

Abstract Submitted
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Visualization of colloidal liquid nucleation induced by Critical Casimir forces DUC NGUYEN, PhD, PETER SCHALL, Dr — We show that with precise temperature control of critical Casimir forces we achieve reversible control of colloidal gas-liquid. The exquisite temperature control of the potential allows us to even tune the degree of supersaturation of the liquid phase. We use a confocal microscopy to elucidate the nucleation process on the single particle level: We determine the Gibbs free energy, interfacial tension and chemical potential of the liquid aggregates directly from their size distribution. We estimate the interfacial tension of the aggregates at different degree of supersaturation directly from the particle potential and pair correlation function using Kirkwood and Buff theory. A good agreement between the two methods provides new insight into the gas-liquid transition.

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