

# INSIDE THE FREEZING OF A SPREADING DROP

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When a drop is gently brought in contact with a cold surface, it starts spreading and brutally stops, due to a balance between capillarity and solidification. Experiments show that the colder the substrate, the smaller the arrest radius.

The frieze below shows bottom views of a drop spreading on a cold transparent sapphire. The use of polarized light reveals the existence of ice crystals growing on the surface, and eventually stopping the contact line when they reach it.

Depending on the substrate temperature, the crystal growth rate varies, as well as the number of growing crystals. Hence, the contact line is stopped at various times. This gives rise to the different shapes and aspects observed below.

