

Abstract Submitted
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Effects of vacancies and interstitials on the phonon modes in a 2D colloidal crystal¹ LICHAO YU, SUNGCHEOL KIM, Brown University, DI YIN, Wuhan University and Brown University, ALEXANDROS PERTSINIDIS, Sloan-Kettering Institute, New York, XINSHENG LING, Brown University — We report a study of the effects of vacancies and interstitials on the phonon modes in a 2D colloidal crystal. By applying the equi-partition theorem, we extract the dispersion relation of the lattice vibrations in a two-dimensional colloidal crystal using real-time video microscopy. We find that both longitudinal and transverse modes in the spectrum are softened by the existence of vacancies and interstitials.

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