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In-Situ Beam Current Monitoring Reaction for in-air Particle-Induced Gamma Emission Spectroscopy JOHN WILKINSON, University of Notre Dame — Particle-induced gamma emission spectroscopy performed in-air takes advantage of the nuclear monitoring reaction of 40Ar(p,nγ)40K for beam current normalization. The second excited state of 40K deexcites with characteristic gamma line 770 keV and is easily observed using the same HPGe detector as for sample analysis. Experimentation has been conducted at the University of Notre Dame's Nuclear Structure Laboratory using 4 MeV protons impinged on targets of interest using a modified Alphatross ion source with a 3 MV 9S tandem accelerator. Preliminary data shows this technique has reduced analysis uncertainty and simultaneously tracks both beam intensity and optics over several hours.

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