Supplementary Information for:

Temporal response of magnetically-labeled platelets under dynamic magnetic fields

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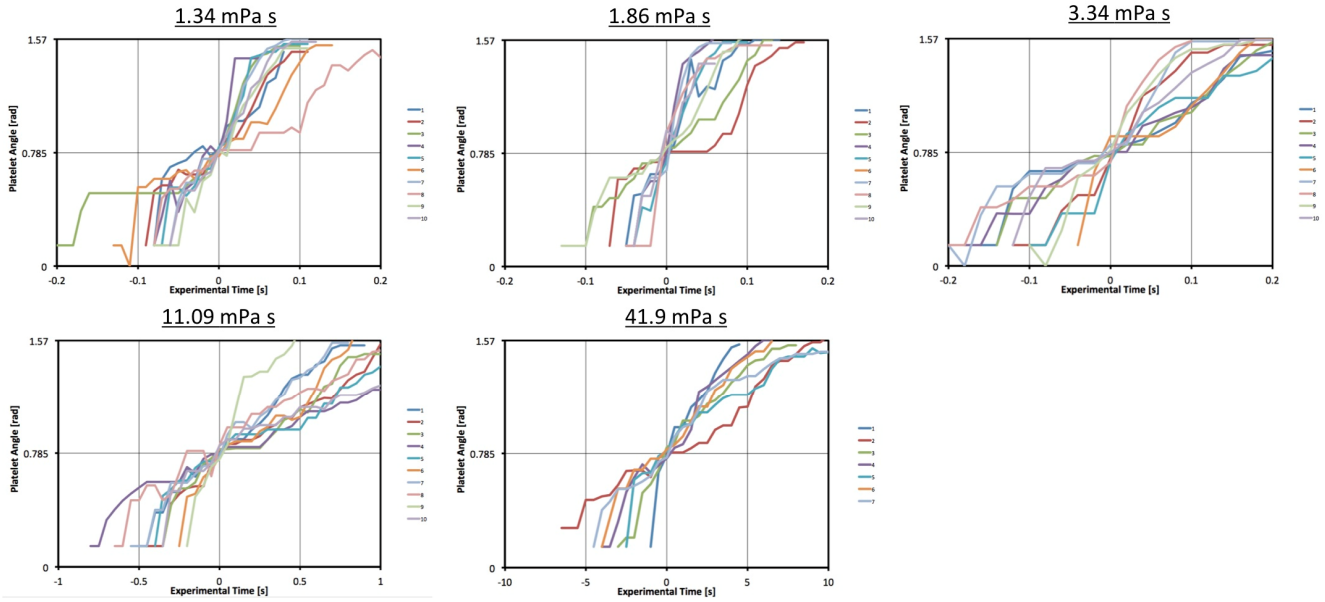
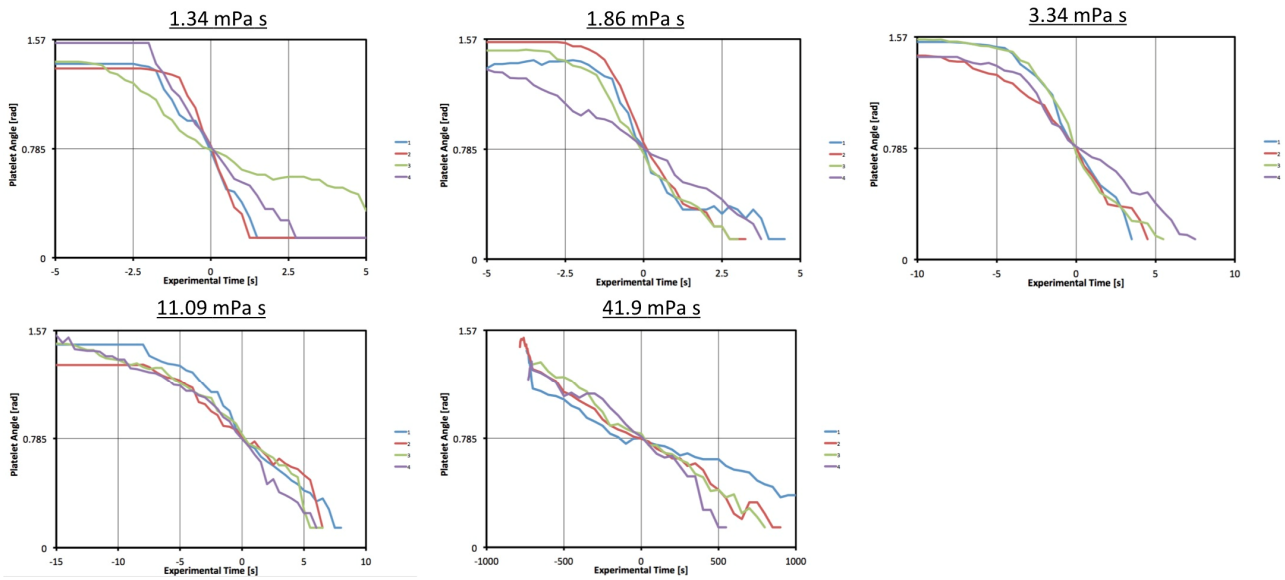
Variance in tracking of platelet angle across viscosities

For Figures 4, 5a, and 6a, in the main manuscript, a single representative experiment is used to report the dynamic response of a platelet at different viscosities. The variance in these systems is shown in Supplementary Figure 1 by the superposition of the dynamic responses of many observed platelets at each viscosity.

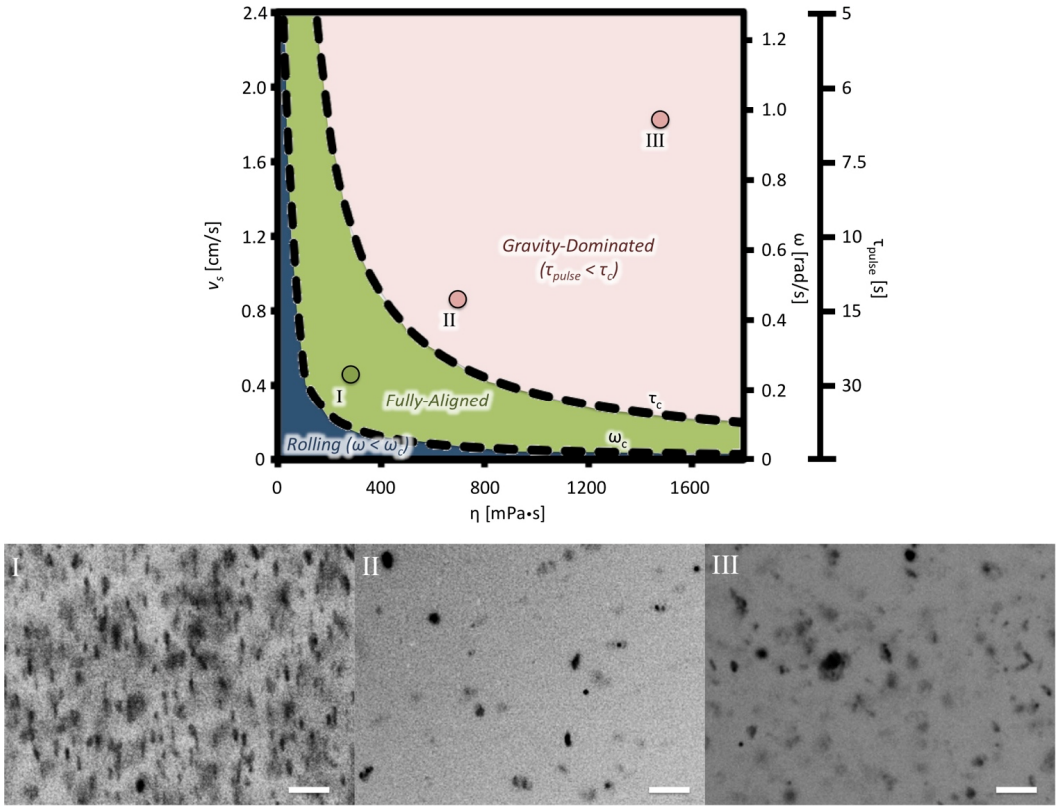


Supplementary Figure 1. Dynamic response of 10 µm platelets aligning with an out-of-plane magnetic field of 45 Oe. Plots of experimentally measured angles for many platelets tracked in different viscosities. Plots indicate that the dynamic response is similar from platelet to platelet. Alignment times vary greatly depending on viscosity, from 100 ms at 1.34 mPa s to 10 s at 41.9 mPa s.



Supplementary Figure 2. Dynamic response of 10 µm platelets aligning in-plane due to gravity. Plots of experimentally measured angles for many platelets tracked in different viscosities. Plots indicate that the dynamic response is similar from platelet to platelet. Sedimentation times vary greatly depending on viscosity, from 5 s at 1.34 mPa s to 1800 s at 41.9 mPa s.

Experimental Validation of Phase Diagram in Figure 11b



Supplementary Figure 3. Experimental validation of phase diagram for an external field of 100 Oe. Three regions were tested: Region I, (η=321 mPa s, v_s = 0.5 cm/s) Fully-Aligned; Region II, (η=657 mPa s, v_s = 0.9 cm/s) Gravity Dominated; Region III, (η=1560 mPa s, v_s = 1.8 cm/s) Gravity Dominated. The scale bar is 25 μm.