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Simulation of Cosmogenic and Radioactive Backgrounds for the CoGeNT Dark Matter Detector MARK KOS, Pacific Northwest National Laboratory, COGENT COLLABORATION — We have completed a comprehensive list of simulations of the cosmogenic and radioactive backgrounds for the CoGeNT detector. For the cosmogenic backgrounds we include muon-induced neutrons produced in the shielding material and muon-induced neutrons from the surrounding cavern rock. We also include electrons, positrons, and gammas produced by the through-going muons. For the radioactive backgrounds we include (alpha,n) neutrons from the cavern, (alpha,n) and fission neutrons from the HDPE shielding, fission neutrons from the lead shielding, and uranium and thorium chain backgrounds in materials near the detector. The energy distributions derived from the simulations are normalized to the expected flux for the cosmogenic backgrounds, and to the measured uranium and thorium contamination for the radioactive backgrounds. We then compared the background distributions to the data and the results of these comparisons are presented. We also present results from simulations of the same background sources for the next generation of CoGeNT, C4.

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