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## PAMELA'S MEASUREMENT OF GEOMAGNETICALLY TRAPPED AND ALBEDO PROTONS

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Data from the PAMELA satellite experiment were used to perform a detailed measurement of under-cutoff protons at low Earth orbit. On the basis of a trajectory tracing approach using a realistic description of the magnetosphere, protons were classified into geomagnetically trapped and albedo. The former includes stably-trapped protons in the South Atlantic Anomaly, which were analyzed in the framework of the adiabatic theory, investigating energy spectra, spatial and angular distributions. PAMELA data were compared with other spacecraft measurements and with predictions of recent theoretical models. The albedo protons were classified into quasi-trapped, concentrating in the magnetic equatorial region, and un-trapped, spreading over all latitudes and including both short-lived (precipitating) and long-lived (pseudo-trapped) components. Features of the penumbra region around the geomagnetic cutoff were investigated in detail. PAMELA results significantly improve the characterization of the high energy proton populations in near Earth orbits.

### Collaboration

– not specified –

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