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DIRECT COSMIC-RAY MEASUREMENTS WITH CREAM AND ISS-CREAM SAI IM, Pennsylvania State Univ, ISS-CREAM COLLABORATION — Cosmic ray science has evolved since its earliest forays into the stratosphere with particle detectors flown on hydrogen balloons over 100 years ago. There has been significant recent progress in elucidating the mechanisms by which galactic cosmic rays accelerate and propagate. I will discuss one ongoing endeavor to measure the individual fluxes and energies of cosmic ray species with elemental resolution, the cosmic ray energetics and mass (CREAM) program. This is a series of nasa-supported long-duration balloon flights over antarctica since 2004. I will also cover ISS-CREAM, the next generation of cream on the international space station, planned for launch in 2016 by spacex rocket. I will describe the design and status of the instrument, and in particular the new boronated scintillator detector, which permits the identification of cosmic-ray electrons and thus augments the science program of the ISS-CREAM mission.

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