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Operation of the AMS-02 TRD in Space

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The AMS-02 detector was installed on May 2011 on board of the International Space Station, and has since collected billions of cosmic ray events.

AMS will measure with unprecedented precision cosmic ray spectra up to the TeV energy scale, achieving a sensitivity to the existence of anti-helium nuclei of one part in a billion, as well as providing important information on the origin of dark matter.

A Transition Radiation Detector, filled with a Xe/CO₂ mixture, is used to reach the sensitivity to positron identification needed for the detection of a neutralino dark matter candidate.

The control of a gaseous detector in Space is a challenging task: the operational procedures, and the performances achieved, will be described.

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