

La charge de l'interface de l'eau en milieu hydrophobe

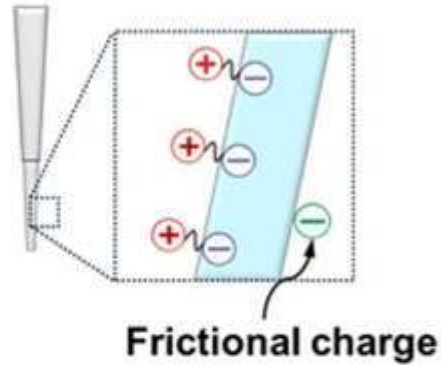


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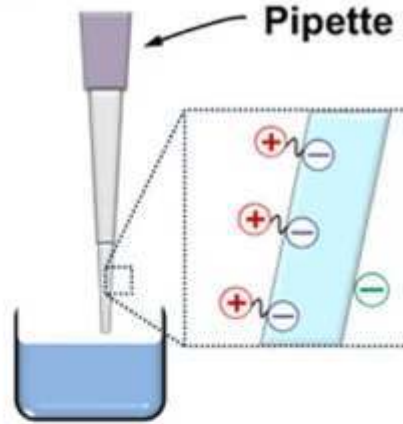
Tuteur : Jean-Christophe Valmalette

Spontaneous electrical charging of droplets by conventional pipetting

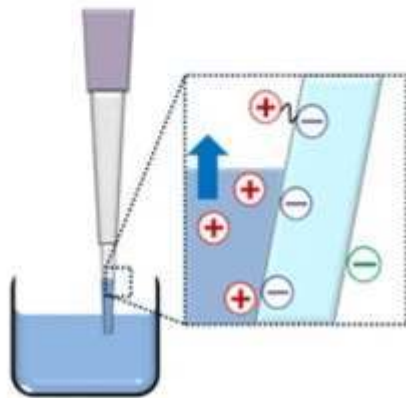
Stage I



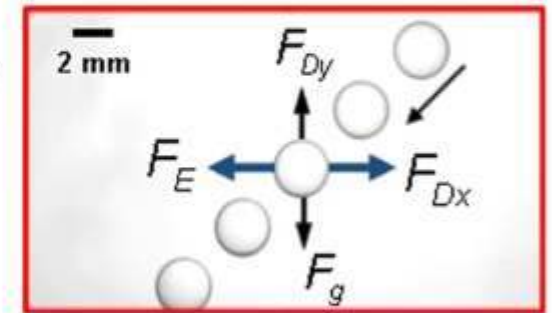
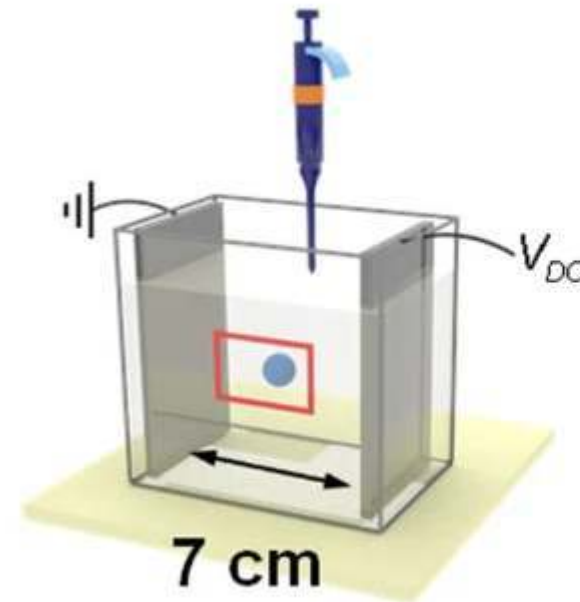
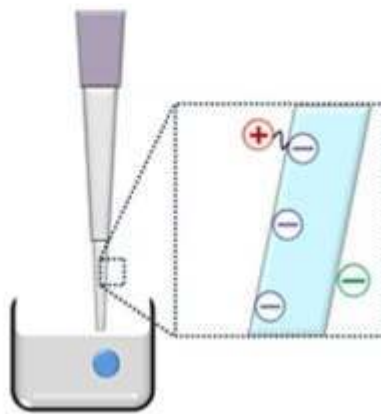
Stage II



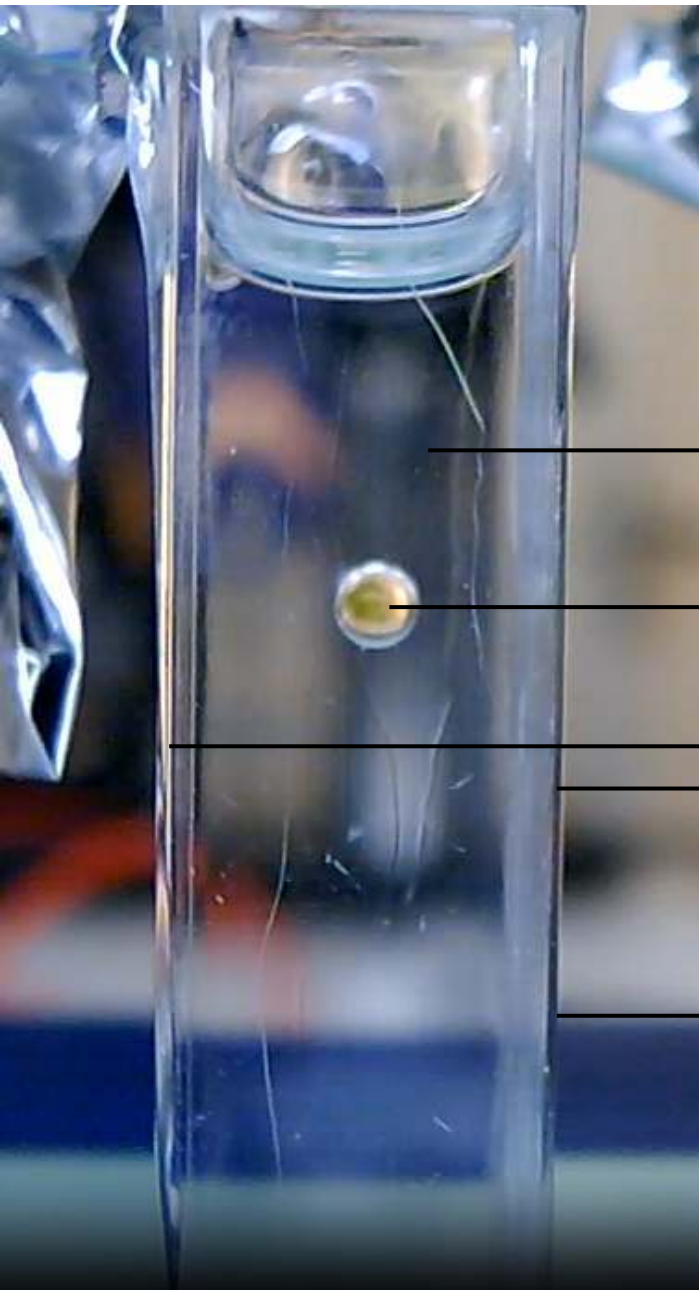
Stage III



Stage VI



Time step: 1 s



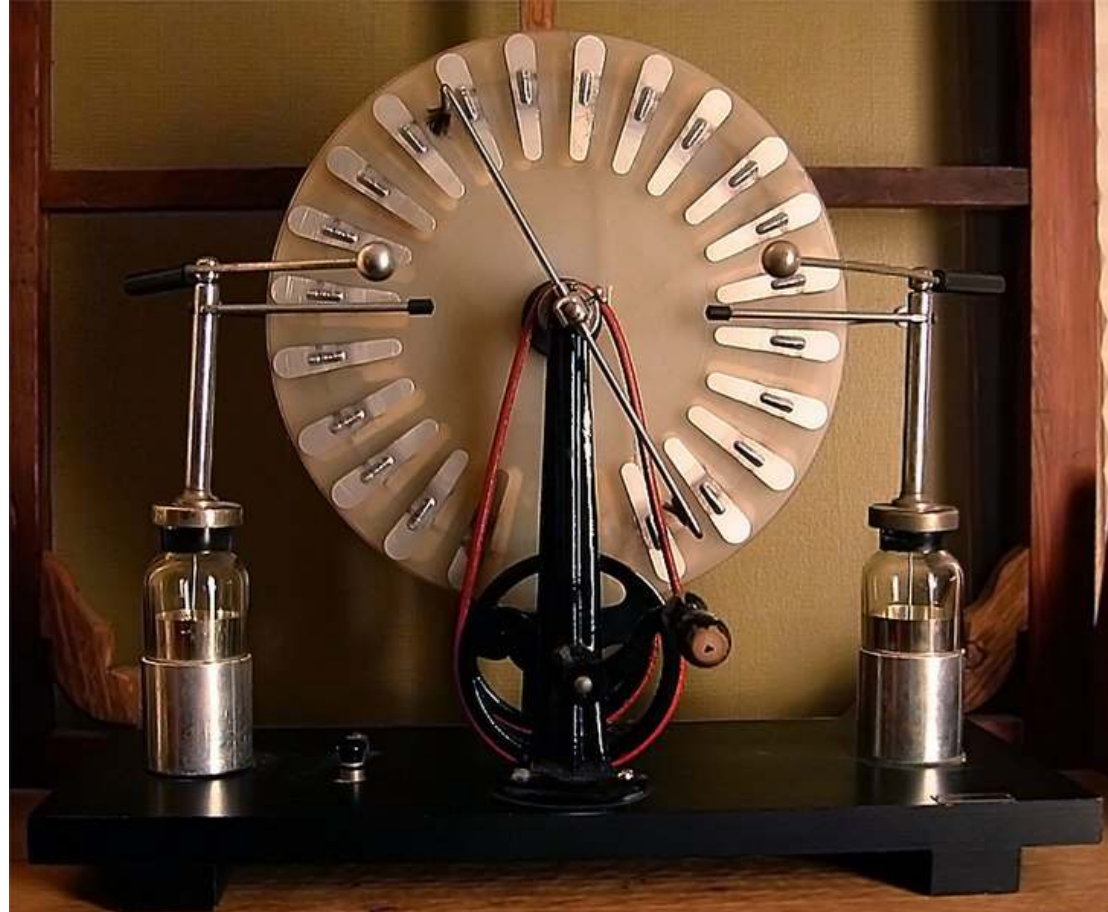
→ Huile de paraffine (CAS n° 8042-47-5)

→ Gouttelette d'eau désionisée (avec colorant)

→ Electrodes (aluminium adhésif)

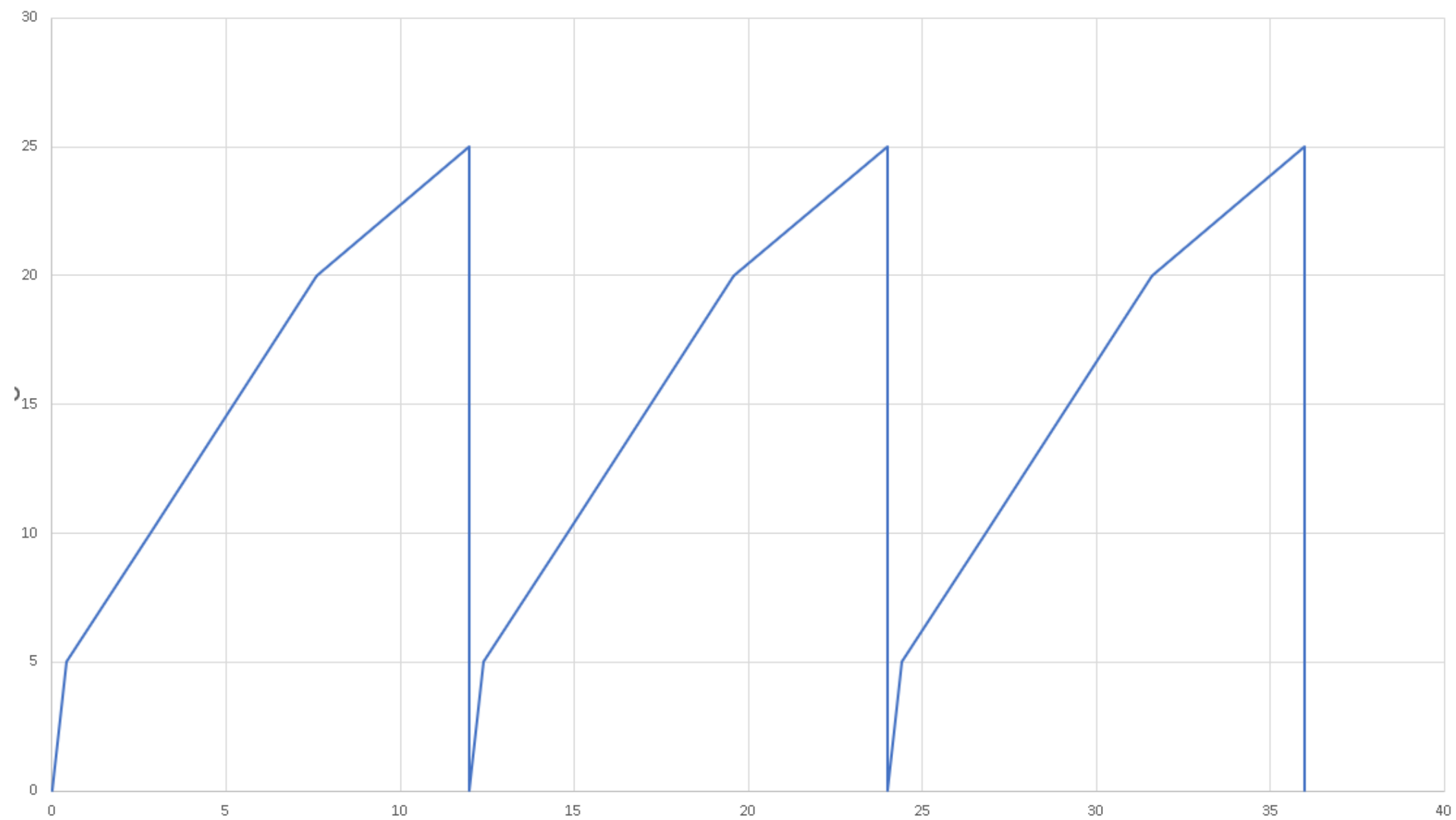
→ Cuve-UV (largeur 1cm)

Machine de Wimshurst

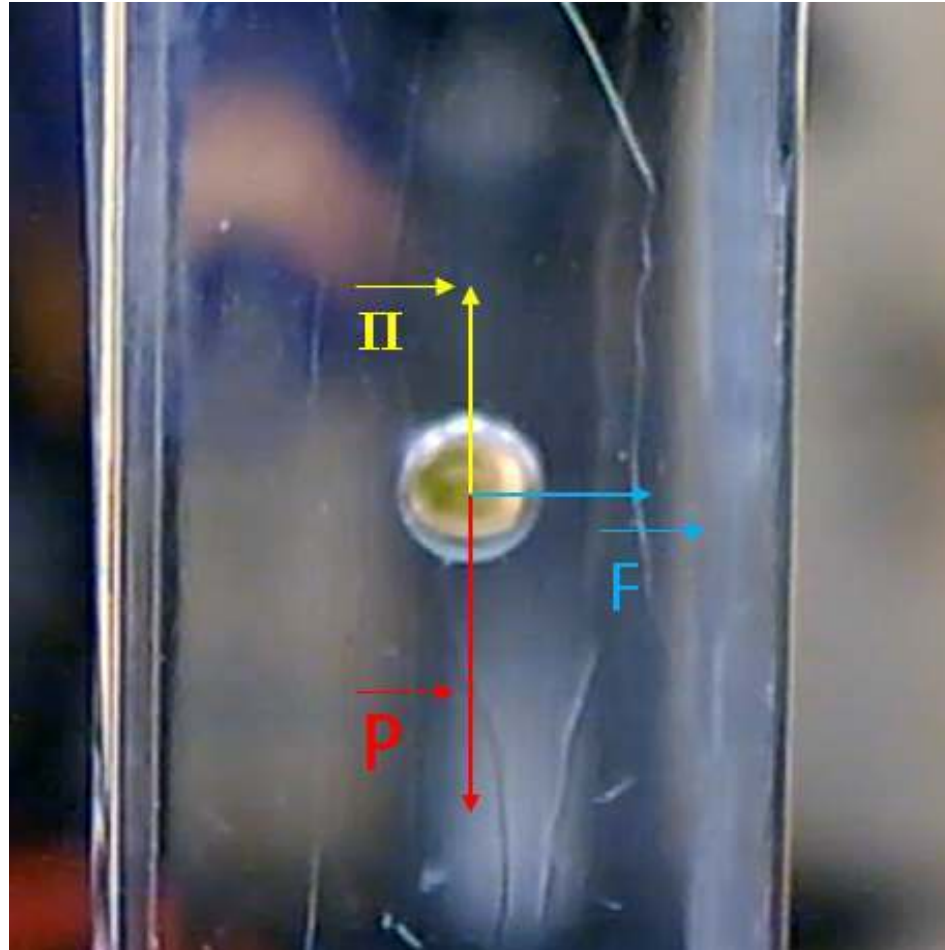


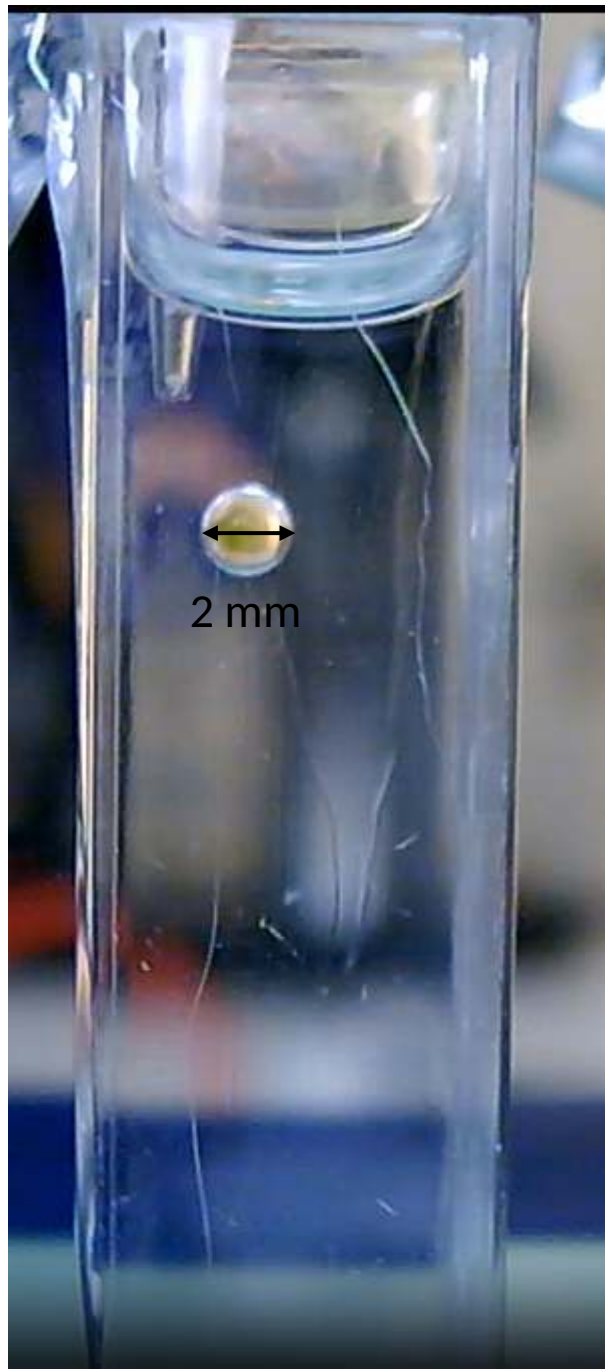
"A Wimshurst machine, an electrostatic generator which generates high voltage static electricity with two counterrotating disks turned by a crank" by [Peedl~commonswiki](#) Wikipedia

Tension (V)



BILAN DES FORCES





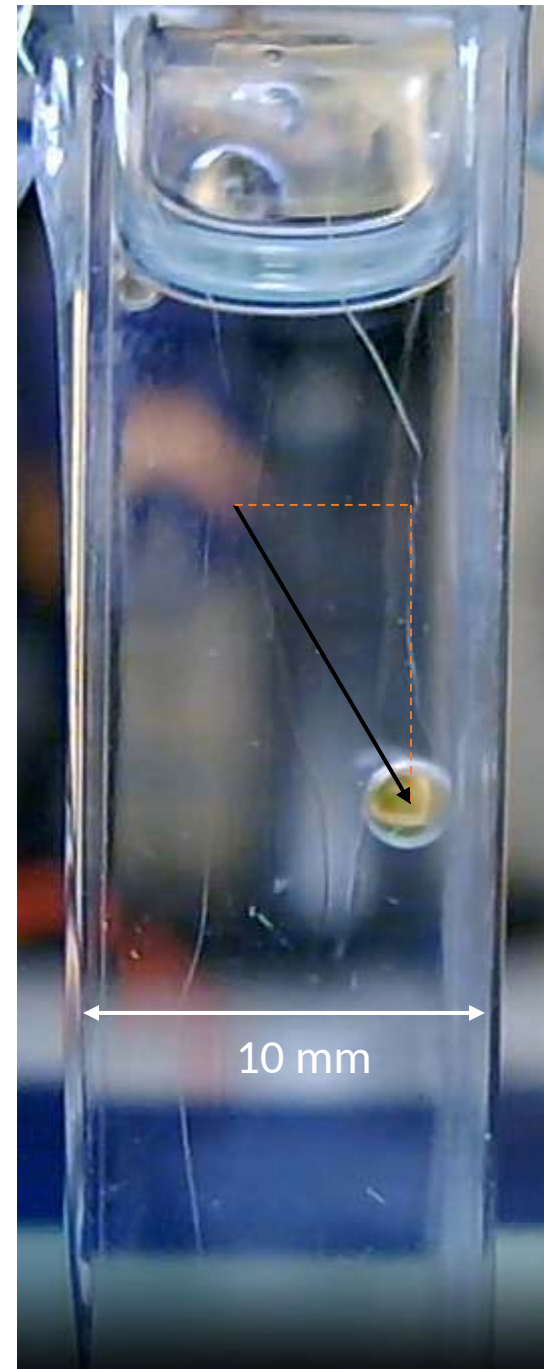
Newton(Frottements = $6 \cdot \pi \cdot \eta \cdot r \cdot v$)

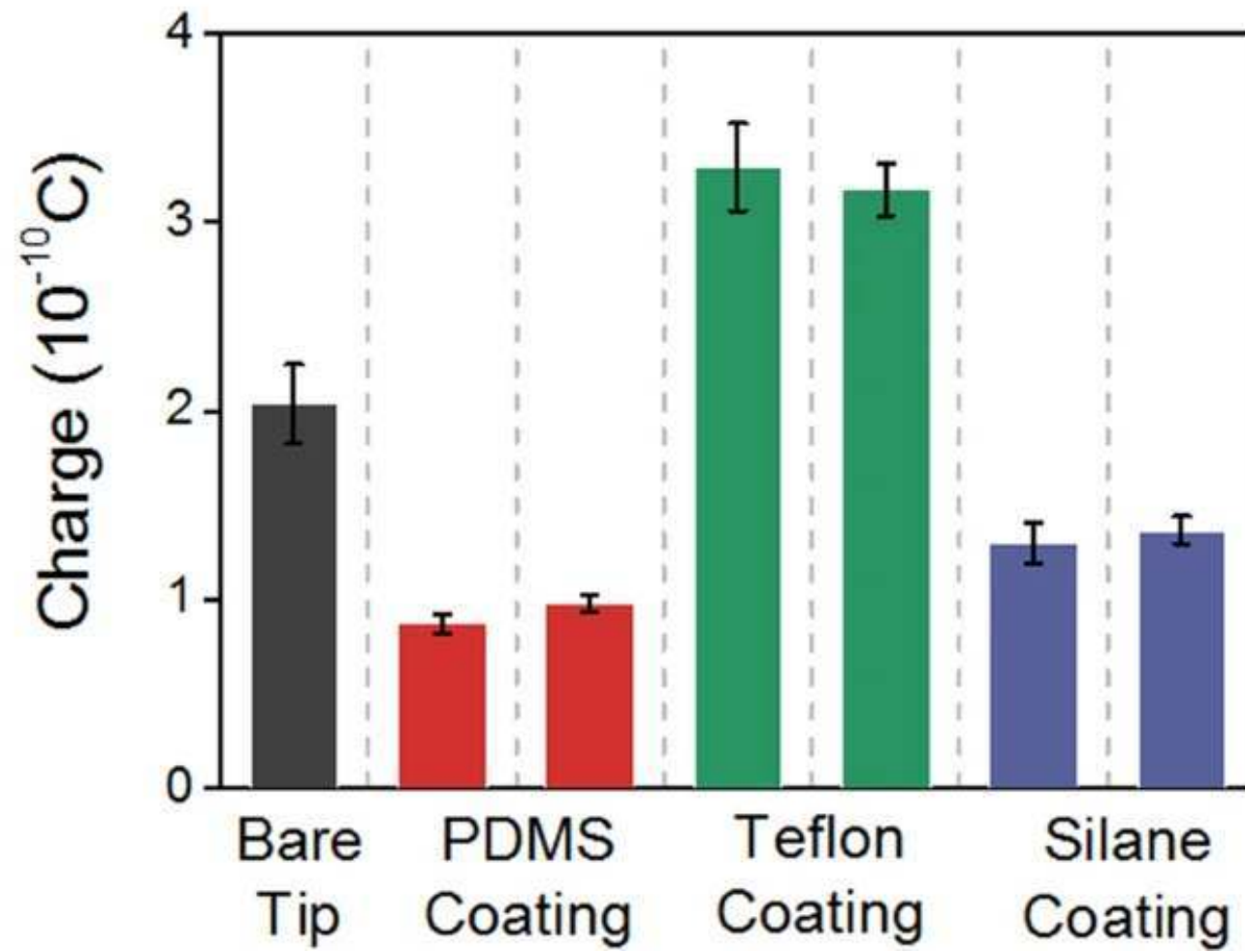
$$E = U/d$$

$$F = q \cdot E$$

q

$$q \approx 2 \cdot 10^{(-10)} \text{ C}$$





Source: Choi, D., Lee, H., Im, D. *et al.* Spontaneous electrical charging of droplets by conventional pipetting. *Sci Rep* 3, 2037 (2013).
<https://doi.org/10.1038/srep02037>

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