

## The AMS-02 electronics: design, production and qualification, in flight performance.

*Thursday 20 September 2012 09:00 (45 minutes)*

The Alpha Magnetic Spectrometer (AMS-02) is a high-energy physics experiment designed to operate in space on board the International Space Station (ISS), where it has been installed on May 16th 2011, and is taking data continuously since then. Thanks to the very large acceptance ( $\sim 0.5 \text{ m}^2 \text{ sr}$ ) and an exposure time of several years, AMS-02 will measure a wealth of data to study with unprecedented accuracy the composition and the energy spectrum of charged CRs and gammas up to the TeV energy scale.

The instrument is made by five different subdetectors, for a total of  $\sim 300.000$  channels, produces 7 GBit/sec of data, and use  $\sim 2 \text{ kW}$  of electric power.

The readout and DAQ electronics has been designed to obtain performances typical of HEP applications, within the constraints (power budget, QA/QC, radiation tolerance etc.) typical of a space application.

We will review the whole project from the design and prototype phase, the production and qualification, the performance tests till the operation in space.

In particular we will show the very good performance of the system in the first year of operations.

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