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Magnetorheological Shear Flow Near Jamming[1] DANIEL VÅGBERG, BRIAN TIGHE, TU Delft — Flow in magnetorheological (MR) fluids and systems near jamming both display hallmarks of complex fluid rheology, including yield stresses and shear thinning viscosities. They are also tunable, which means that both phenomena can be used as a switching mechanism in "smart" fluids, i.e. fluids where properties can be tuned rapidly and reversibly by changing external parameters. We use numerical simulations to investigate the rheological properties of MR fluids close to the jamming transition as a function of the applied field and volume fraction. We are especially interested in the crossover region where both phenomena are needed to describe the observed dynamics.

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