ANDREINA CHACON ORELLANA, CNRS, Univ. Bordeaux, CRPP, UPR 8641, 33600 Pessac, France, BIRTE RIECHERS, Max Plank Institute for Dynamics and Self-organization, Am Fassberg 17, D-37077 Goettingen, Germany, OURIEL CAEN, Univ. Paris Sorbonne Cite, INSERM UMR-S775, 75270 Paris Cedex, France, JEAN-CHRISTOPHE BARET, CNRS, Univ. Bordeaux, CRPP, UPR 8641, 33600 Pessac, France — Pickering emulsions are an appealing approach to stabilize liquid-liquid dispersions without surfactants. Recently, amphiphilic silica nanoparticles have been proposed as an alternative to surfactants for droplet microfluidics applications, where aqueous drops are stabilized in fluorinated oils [1]. This system, proved to be effective in preventing the leakage of resorufin, a model dye that was known to leak in surfactant-stabilized drops[1][2]. The overall capabilities of droplet-based microfluidics technology is highly dependent on the dynamic properties of droplets, interfaces and emulsions[3]. Therefore, fluorinated pickering emulsions dynamic properties need to be characterized, understood and controlled to be used as a substitute of already broadly studied emulsions for droplet microfluidics applications. In this study, fluorinated pickering emulsions have been found to behave as a Herschel Bulkley fluid, representing a challenge for common microfluidic operations as re-injection and sorting of droplets. We found that this behavior is controlled by the interaction between the interfacial properties of the particle-laden interface and the bulk properties of the two phases. [1]M. Pan et al. ACS Appl. Mater 2014 [2]Y. Skhiri et al. Soft Matter 2012 [3]J.C. Baret, Lab Chip 2012

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