“Searching for whispers from beyond the standard model”

Abstract: Searches for high energy signatures from beyond the standard model physics have advanced greatly, but a lot of ground remains to be covered for soft, low energy signals. At the LHC, searches for long-lived particles are such an example, as qualitative gains are possible by making full use of the LHCb cavern in the phase II upgrade. In the context of dark matter direct detection, future single-phonon detectors will be sensitive to dark matter with a mass as low as roughly 10 keV. In this regime, the conventional nuclear recoil picture no longer applies and new theoretical tools are needed to correctly compute the scattering rate. I will discuss the prospects for detector concepts based on superfluid helium and polar material targets, where in the latter case we find a large daily modulation of the scattering rate.