Contribution ID: **48** Type: **oral presentation**

AMS-02 Computing and Ground Data Handling

Wednesday, 29 September 2004 14:40 (20 minutes)

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AMS (Alpha Magnetic Spectrometer) is an experiment to search in space for dark matter and antimatter on the International Space Station (ISS). The AMS detector had a precursor flight in 1998 (STS-91, June 2-12, 1998). More than 100M events were collected and analyzed.
The final detector (AMS-02) will be installed on ISS in the fall of 2007 for at least 3 years. The data will be transmitted from ISS to NASA Marshall Space Flight Center (MSFC, Huntsvile, Alabama) and transfered to CERN (Geneva Switzerland) for processing and analysis.

We are presenting the AMS-02 Ground Data Handling scenario and requirements to AMS ground centers: the Payload Operation and Control Center (POCC) and the Science Operation Center (SOC).

The Payload Operation and Control Center is where AMS operations take place, including commanding, storage and analysis of house keeping data and partial science data analysis for rapid quality control and feed back.

The AMS Science Data Center receives and stores all AMS science and house keeping data, as well as ancillary data from NASA. It ensures full science data reconstruction, calibration and alignment; it keeps data available for physics analysis and archives all data.

We also discuss the AMS-02 distributed MC production currently running in 15 Universities and Labs in Europe, USA and Asia, with automatic jobs submission and control from one central place (CERN). The software uses CORBA technology to control and monitor MC production and an ORACLE relational database, to keep catalogues, event description as well as production and monitoring information.

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Session Classification: Distributed Computing Systems and Experiences

Track Classification: Track 5 - Distributed Computing Systems and Experiences