

THE ATIC EXPERIMENT: FIRST BALLOON FLIGHT

J.P. Wefel (1) for the ATIC Collaboration
(1) Louisiana State University, Baton Rouge, LA, USA
wefel@phunds.phys.lsu.edu / Fax: 1-225-578-1222

The Advanced Thin Ionization Calorimeter (ATIC) Balloon Experiment had its maiden, test, flight from McMurdo, Antarctica 28/12/00 to 13/01/01, local time, recording over 360 hours of data. ATIC was designed to measure the composition and energy spectra of cosmic rays from ~10 GeV to near 100 TeV utilizing a Si-matrix detector to determine charge in conjunction with a scintillator hodoscope which measures charge and trajectory. Cosmic rays that interact in a Carbon target have their energy determined from the shower that develops within a fully active calorimeter composed of a stack of scintillating BGO crystals. ATIC's geometry factor is about $0.25 \text{ m}^2\text{-sr}$. During line-of-sight operations much of the datastream was transmitted to the ground. For most of the flight, the data was recorded on-board, yielding 45 GB of flight data for analysis. The payload construction, operations and in-flight performance are described, along with preliminary results from the on-going analysis.

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