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## Searches for Exotic Long-lived Particles using Early Data from the ATLAS Detector at the LHC

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Exotic heavy long-lived particles are predicted in a range of theories which extend the Standard Model. Supersymmetry models alone allow for meta-stable sleptons, squarks and gauginos. Such particles are identifiable as they traverse the detector by observables related to tracking, timing and energy loss which differ for Standard Model and exotic processes. Also, if a model such as split-supersymmetry is realized in nature, R-hadrons, which contain a long-lived gluino or squark, can be produced and may lose enough of their energy through ionization to become captured and stop in the densest materials. Such “stopped” particles would decay at some later time, producing a high energy deposit which can be picked up by the trigger and detector, provided they remain active. This talk presents results from searches to discover both types of particles using data from proton-proton collisions at 7 TeV centre-of-mass energy which have been accumulated by the ATLAS detector at the LHC.

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