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Measurement of radiative neutron decay MATTHEW BALES, University of Michigan, RDK II COLLABORATION — By the simultaneous detection of a prompt photon and electron followed by a delayed proton, the RDK II experiment is able to reliably identify radiative neutron decays relative to non-radiative neutron decays in the photon energy range of approximately 0.3 keV to the 782 keV endpoint. RDK II will measure both the radiative branching ratio as well as the energy spectrum of emitted photons. The experimental apparatus consists of a superconducting solenoid magnet, which guides charged particles away from a cold neutron beam to a surface barrier detector located off the neutron-beam axis. Twelve bismuth germinate (BGO) crystals coupled to avalanche photodiodes (APDs) surround the decay region and serve to detect higher energy gammas while three bare APDs directly detect soft x-rays. Having completed its operation on the NG-6 station at the NCNR (NIST Center for Neutron Research) at NIST, Gaithersburg, at the end of 2009, analysis of the RDK II data is nearing completion. We present a summary of the experiment and progress in data analysis and simulations.

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