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Tracking liquid in drying colloidal fluids with polarized light microscopy[1] KUN CHO, School of Advanced Materials Science and Engineering, Sungkyunkwan University, JUNG SOO PARK, JOON HEON KIM, Advanced Photonics Research Institute, Gwangju Institute of Science and Technology, BYUNG MOOK WEON, School of Advanced Materials Science and Engineering, SKKU Advanced Institute of Nanotechnology (SAINT), Sungkyunkwan University — When colloidal fluids dry, tracking liquid surfaces around colloids is difficult with conventional imaging techniques. Here we show that polarized light microscopy (PM) is very useful in tracking liquid surfaces during drying processes of colloidal fluids. In particular, the PM mode is not a new or difficult way but is able to visualize liquid films above colloids in real time. We demonstrate that when liquid films above colloidal particles are broken, the PM patterns appear clearly: this feature is useful to identify the moment of liquid film rupture above colloids in drying colloidal fluids. This result is helpful to improve relevant processes such as inkjet printing, painting, and nanoparticle patterning (K.C. and J.S.P. equally contributed).

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