

Transport in drying sessile droplets

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In this talk, we review some of the recent developments in the studies of evaporation of liquid droplets of capillary size placed on a solid substrate, such as methods for suppression of the coffee ring effect and studies of hydrothermal waves. We have studied Marangoni convection induced by thermal conduction in the drop and the substrate by means of detailed numerical calculations. The convection is demonstrated to be able to result not only in a single vortex, but also in two or three vortices, depending on the ratio of substrate to fluid thermal conductivities, on the substrate thickness and the contact angle. The detailed description of the fluid flows is presented for a wide range of parameters.

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