

Abstract Submitted  
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**Melting of colloidal crystals in small cavities**<sup>1</sup> YAFEI YANG, Hong Kong University of Science & Tech — We studied the melting behaviors of small colloidal crystals in different sized and shaped small cavities by video microscopy. The crystals were composed of temperature-sensitive N-isopropyl acrylamide (NIPA) microgel spheres. The cavity shape and defects can dramatically alter the melting kinetics and the vibration modes. The melting point can increase or decrease with size of colloid crystal, depending on the shape of the cavity. Single defect- free crystals melt from edges via nucleation mechanism in large hexagonal cavities, but melt catastrophically without nucleation when the cavity is smaller than a threshold. The smaller-angled cavity better promotes the melting.

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