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Enabling Environmental Background Reduction for Nuclear Astrophysics Measurements with Pulsed Proton Beams[1] MATTHEW BUCKNER, JOHN CESARATTO, THOMAS CLEGG, UNC-Chapel Hill, TUNL, BRET CARLIN, Duke University, TUNL — Benefits accrue when nuclear reactions relevant to astrophysical processes are studied with low-energy *pulsed* proton beams. Because Coulomb repulsion reduces the nuclear reaction rate, continuous backgrounds often dominate the signal of interest. Pulsing the beam can reduce these backgrounds by gating data collection electronics. Target lifetime can become short when the target current increases, so pulsing the beam to limit the average current while raising the peak pulsed current offers a way to optimize S/N. At TUNL's Laboratory for Experimental Nuclear Astrophysics, remote LabVIEW-controlled, pulsed proton-beam operation has been extended to a new ECR source by pulsing the beam extraction HV power supplies. Target proton currents $>$ 1mA DC are available between 100 and 190 keV, and pulsed operation has been demonstrated at 15 keV. Work is underway to extend pulsed operation to energies between 100 and 190 keV and to begin initial experiments with this new capability. Latest results will be reported.

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