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# Advances and Challenges in the Rheology of Concentrated Emulsions and Nanoemulsions

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**Abstract**

We review advances made in the rheology of concentrated emulsions and nanoemulsions, which can serve as model soft materials that have highly tunable viscoelastic properties near the jamming point. Droplet interfacial and positional structures are shown to influence emulsion rheological properties such as viscoelasticity, yielding, and flow behavior via presentation of recent experimentation and theoretical models. We emphasize studies of emulsions composed of monodisperse droplets since these have led to breakthroughs in fundamental understanding. In addition, we summarize experiments which demonstrate that emulsions can have material memory and rheological properties that depend on the applied flow history, since these can affect droplet interfacial and positional structures. We also cover the rheology of attractive emulsions, which can still have a dominant elasticity at droplet volume fractions far below jamming.