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Search for novel origins of cosmic-ray antiprotons and antimatter with BESS-Polar flight over Antarctica.

The primary aims of the BESS-Polar program are precise measurements of the low-energy antiproton spectrum and search for cosmologically significant antimatter, which would provide new clues to understand the early Universe. The second flight (BESS-Polar II) over Antarctica was successfully carried out in December 2007 - January 2008. We performed 24.5 days scientific observation just at the solar minimum. The payload worked well during the flight and 4.7 billion cosmic-ray events were collected, which corresponds to 10-20 times statistics of the BESS data taken in the previous solar minimum period (1995 and 1997). Based on the BESS-Polar II data, we will present recent preliminary results of cosmic-ray antiproton measurements and sensitive search for antimatter.

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