Detecting light dark matter with phonons

For dark matter masses below an MeV, the inverse momentum transfer in direct detection experiments can be larger than the inter-atomic spacing. In this regime the scattering is no longer described by individual nuclear recoils, and the relevant degrees of freedom are collective modes of the target, such as phonons. A promising strategy for the direct detection of light dark matter is to search for individual phonon excitations in a crystal. In this talk, I will discuss various aspects of dark matter-phonon scattering and the implications for future experiments.

Date: Thursday 19 March
Time: 11am
Venue: L1, Seminar Room 107, 10 College Walk, Clayton