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Title: Searching for Missing Baryons with a CubeSat

Abstract:

About one third of the baryons observed in the early universe are missing in the most complete census of the local/present-day universe. The missing baryons may be in hot galactic halos. HaloSat is the first CubeSat for astrophysics funded by NASA's Science Mission Directorate and is designed to map oxygen line emission across the sky in order to constrain the mass and spatial distribution of hot gas in the Milky Way. This will help determine if hot halos with temperatures near a million degrees bound to galaxies make a significant contribution to the cosmological baryon budget. HaloSat was deployed from the International Space Station in July 2018 and started surveying the sky in October 2018. We describe the instrument performance and present initial scientific results.