

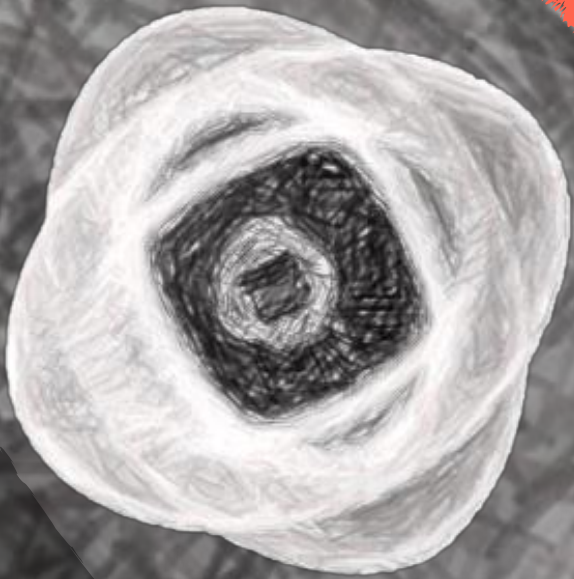
Lubricated Stars

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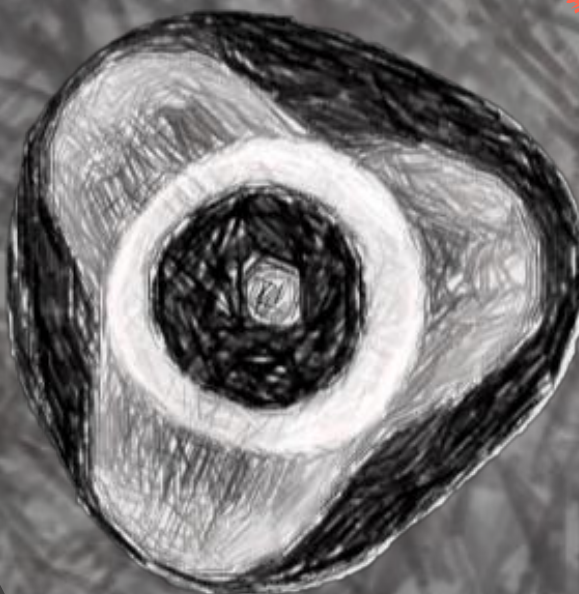


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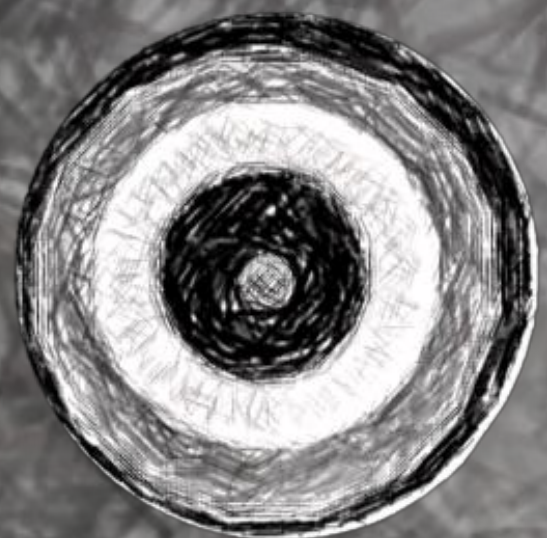
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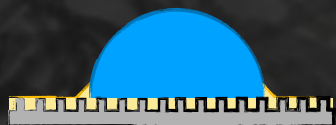
$\eta = 10 \text{ MPa}\cdot\text{s}$



$\eta = 100 \text{ MPa}\cdot\text{s}$



$\eta = 5000 \text{ MPa}\cdot\text{s}$



Schematic of a water drop on
a liquid-infused solid.

Here we see the different morphologies of a 250 microliter water drop placed on a vibrating liquid-infused solid, as they appear when viewed top-down. The frequency and amplitude are fixed at 22 Hz and 0.6 mm. These conditions do not generate stars on regular solids, which can be attributed to contact line pinning.

However, on infused solids, not only do stars emerge, the dissipation related to the viscosity of the subjacent oil allows us to control the nature of stars, characterized by the number of lobes - a quantity that can even be made to go to zero by increasing the viscosity.

References:

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