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A Search for Magnetic Monopoles and Exotic Long-lived Particles with Large Electric Charge at ATLAS

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A search for highly ionizing particles produced in 8 TeV proton-proton collisions at the LHC is performed with the ATLAS detector. A dedicated trigger increases significantly the sensitivity to signal candidates stopping in the electromagnetic calorimeter and allows to probe particles with higher charges and lower energies. Production cross section limits are obtained for stable particles in the mass range 200–2500 GeV for magnetic charges in the range of Dirac charge $0.5 < |g| < 2.0$ and for electric charges in the range $10 < |z| < 60$. Limits are presented for various pair-production scenarios, and model-independent limits are presented in fiducial regions of particle energy and pseudorapidity.

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