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Interaction of levitating microdroplets with moist air flow in the contact line region¹ OLEG KABOV, DMITRY ZAITSEV, DMITRY KIRICHENKO, Institute of Thermophysics, Russia, VLADIMIR AJAEV, Southern Methodist University — Self-organization of levitating microdroplets of condensate over a liquid-gas interface has been observed in several recent experiments involving evaporation at high heat fluxes, although the nature of this phenomenon is still not completely understood. We conduct experimental investigation of behavior of an ordered array of levitating microdroplets as it approaches a region of intense evaporation near the contact line. Interaction of the array with the local highly non-uniform gas flow is shown to result in the break-up of the pattern. Furthermore, our experimental set-up provides a unique tool for investigation of the Stefan flow originating near the contact line by using microdroplets as tracers. Local gas flow velocities near the contact line are obtained based on trajectories of the droplets.

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Vladimir Ajaev
Southern Methodist University

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