

Dense suspensions



Chocolate



Paint



Toothpaste

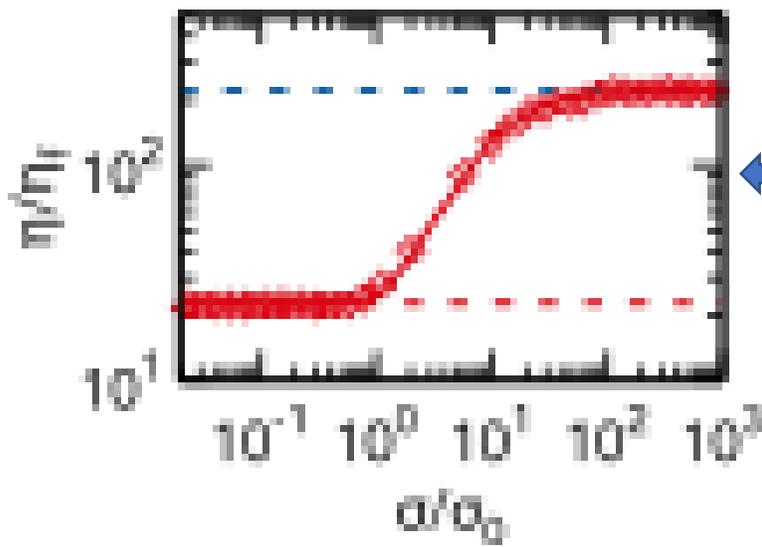
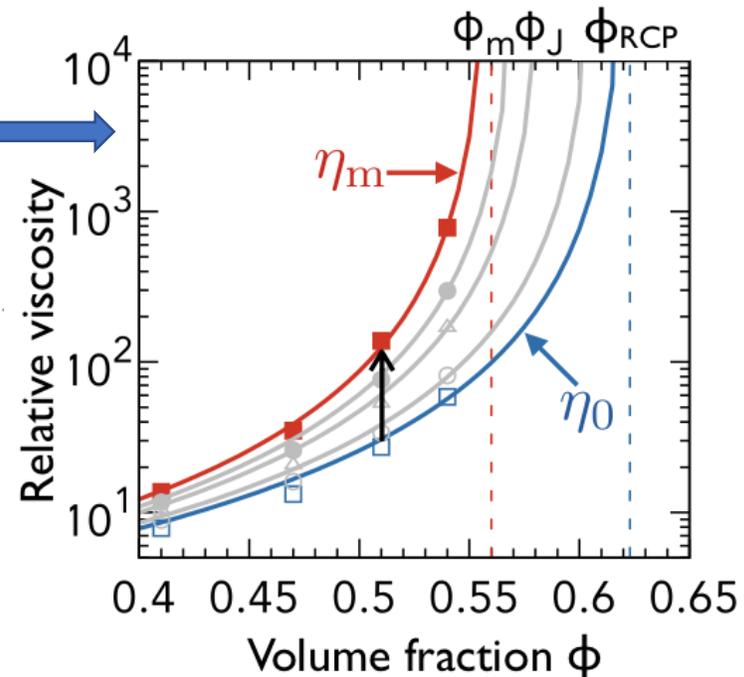
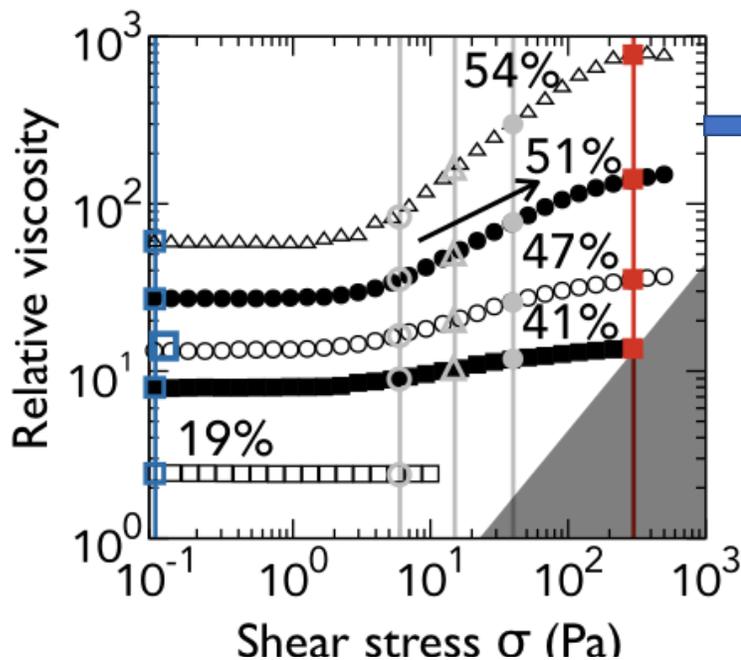


Cement



Drilling fluids

Shear thickening



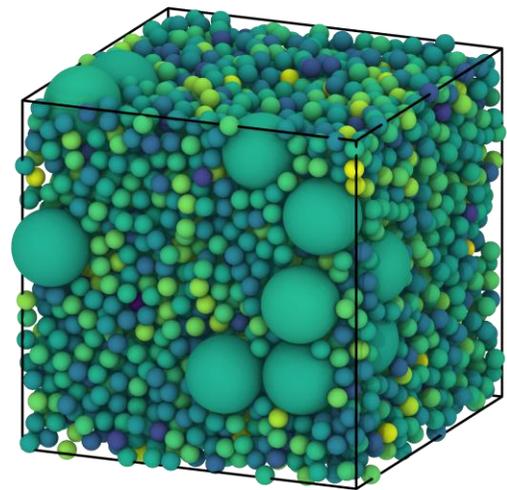
$$\eta/\eta_f = (1 - \phi/\phi_J)^{-2}$$

Wyart-Cates model

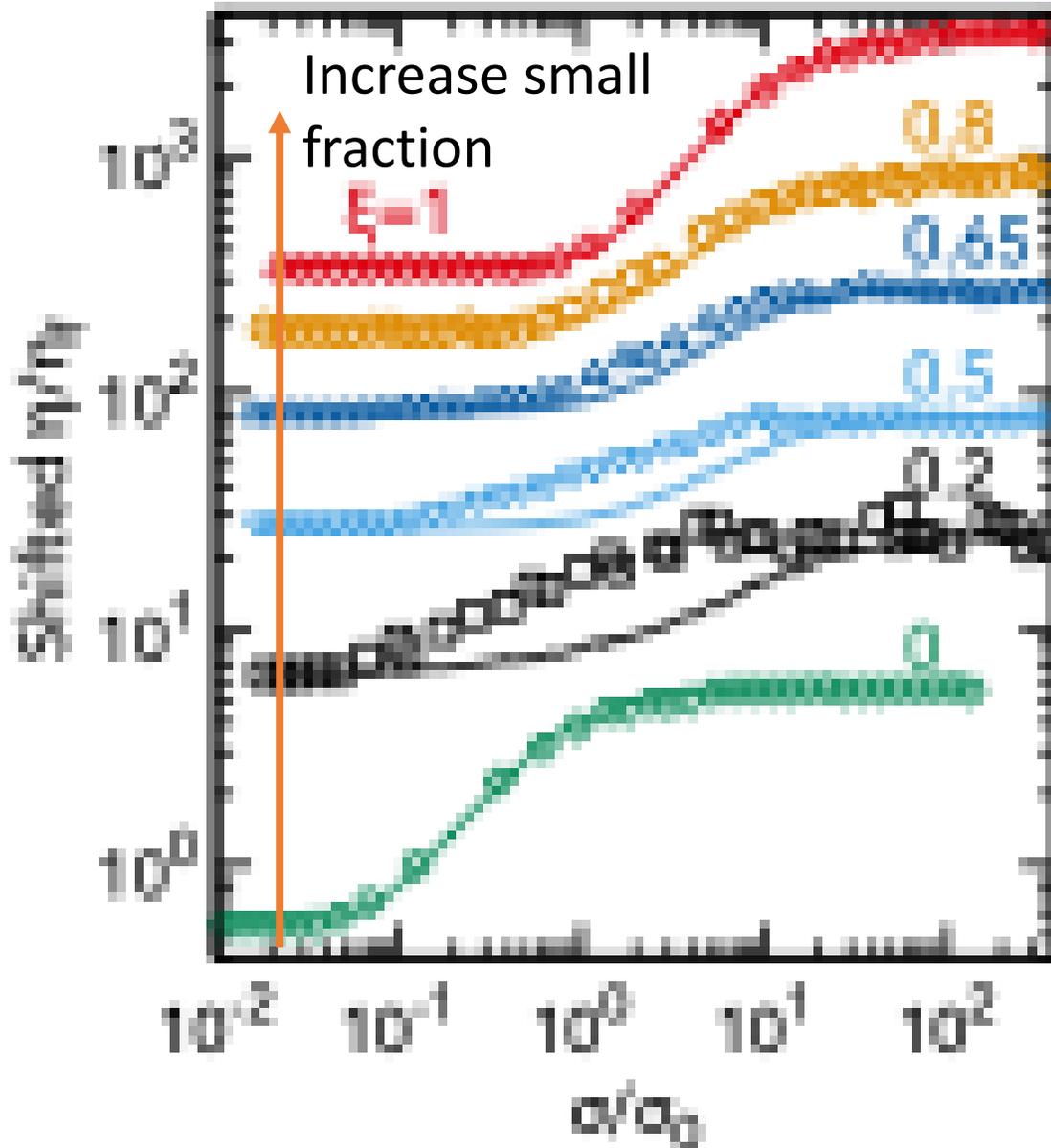
$$f_J^{WC} = ff_m + (1 - f)f_c$$

$f(\sigma)$: fraction of frictional contacts

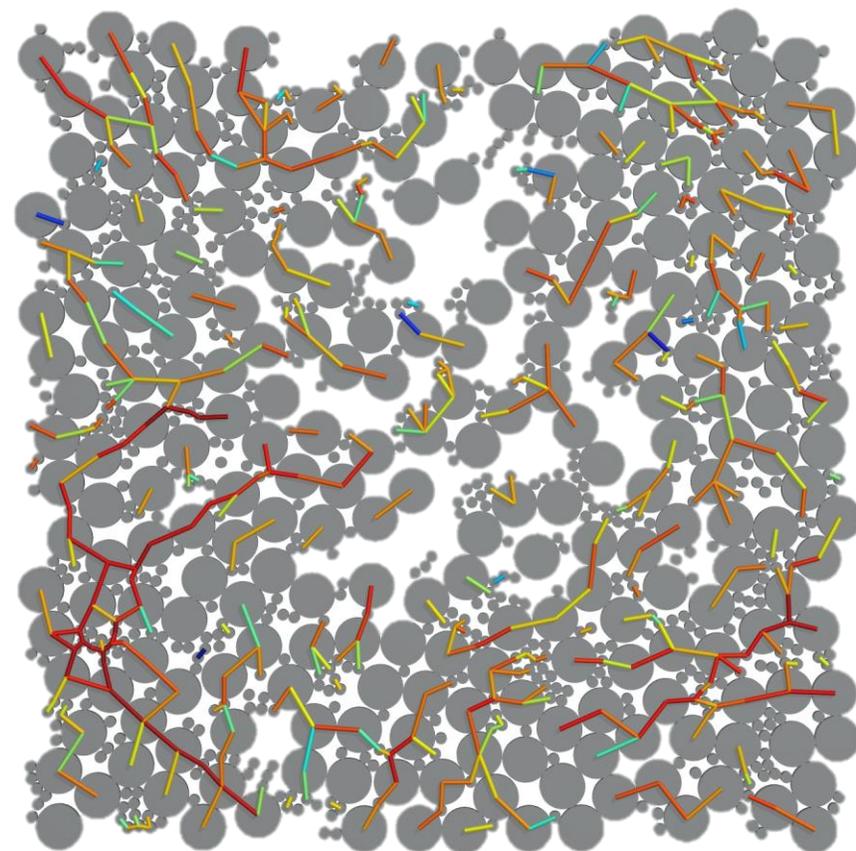
Mix big and small particles



Fix volume
fraction 0.53 and
small to large size
ratio 1:4



Cannot capture the
thickening transition



Big—big particle
contacts dominate the
force transmission