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Micron-Scale Observation of Nucleating Water Vapor Bubbles SCOTT PARKER, SUNG CHUL BAE, CHANG-KI MIN, DAVID CAHILL, STEVE GRANICK, University of Illinois at Urbana-Champaign — Surface plasmon microscopy is used to detect nucleation and lift-off of vapor bubbles in water. Vapor bubbles are generated under pool boiling conditions by heating with a focused Ti-Sapphire laser in the near-infrared region. These bubbles modulate the local index of refraction, thereby altering the local excitation of the surface plasmon which are excited in the Kretchmann geometry and observed with a CCD camera. Altering the surface roughness, we observe how bubbles interact in their earliest stages.

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