## DISCRETE '08: Symposium on Prospects in the Physics of Discrete Symmetries



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## Prospects for detecting long-lived supersymmetric particles with ATLAS

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In certain supersymmetry breaking scenarios, characteristic signatures can be expected which would not necessarily be found in generic SUSY searches for events containing high-pT multi-jets and large missing transverse energy. In this talk, I will present the expected response of the ATLAS detector to signatures involving high-pT photons which may or may not appear to point back to the primary collision vertex and long-lived charged sleptons and R-hadrons. Such processes often have the advantage of small Standard Model backgrounds and their observation could provide unique constraints on the different SUSY breaking scenarios. Using these signatures discovery potentials are estimated for either Gauge-Mediated Supersymmetry Breaking or Split-Supersymmetry scenarios. These studies have been performed using Monte Carlo samples of SUSY and background processes corresponding to integrated luminosity of about 1fb^(-1), corresponding to the first year of LHC running.

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