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The Compton Spectrometer and Imager: Results from the 2016 Super-Pressure Balloon Campaign

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The Compton Spectrometer and Imager is a 0.2-5 MeV Compton telescope capable of imaging, spectroscopy and polarimetry of astrophysical sources. Such capabilities are made possible by COSI's twelve germanium cross-strip detectors, which provide for high efficiency, high resolution spectroscopy, and precise 3D positioning of photon interactions. In May 2016, COSI took flight from Wanaka, New Zealand on a NASA super-pressure balloon. For 46 days, COSI floated at a nominal altitude of 33.5 km, continually telemetering science data in real-time. The payload made a safe landing in Peru, and the hard drives containing the full raw data set were recovered. Analysis efforts have resulted in detections of various sources such as the Crab Nebula, Cyg X-1, Cen A, Galactic Center e+e- annihilation, and the long duration gamma-ray burst GRB 160530A. In this presentation, I will provide an overview of our main results, which include measuring the polarization of GRB 160530A, and our image of the Galactic Center at 511 keV. Additionally, I will summarize results pertaining to our detections of the Crab Nebula, Cyg X-1, and Cen A.

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