Contribution ID: **74** Type: **Oral Presentation**

From signal to noise – athermal phonon mitigation in quantum devices

Wednesday, June 15, 2022 11:30 AM (20 minutes)

Athermal phonons are high-energy vibration modes in solid-state substrates. They are the signal channel for sub-GeV low-mass dark matter direct search, while they are also dangerous noises in quantum information systems. I'll first introduce the method of athermal phonon detection in particle detectors. Then I'll discuss three approaches to mitigate athermal phonons: isolation, down-conversion, and phonon cloaking, inspired by particle and cosmology microwave background detectors.

Primary author: LI, XinRan

Presenter: LI, XinRan

Session Classification: LRT 2022 - presentations

Track Classification: Particle background impacts on quantum information systems and quantum computing