

## **Investigation of ATR-FTIR-based wetting characterization for nano-patterned surfaces**

The study of wetting mechanisms on patterned surfaces is critical for surface cleaning and functional surface design. We accurately characterize the complete wetting and Cassie-Baxter wetting states on nano-pillar patterned surfaces through an ATR-FTIR-based optical method. The dynamic evolution of the wetting state transitions is also monitored in situ. In addition, through experimental measurements and optical simulations, we verified the technique's sensitivity dependence on pattern geometry. This investigation provides a valuable reference for applying this ATR-FTIR-based technology to more complex nano-texted surfaces.

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