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**Contact line arrest in solidifying spreading drops** RIELLE DE RUITER, University of Twente, PIERRE COLINET, Universit Libre de Bruxelles, JACCO SNOELJER, HANNEKE GELDERBLOM, University of Twente — When does a drop, deposited on a cold substrate, stop spreading? Despite the practical relevance of this question, for example in airplane icing and 3D metal printing, the exact mechanism of arrest in solidifying spreading drops has not yet been unraveled. Here, we consider the spreading and arrest of hexadecane drops of constant volume on two smooth wettable substrates; copper with a high thermal conductivity and glass with a low thermal conductivity. We record the spreading radius and contact angle in time for a range of substrate temperatures. We show that our measurements on both copper and glass are well explained by a contact line arrest condition based on crystallization kinetics, which takes into account the effect of kinetic undercooling and the thermal conductivity of the substrate.

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