

# Search for magnetic monopoles and stable particles with high electric charges in 8 TeV pp collisions with the ATLAS detector

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## Abstract

A search for highly ionizing particles produced in proton-proton collisions at 8 TeV center-of-mass energy is performed by the ATLAS Collaboration at the CERN Large Hadron Collider. The data set used corresponds to an integrated luminosity of 7.0 fb<sup>-1</sup>. A customized trigger significantly increases the sensitivity, permitting a search for such particles with charges and energies beyond what was previously accessible. No events were found in the signal region, leading to production cross section upper limits in the mass range 200–2500 GeV for magnetic monopoles with magnetic charge in the range  $0.5g_D < |g| < 2.0g_D$ , where  $g_D$  is the Dirac charge, and for stable particles with electric charge in the range  $10 < |z| < 60$ . Model-dependent limits are presented in given pair-production scenarios, and model-independent limits are presented in fiducial regions of particle energy and pseudorapidity..