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Rheology of suspensions of vesicles and red blood cells. THOMAS PODGORSKI, Lab Spectrometrie Physique, CNRS/UJF Grenoble, France, VICTORIA VITKOVA, ISSP, Bulgarian Academy of Science, Sofia, Bulgaria, MAUD-ALIX MADER[1], Lab Spectrometrie Physique, CNRS/UJF Grenoble, France, BENOIT POLACK, TIMC, CHU Grenoble, France, CHAOUQI MISBAH, Lab Spectrometrie Physique, CNRS/UJF Grenoble, France — We investigate the rheology of dilute suspensions of lipid vesicles and red blood cells (RBC) as a function of the viscosity ratio between the internal and external fluids. Experiments on RBC and vesicles, as well as the result of theoretical investigations on vesicles exhibit a minimum of the intrinsic viscosity when the viscosity ratio is close to the value at which at the miscoscopic scale, a transition from tank-treading to tumbling occurs for individual objects in simple shear flow. This reveals a qualitative change due to the link between microscopic and macroscopic dynamics.

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