

Proposal summary

This proposal has two aims. The first is to lead through to publication the search for a low-energy excess with MicroBooNE. Such an excess has previously been seen by MiniBooNE and LSND, and can be interpreted as evidence for the existence of a sterile neutrino. MicroBooNE uses liquid-argon time-projection chamber technology, which provides improved electron-photon identification in comparison to MiniBooNE and LSND; this will enable MicroBooNE to determine whether the observed excesses are consistent with the charged-current interactions of electron neutrinos or instead arise from some unmodeled photon background. The second aim is to begin production of anode plane assemblies for the DUNE Single-Phase Far Detector. These anode planes are one of the UK's main hardware deliverables for DUNE, and this fellowship will allow me to work with the Consortium leadership and US engineers to ensure the UK production project is fully integrated into the collaboration's plans and procedures.