Progress Update

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[1]Ricochet

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This Week

- Finally setup Ricochet Simulations! Still haven't quite figured out how to make my own macros, will speak to Valerian regarding this
- Reading up on Ricochet

Ricochet

- Process under study: Coherent Neutrino Nucleus scattering, following confirmation of COHERENT
- Why we study this: Test of standard model parameters, possible probe of exotics like sterile neutrinos, characterisation of neutrino floor for DDM. May also have practical applications in reactor monitoring.

- Experimental signature: low energy nuclear recoil, $\sim$0.1-10 keV,[1] which is why low-threshold detector development was necessary.
- Detection mechanism: Phonon readout using cryogenic Zn bolometers. Energy deposits break Cooper pairs, which thermalise into phonons or form quasi-particles.
- Differential recombination times used as discriminant

References

[1] J Billard, Rachel Carr, J Dawson, Enectali Figueroa-Feliciano, Joseph A Formaggio, J Gascon, ST Heine, M De Jesus, J Johnston, T Lasserre, et al. Coherent neutrino scattering with low temperature bolometers at chooz reactor complex. *Journal of Physics G: Nuclear and Particle Physics*, 44(10):105101, 2017.