

PROPOSAL SUMMARY

ANDREW FURMANSKI

I propose to use an Intensity Frontier Fellowship to spend one year at Fermilab designing and constructing the DAQ system for SBND. I will also use my time at Fermilab to dramatically improve our understanding of nuclear effects in neutrino interactions by studying hadronic activity and proton kinematics in CCQE-like interactions. The first of these tasks absolutely requires my presence at Fermilab, and the second will be greatly enhanced by the ability to work with other MicroBooNE collaborators, LArTPC reconstruction experts, and theorists based at Fermilab.

The DAQ system for SBND is a critical component of the SBN programme, and I am well placed to contribute to this due to my experience working with the MicroBooNE DAQ and readout, as well as my experience serving as the MicroBooNE Run Coordinator. Nuclear effects in neutrino interactions are one of the largest sources of uncertainty in many low energy neutrino oscillation experiments. MicroBooNE provides the first high-statistics data sample with the resolution to measure proton kinematics in these low energy interactions.