

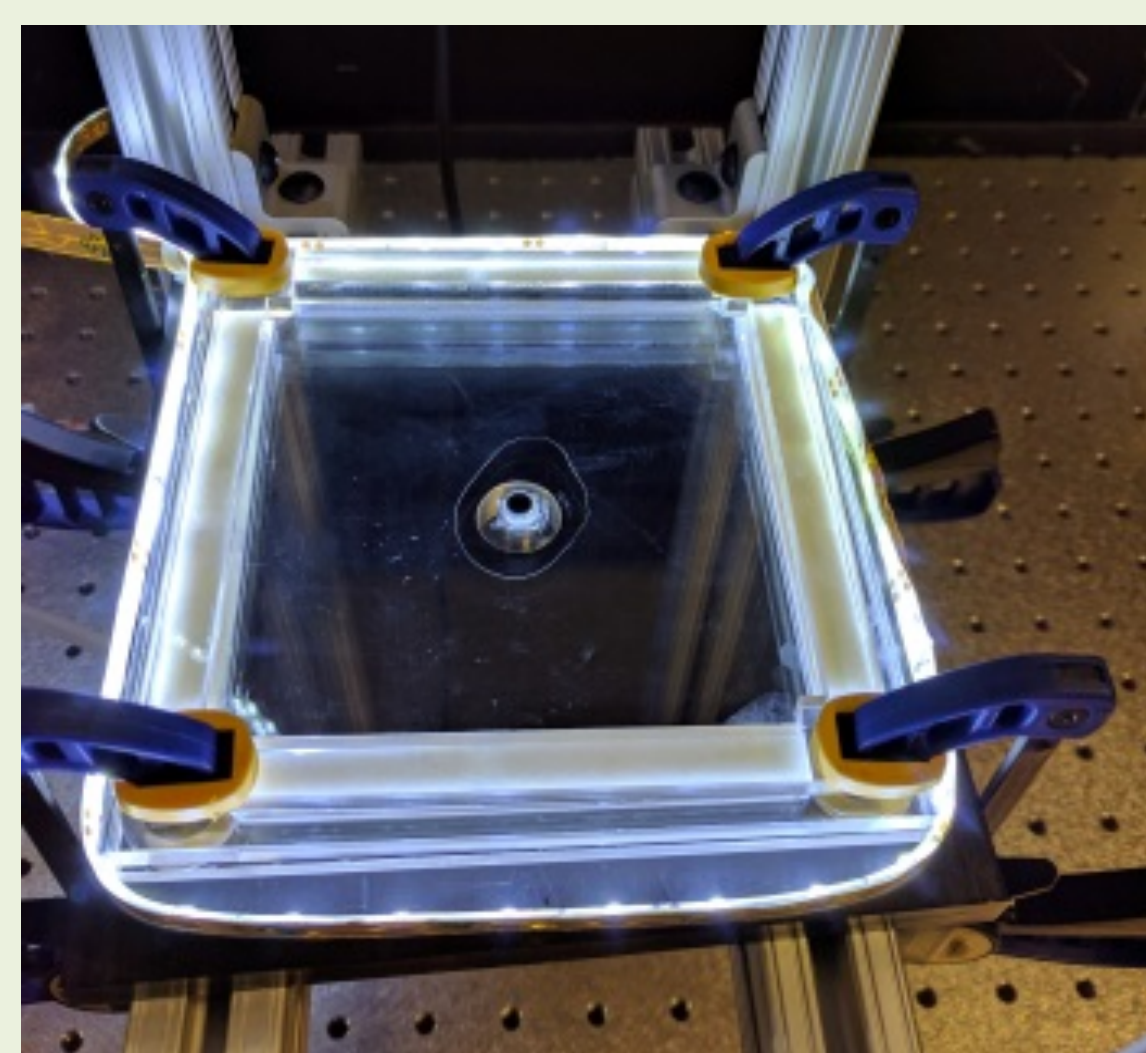
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## Contact Line:

- Cyclic driving from pump changes contact line shape minutely.
- Pictures are analyzed by number of pixels changed to check for "memory".



## The Apparatus:



- Two pieces of acrylic placed on top of each other create channel.
- LEDs wrap around edges
- Humidity controlled.
- Camera positioned above channel.

## Experiment Overview:

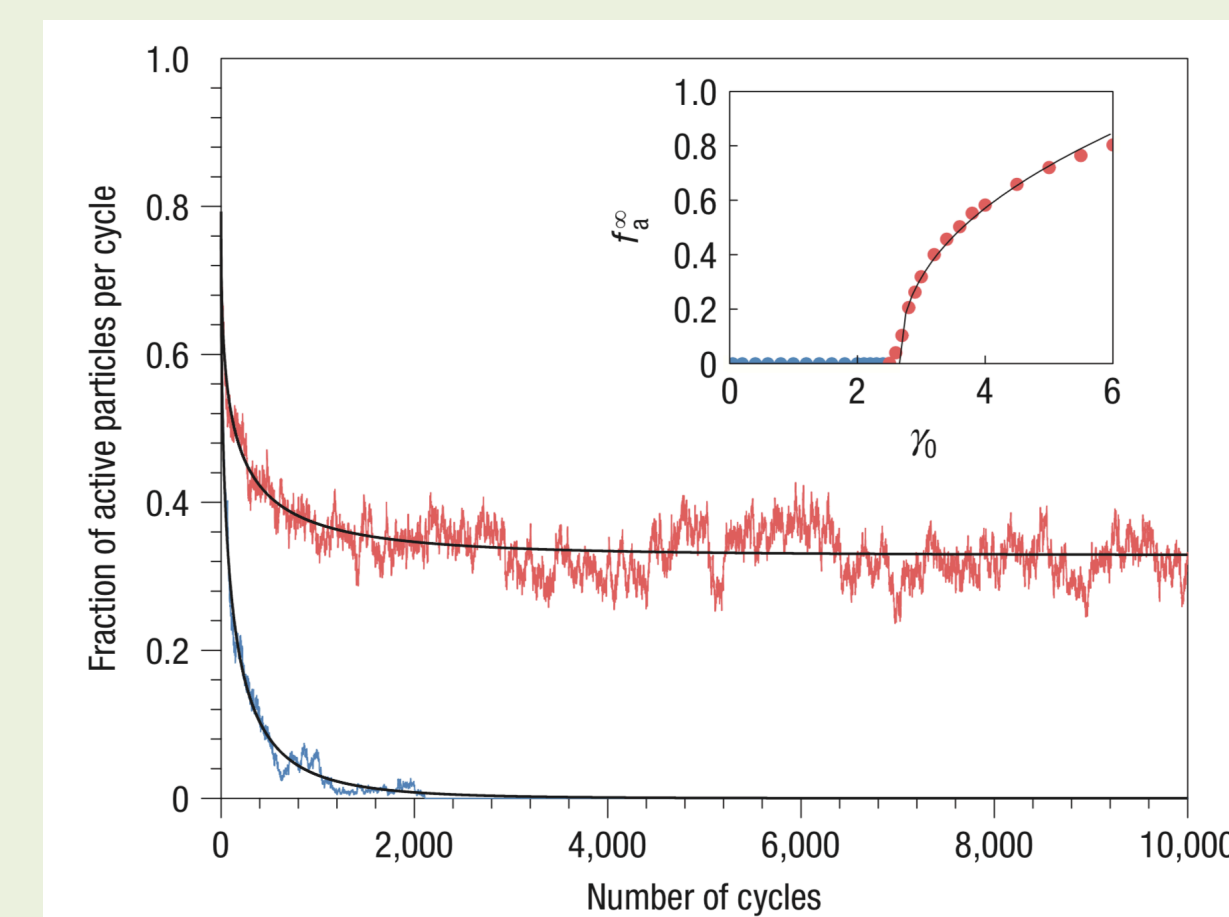
- Syringe pump used to infuse and withdraw water from channel.
- Experiments generally last 50 to 100 cycles.
- Photographs taken twice per cycle, at both extremes of the cycle.
- Use photos to study evolution of contact line by looking at the number of pixels changed

## Goal:

The plot to the right was created by shearing a 2-dimensional suspension of particles.

After enough cycles the particles will organize into positions where:

- They no longer collide with surrounding particles when sheared (blue curve), or
- They still collide with other particles, but less often (red curve)

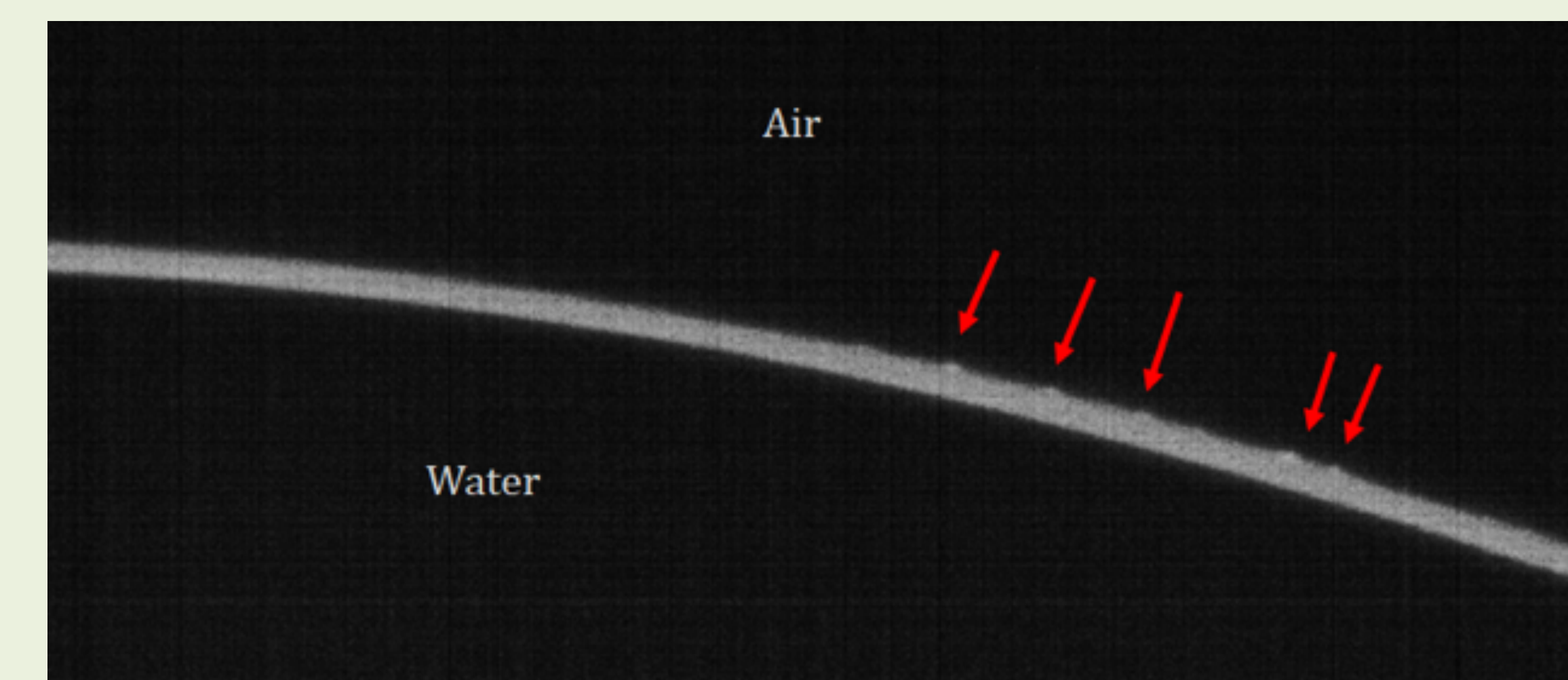


A plot of a sheared suspension of particles showing the fraction of particles colliding versus the cycle of shear. The inset is a plot of the active particles at the steady state versus the shear amplitude. (From Corté et al. [1])

We are investigating if there is a similar transition for the contact line.

## Jumps:

- Small part of Contact line "jumps" ahead
- What we know so far:
  - Faster infusion rate = fewer, but larger jumps
  - Slower infusion rate = more, but smaller jumps
  - At reversible state, jumps occur in same place



## Results:

Steady state transitions after a critical amplitude, but is dependent on:

- starting volume.
- infusion rate

We are looking into possible causes of this transition:

- Jumps in the contact line
- Residual liquid film

