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The Muon Capture Rate on the Deuteron in the MuSun Experiment MICHAEL MURRAY, Univ of Washington, MUSUN COLLABORATION — Basic few-body nuclear systems are increasingly understood in terms of QCD-based effective field theories (EFTs) that establish rigorous relations between muon capture and processes such as p-p fusion and neutrino breakup of the deuteron. Experimentally, the muon capture rate on the deuteron tests this modern EFT description and determines the single, poorly-known low-energy constant appearing in the two-nucleon sector. The MuSun experiment will determine the capture rate via a precise measurement of the lifetime of negative muons stopped in a cryogenic deuterium TPC. Muon tracking must be done in a way that is independent of the decay time, but charged particles near the muon stop location such as the decay electron and products of muon-catalyzed fusion can lead to erroneous tracking. This talk will present an overview of the current status of the MuSun experiment and discuss the analysis of recent data.

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