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AMS-100 –The next generation magnetic spectrometer in Space

The space based cosmic rays experiments PAMELA, AMS and FERMI have covered in the last decade the physics of cosmic rays up to the TeV scale with high precision. To extend this energy range significantly requires a new experimental concept. In this presentation a detector concept will be outlined for a large scale experiment at the Lagrange Point 2 (LP-2). It consists of a large high temperature super-conducting magnet, a combined silicon and scintillating fiber tracker, a time of flight system and an calorimeter. The design follows the cylindrical geometry of the pioneering BESS balloon experiment and allows for an acceptance of 100 m² sr and an MDR of 100 TV. Most of the sky will be covered continuously. Using converted photons the angular resolution is improved significantly compared to FERMI in the TeV range. With the next generation of rockets expected to be available around the year 2025 in the US and China it will be possible to launch such an experiment with a typical weight of 45 tons to the LP-2. The detector concept and the physics program will be discussed.

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