Measurement of the cosmic X-ray background

Satellite studied for this purpose - CXBN

CXBN (Cosmic X-ray Background Nanosatellite)

CXBN is a cooperative nanosatellite mission with the objective to make precise measurements of the cosmic X-ray background in the 30-50 keV range. The mission addresses a fundamental science question central to our understanding of the structure, origin, and evolution of the universe by potentially lending insight into the high energy background radiation.

MSU is responsible for the engineering of all spacecraft subsystems, and the detector is being designed by UCB, LLNL (Lawrence Livermore National Laboratory), and Noqsi Aerospace. CXBN will feature many unique systems, including sun sensors, a star sensor system, an ARM-7 Coretex processor, and an articulating solar array. MSU will also provide ground operations for the mission utilizing the 21 m Space Tracking Antenna and other ground assets.

The science goals of the CXBN mission call for:

- Increase the precision DXRB measurement in the 10-50 keV range

- Produce data that will lend insight into underlying physics of the DXRB

2U CubeSat 10 cm x 10 cm x 20 cm, a mass of ~2.5 kg, and a maximum power of 15 W.

Use of aluminum 6061-T6; type III hard anodized. It serves as a chassis to accommodate a monofilament cutter system that retains four deployable solar panels and blade antennas in the stow configuration.