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# AIM:

# To determine influence of:

- roughness of hydrophobic solid surface (Teflon)
- n-octanol concentration

on time of three-phase contact (TPC) formation.

Air can be entrapped at cavities of the hydrophobic



### surface being immersed into aqueous phase.



The entrapped air can be redistributed over the solid surface due to thermodynamic reasons (tendency to establish equalibrium contact angle).





## Variations of the bubble velocity during collisions with Teflon surface of roughness 1-5µm.

Variation of the bubble velocity was measured from the subsequent positions of the bottom pole of the colliding bubble.

## $t_{TPC}$ - time of the three-phase\_

#### contact formation

Time interval from the moment of the first collision of the rising bubble with solid surface to the moment of the TPC formation.



1) The time of three-phase contact formation is significantly longer at high n-octanol concentration. As stability of foam films (gas-solution-gas) increases with increasing of n-octanol concentration, so prolongation of the time of TPC formation shows that air was entrapped during immersion of hydrophobic Teflon plate into n-octanol solution.

2) The TPC on Teflon surface was formed as a result of rupture of the local foam films formed between colliding bubble and submicroscopic bubbles present at Teflon surface.

3)Time of the TPC formation changes with the roughness of Teflon surface. Amount of the entrapped air depends also on roughness of hydrophobic surface.

INNOVATIVE ECONOMY