# Is contact nucleation a thermodynamic effect?

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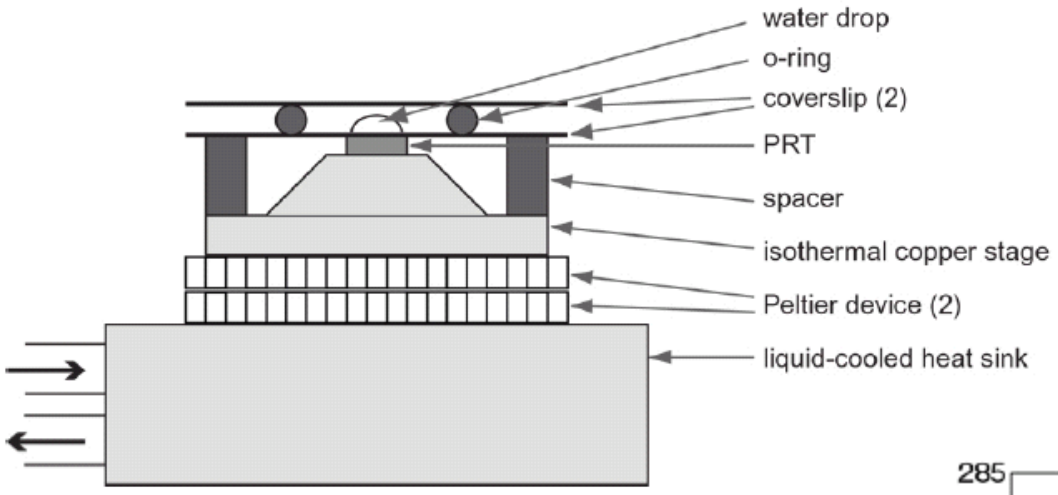
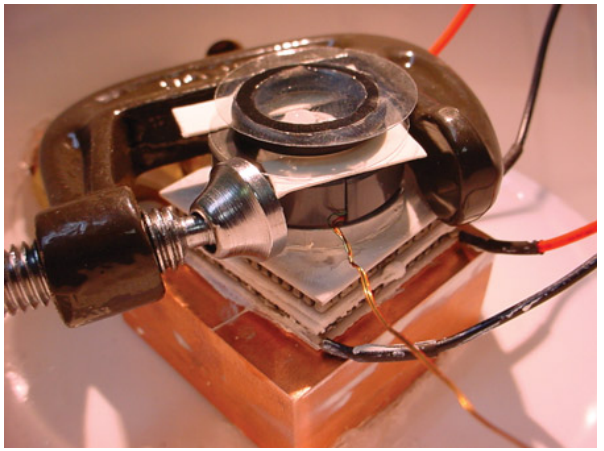
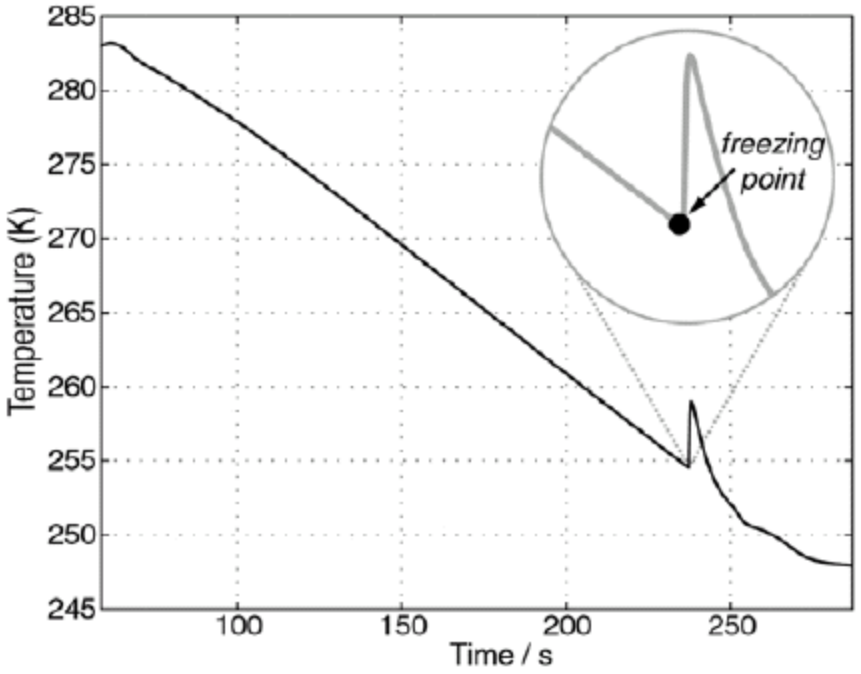
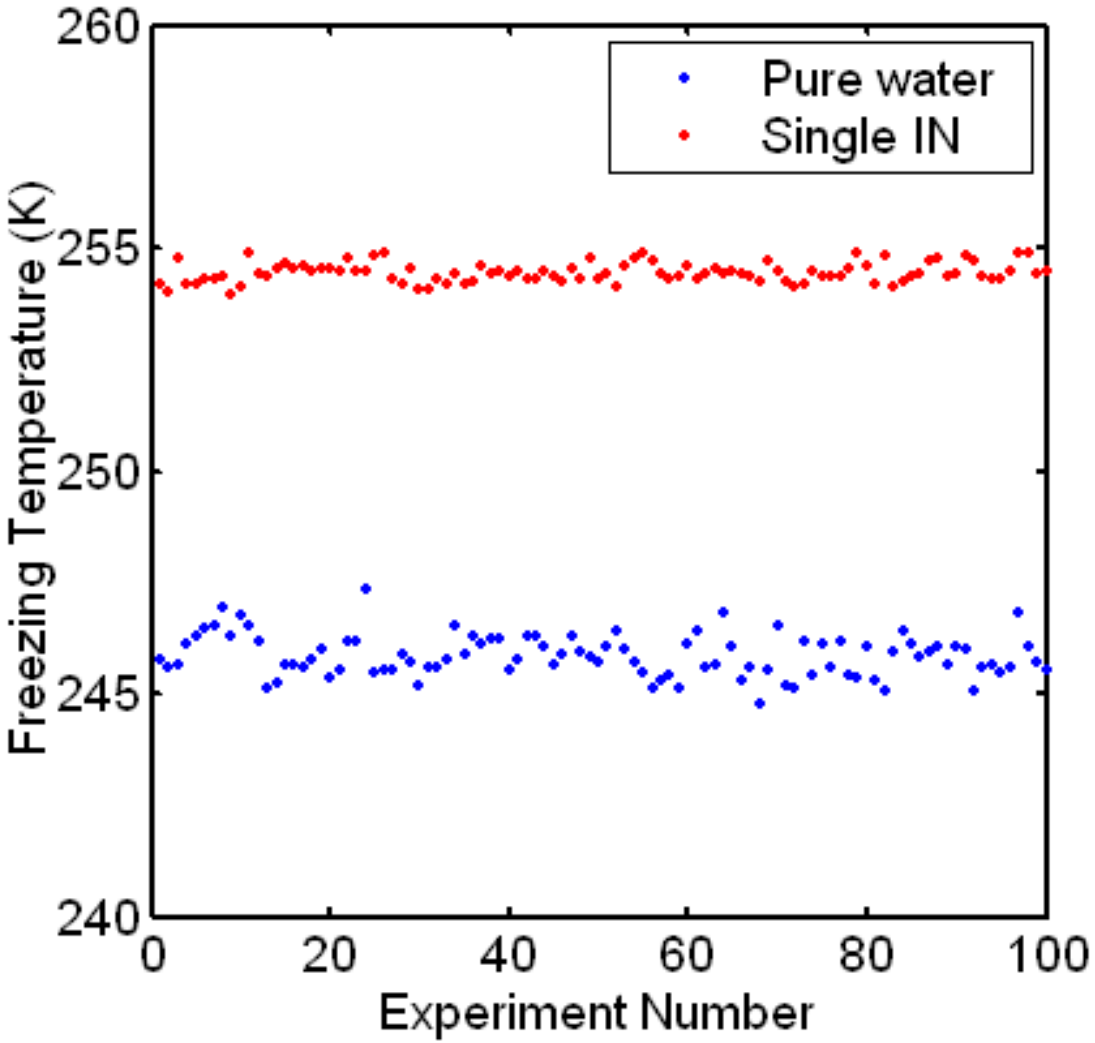
# Freeze same droplet repeatedly



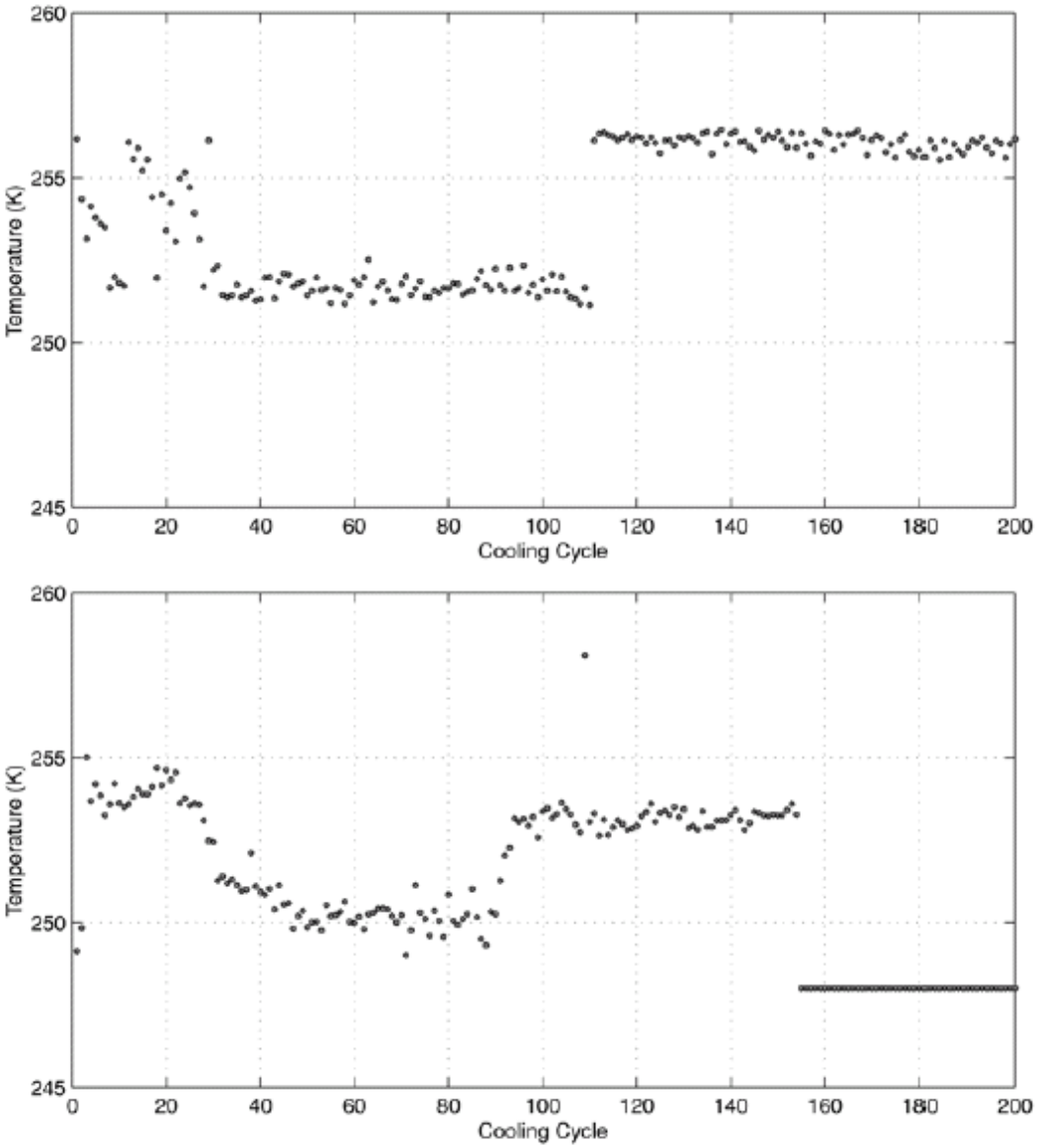





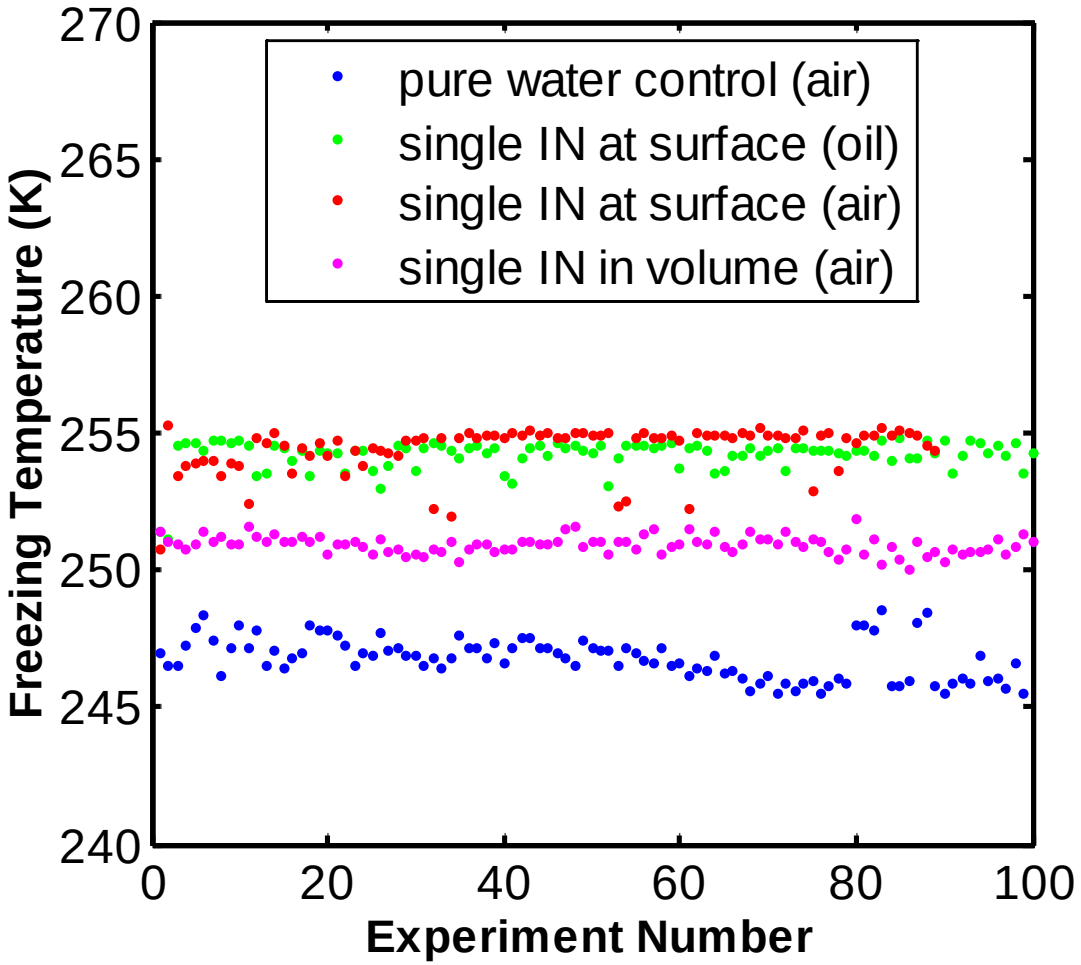
# Expected result...

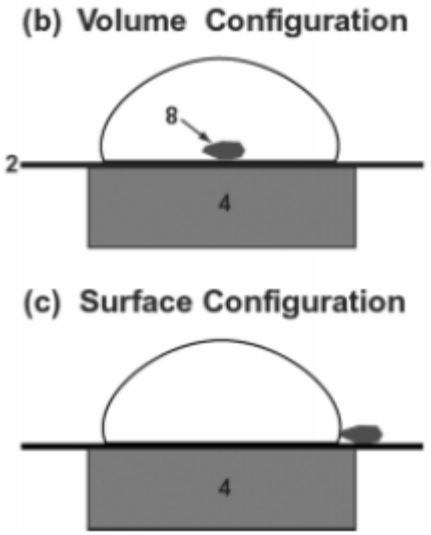


# Surprise result...

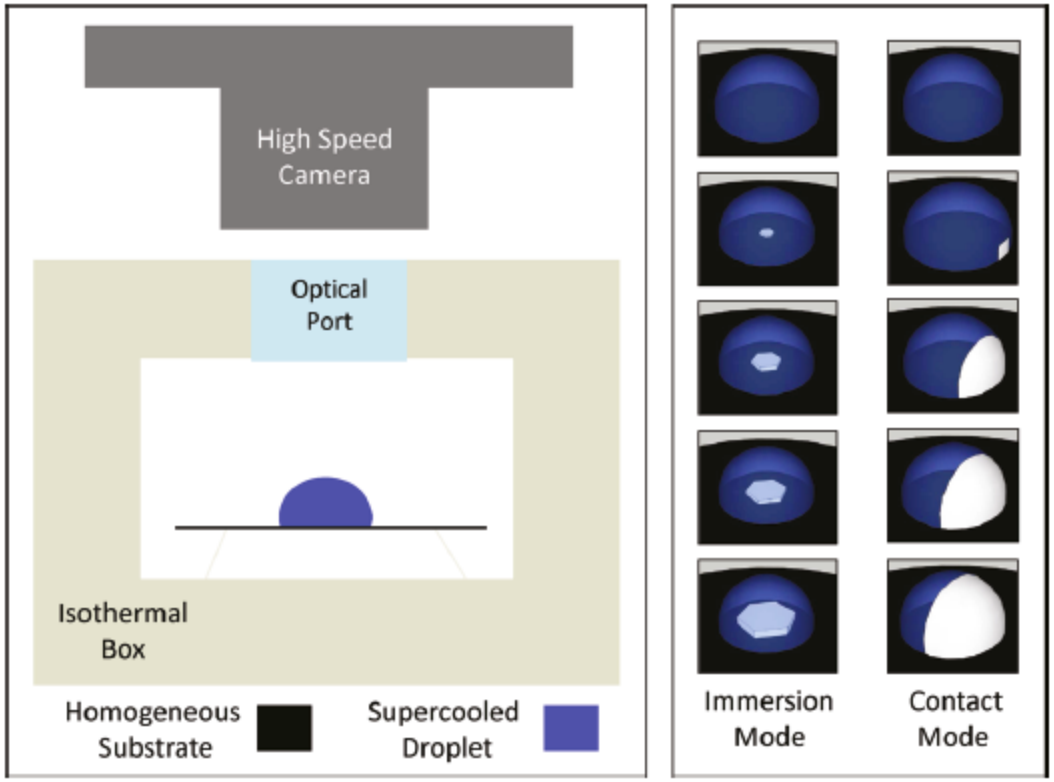


# IN location matters...

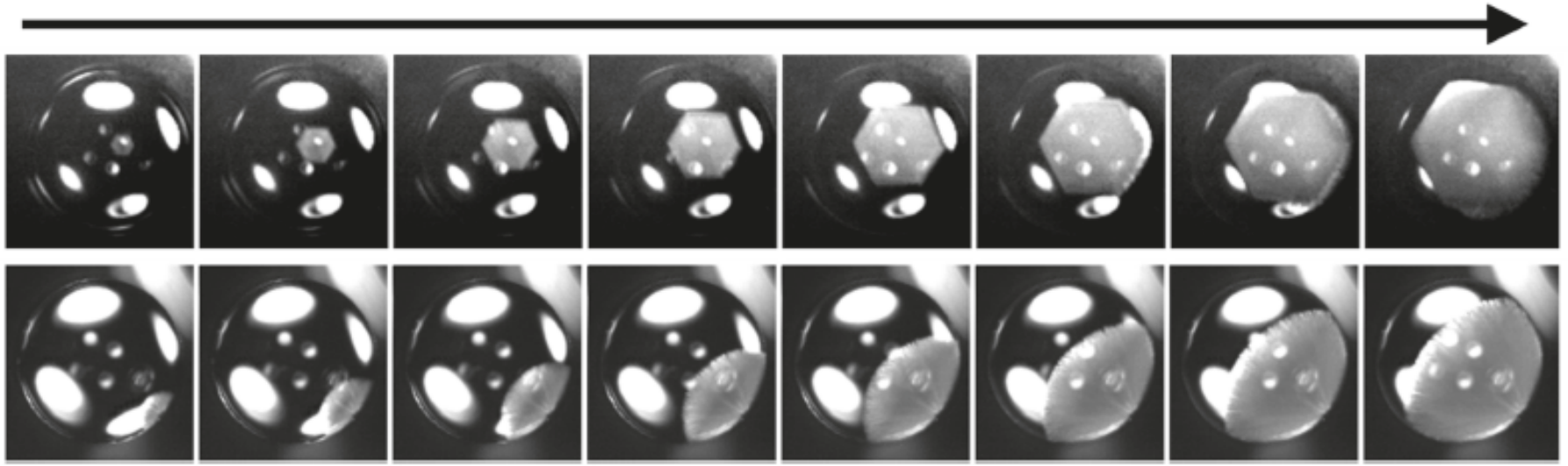


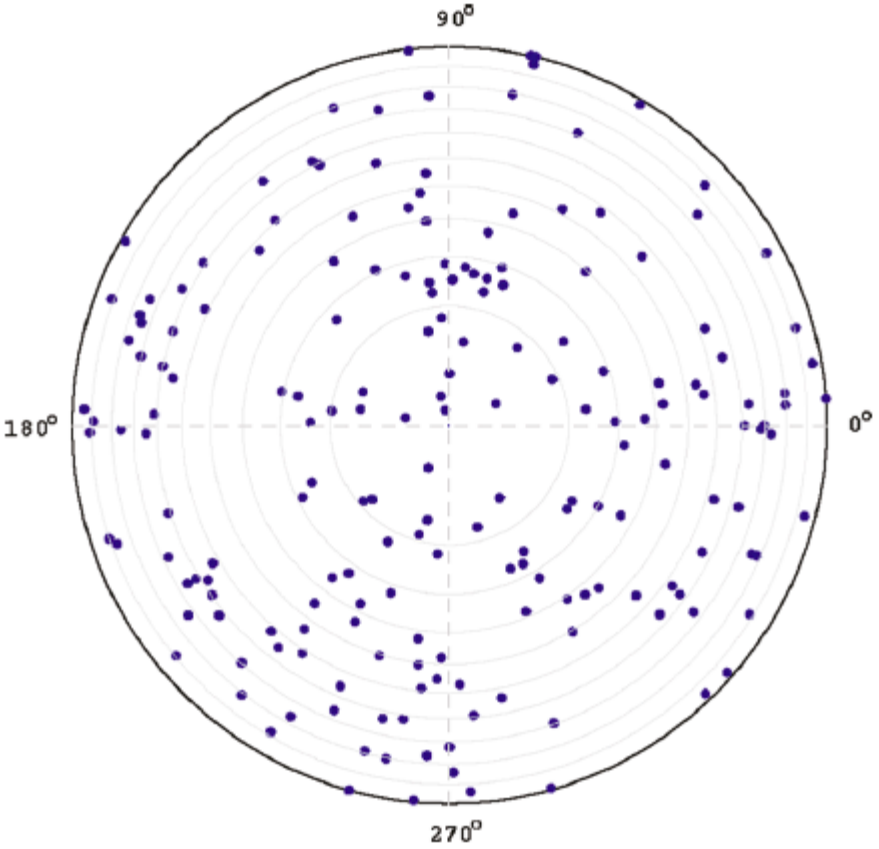
# Does the three-phase contact line matter?



# High speed movies of freezing events...



# No preference for contact line...




Gurganus et al. 2011 J Phys Chem Lett

# Summary...

*At this point we have a mystery: one experiment suggests a preference for the air-water interface, but another experiment suggests no enhancement at the three-phase contact line.*

*So the "thermodynamic" explanation for contact freezing is still unverified…*

*We can investigate physical mechanisms in idealized, laboratory experiments (no need to "simulate" full atmospheric complexity)*