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First Measurement of Differential Charged Current Quasielastic–like ν_μ–Argon Scattering Cross Sections with the MicroBooNE Detector AFRODITI PAPADOPOULOU, Massachusetts Institute of Technology MIT, MICROBOONE COLLABORATION — Current and future generation neutrino oscillation experiments aim towards a high-precision measurement of the oscillation parameters and that requires an unprecedented understanding of neutrino-nucleus scattering. Charged-current quasi-elastic (CCQE) scattering is the process in which the neutrino produces a charged lepton and removes a single intact nucleon from the nucleus without producing any additional particles. For existing and forthcoming accelerator–based neutrino experiments, CCQE interactions are either the dominant process or part of the signal. MicroBooNE is the first liquid argon time projection chamber (LArTPC) commissioned as part of the Short Baseline Neutrino (SBN) program at Fermilab and its excellent particle reconstruction capabilities allow the detection of neutrino interactions using exclusive final states, which will play a crucial role in the success of future kiloton LArTPC detectors such as DUNE. This talk will present the first measurement on argon of exclusive ν_μ CCQE–like flux integrated total and differential cros sections using single proton knock–out interactions recorded by the MicroBooNE LArTPC detector with 4π acceptance and a 300 MeV/c proton threshold.

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