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Phase transition of colloidal particles on curved surfaces GUANGNAN MENG, JAYSON PAULOSE, DAVID NELSON, Department of Physics, Harvard University, VINOTHAN MANOHARAN, Department of Physics and School of Engineering and Applied Sciences, Harvard University — Defects and disclinations have to appear in crystalline domains on a curved surface with non-zero Gaussian curvature. These geometrical frustrations can qualitatively change the physics of phase transition. We encapsulate micron sized polystyrene (PS) colloidal particles within emulsion droplets and use nanometer sized polyNIPAM hydrogel particles to introduce depletion attraction between PS particle and interface, as well as between PS particles. We use this experimental model system and confocal microscopy to study phase transitions on curved surfaces. We will present both experimental phenomena and theoretical analysis.

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