

Hydrophobic Materials for Droplet Manipulation

Reshma Mopur- Lambert HS
Ayana Mehta - Dos Pueblos HS

Mentor: Alice Mo

Advisor: Dr. Luke Theogarajan, PhD
Dept: Bioengineering



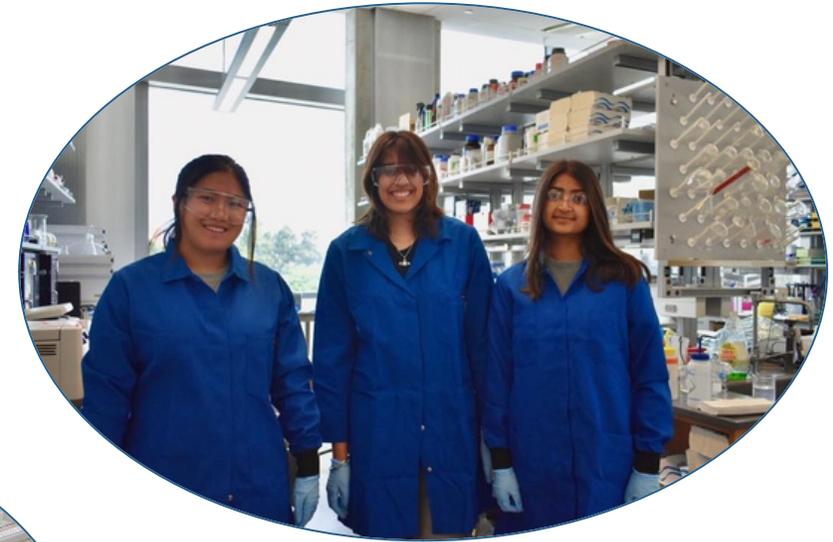
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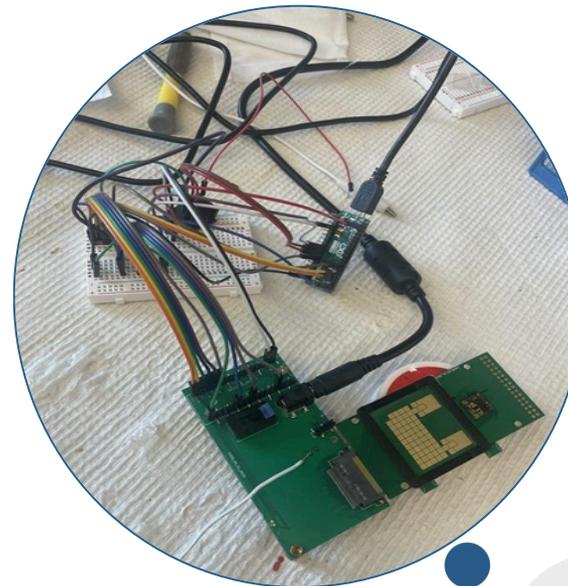
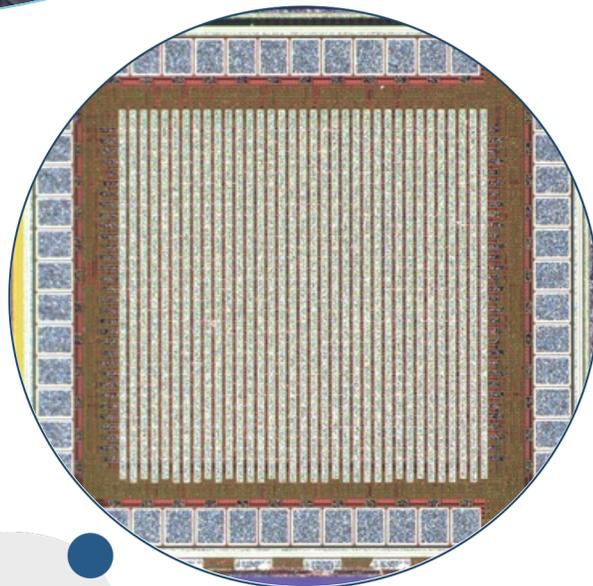
Theogarajan Lab



**Using hardware to
make computational
models easier to run**



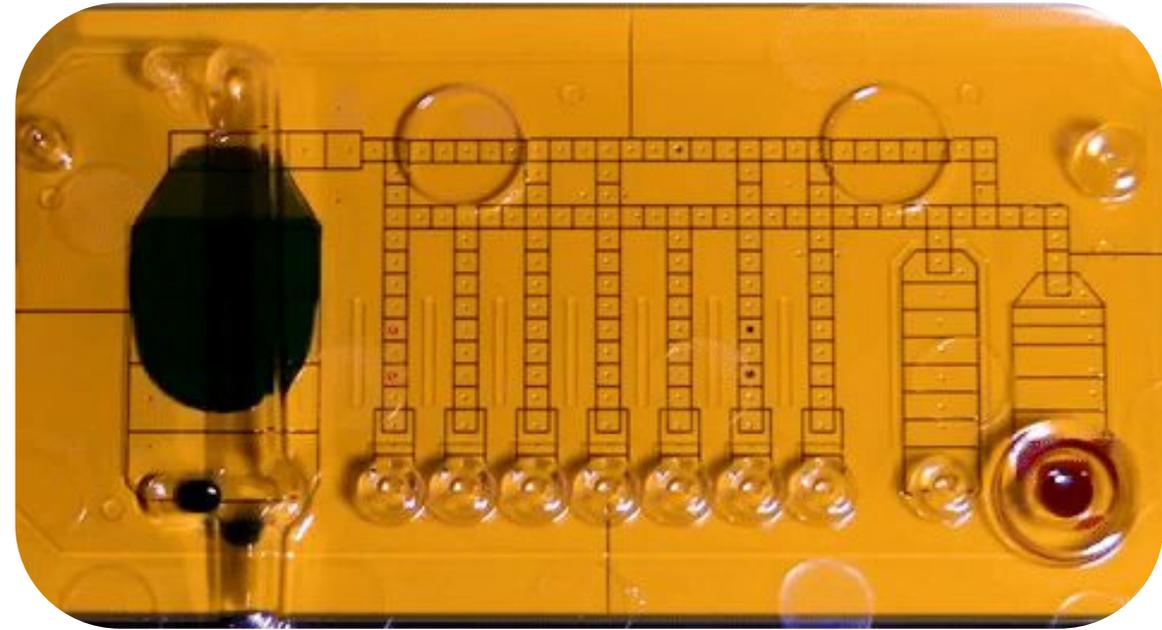
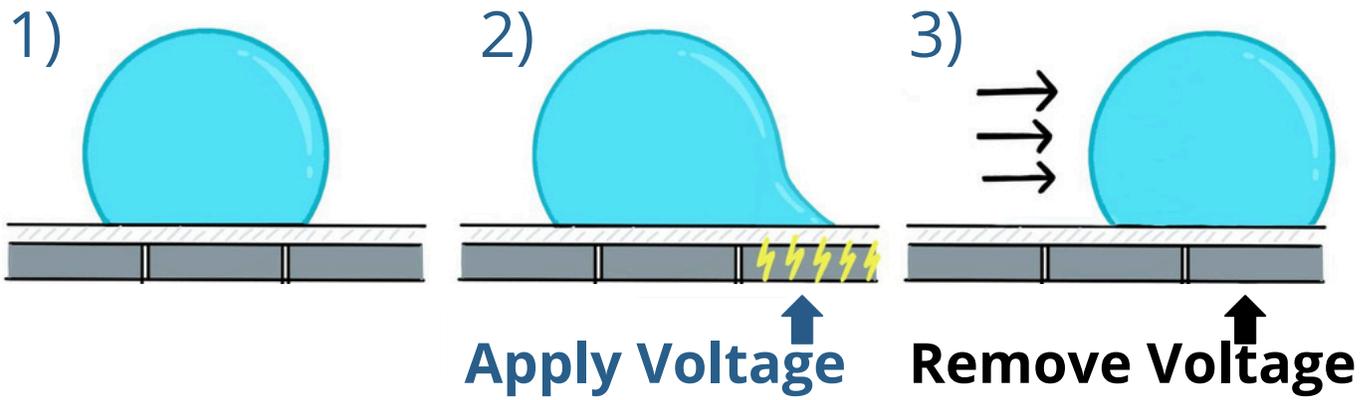
Optimization
Chip



Lab-on-a-Chip

Optimizing Electrowetting

Identifying the best materials for Lab-on-a-Chip



Source: Baebies inc.

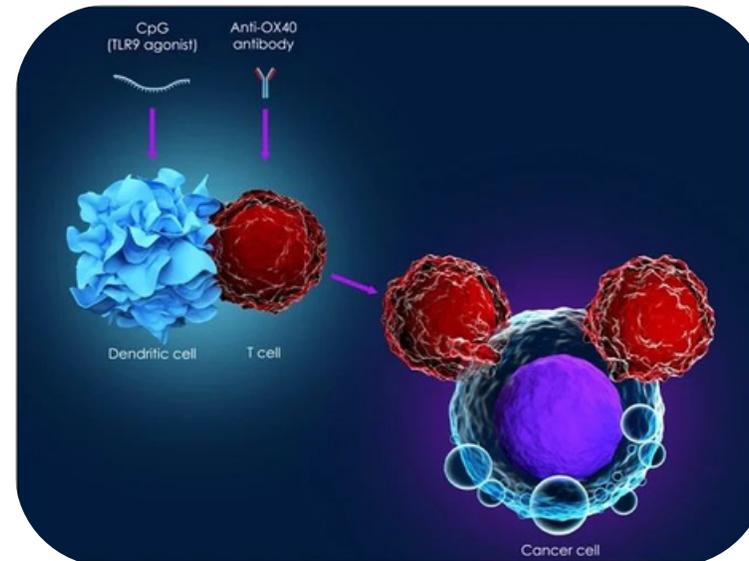
Applications of Microfluidic Chip

Source: Bioanalysis Zone



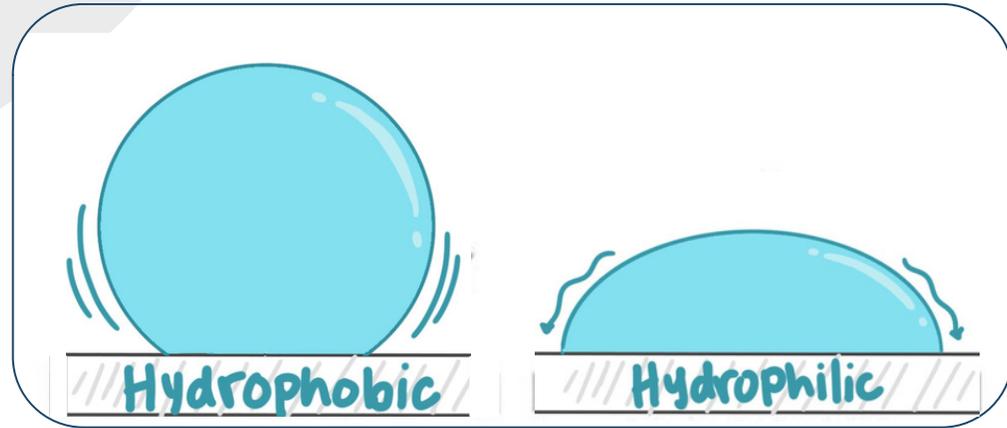
Advanced Chip

Source: News Medical



Immunotherapy

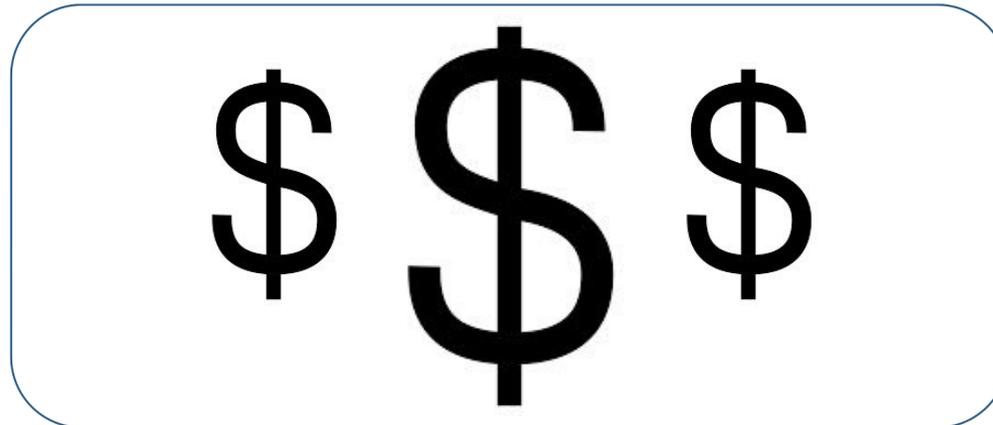
Identifying Dielectric Material



- Hydrophobic



- Less Voltage

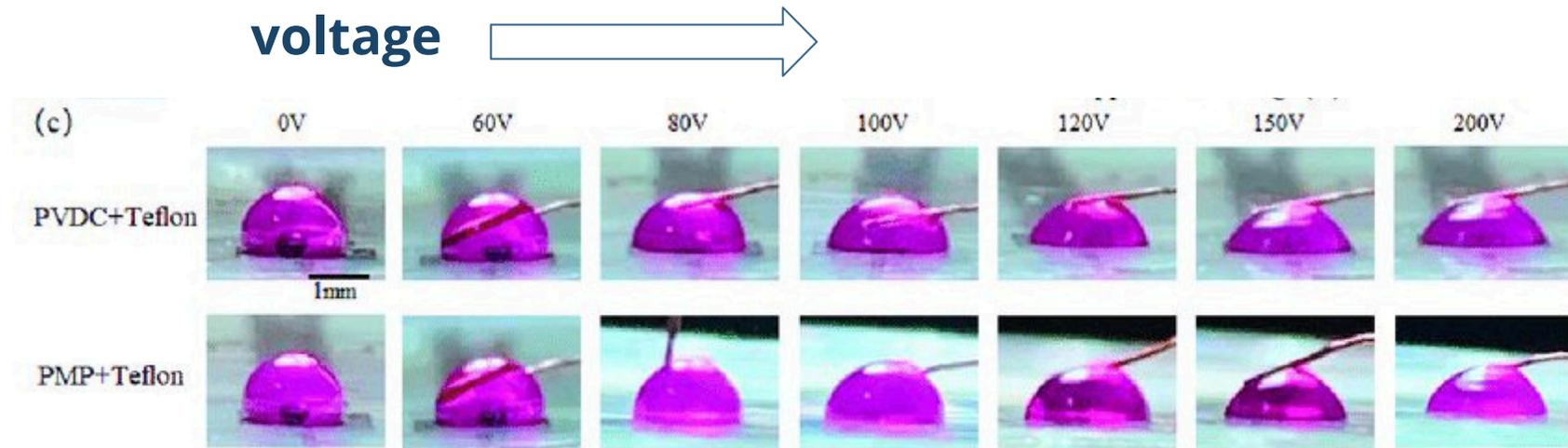


- Cost efficient

Science Behind Electrowetting



10 μ L : parafilm



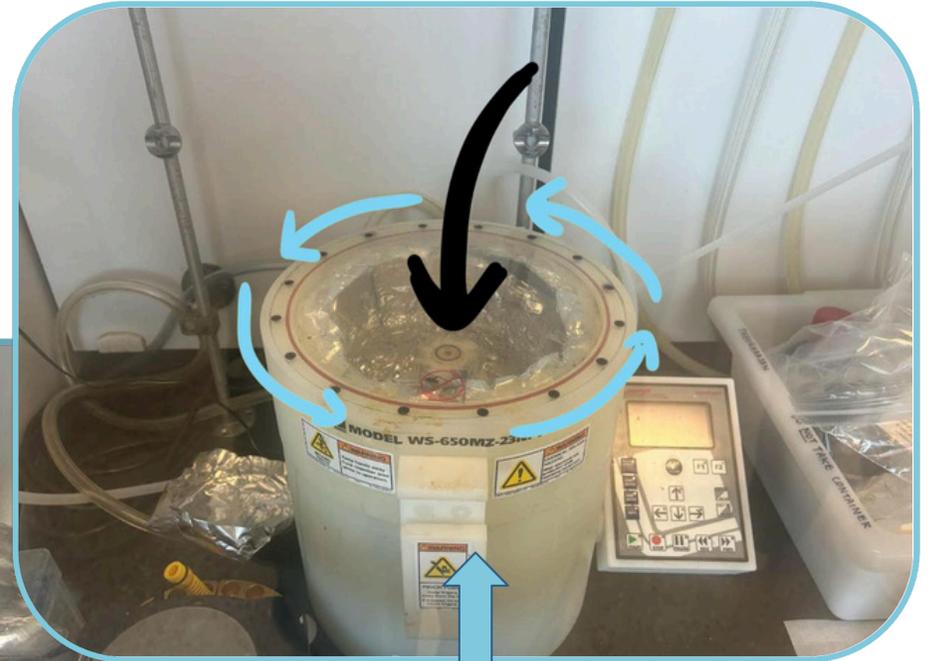
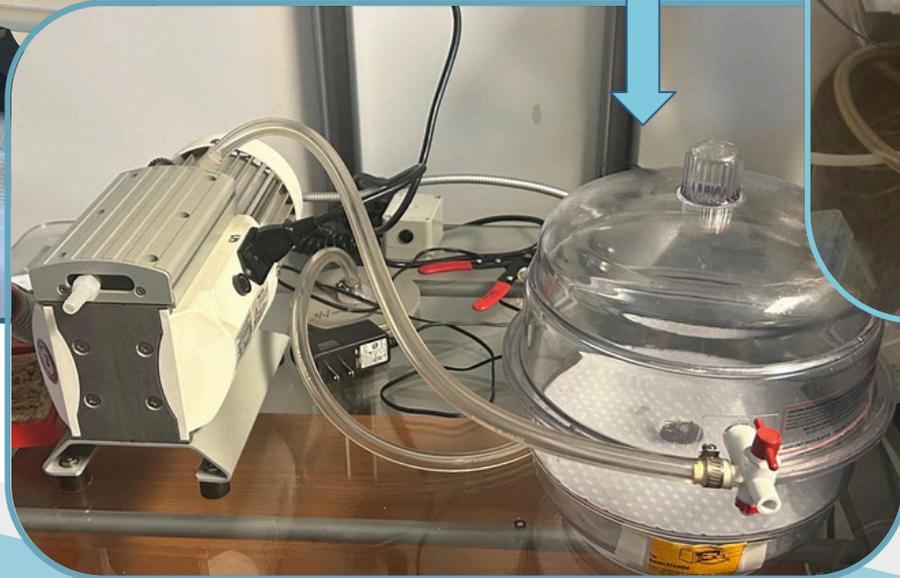
Wang & Ligu, 2020

Preparing Hydrophobic films



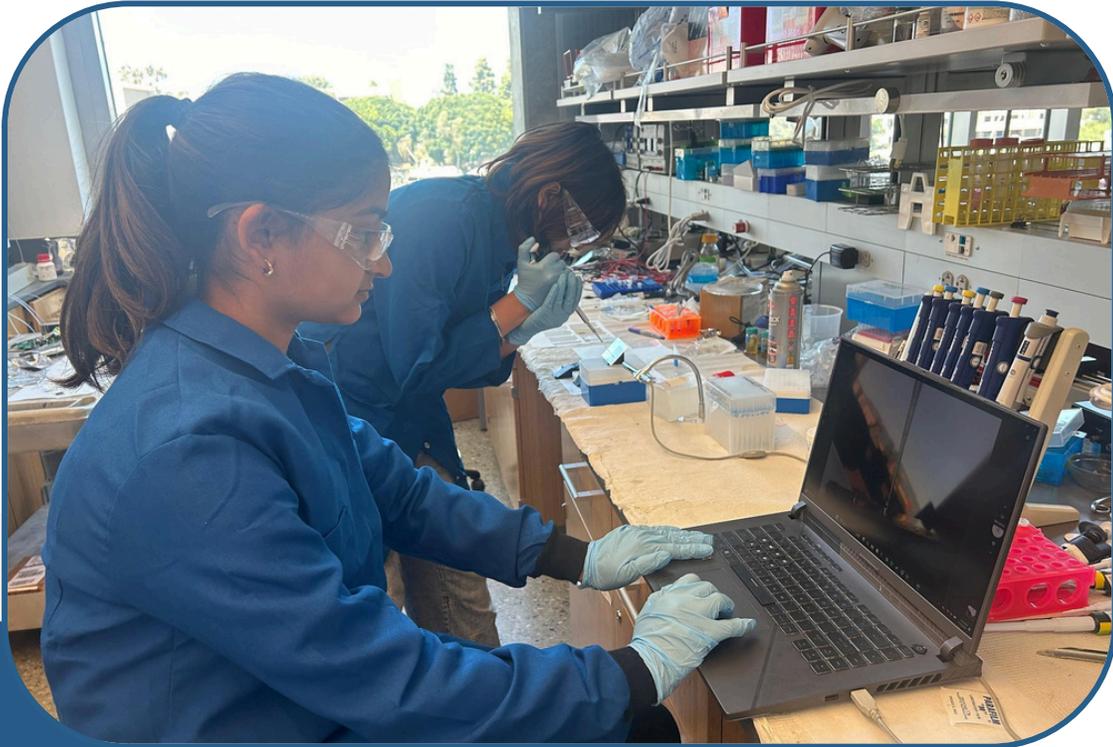
Scale

PDMS
Vacuum



Spinner

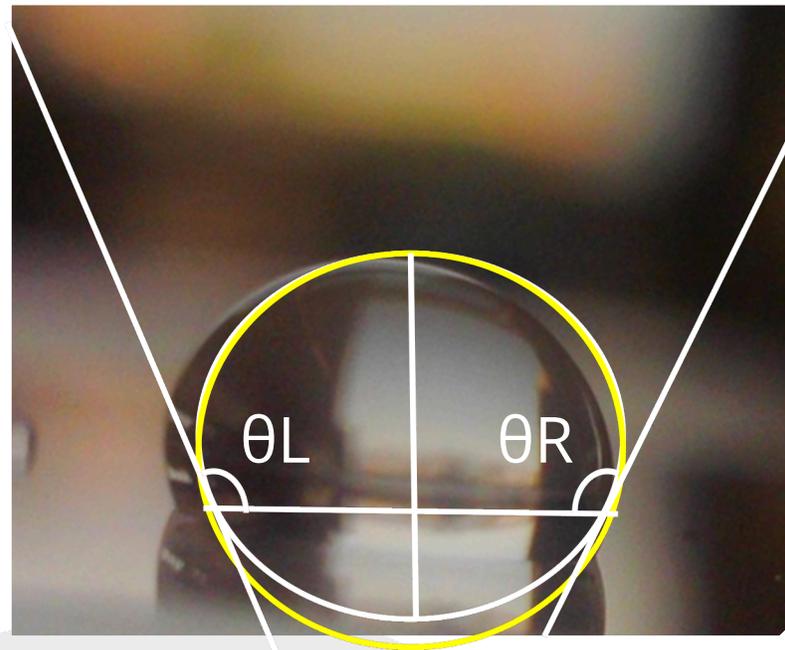
Capturing Contact Angles



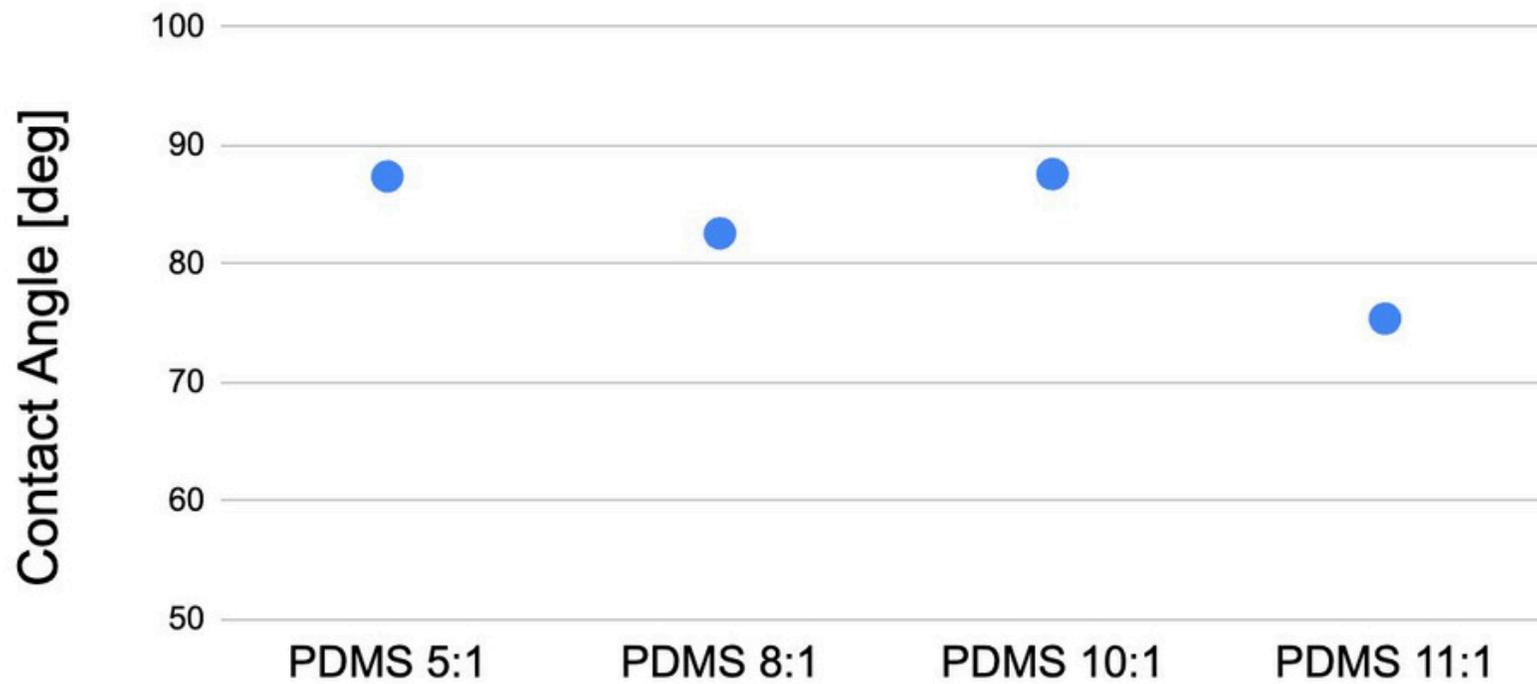
Contact Angle Measurement

fluro-flat-15

Theta C	Theta Left	Theta Right	Theta E
87.60000000	72	68.30000000	70.20000000

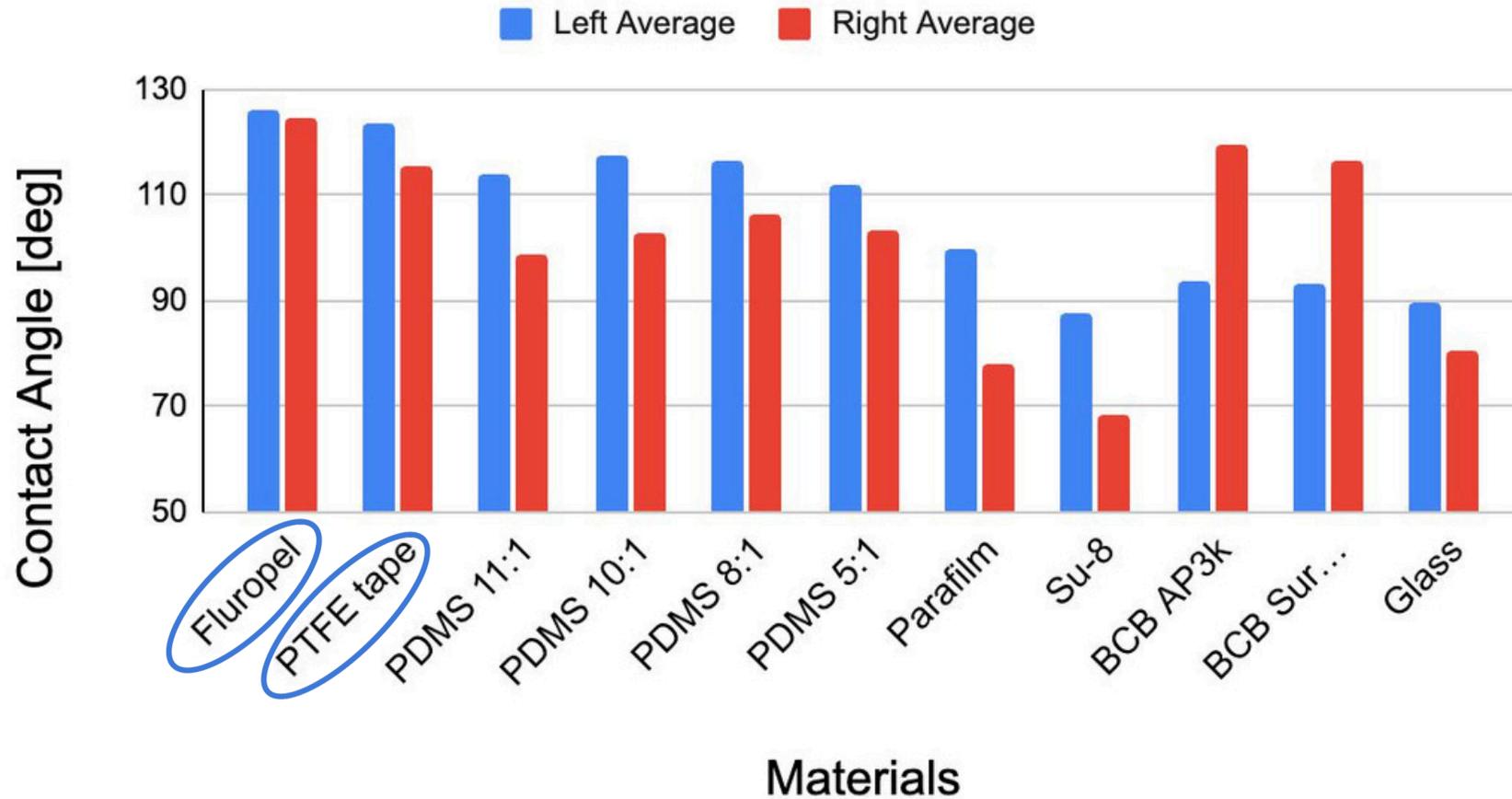


Cross Link to Polymer Ratio

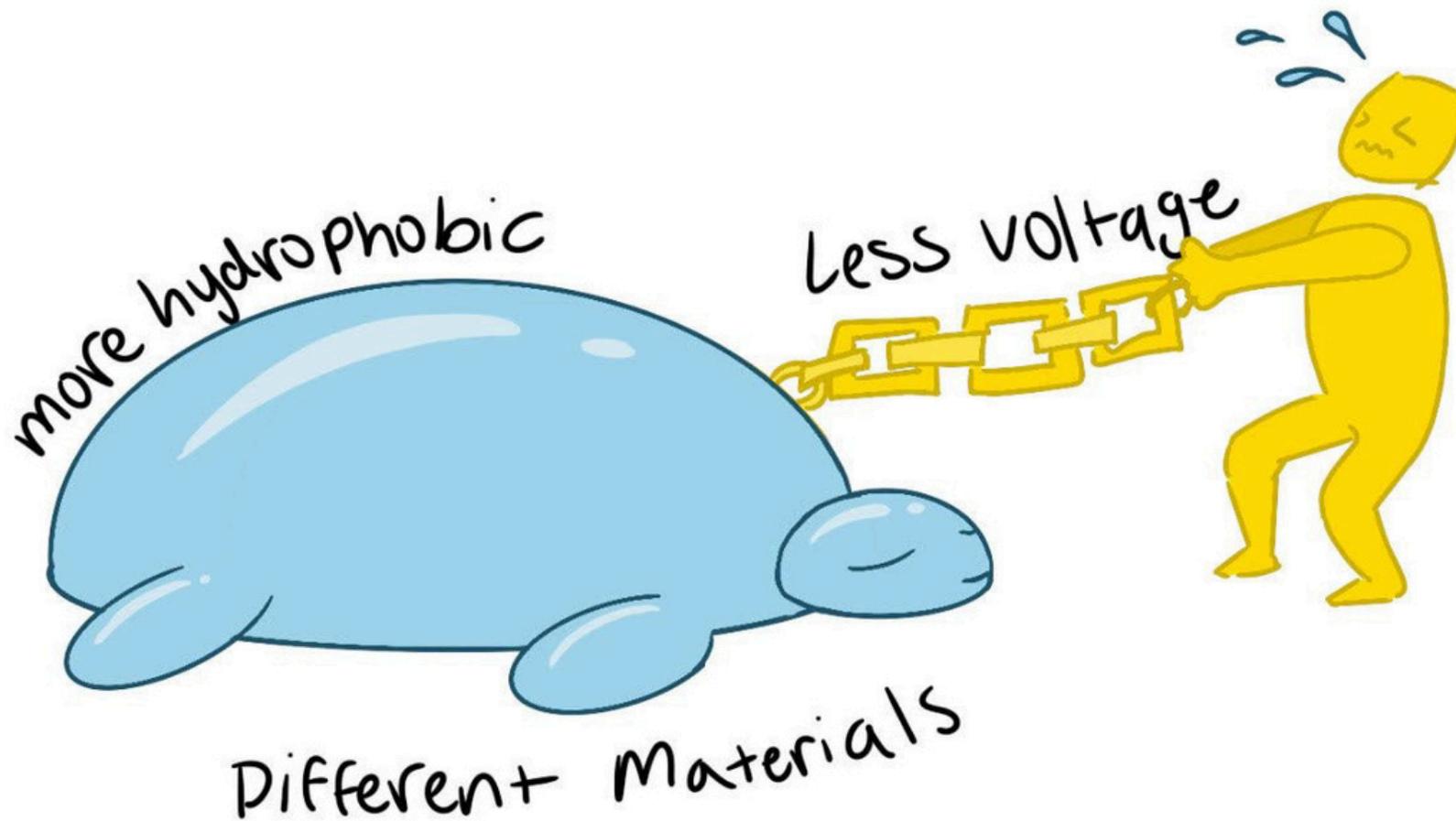


Materials

Contact Angle Hysteresis



Future Hydrophobic Material Research



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