Instruments on the CuPID Cubesat Observatory

Emil A. Atz

B.M. Walsh¹, L.J. Billingsley², M.R. Collier², H.J. Connor², B. Dingwall³, J. Kujawski⁴, K.D. Kuntz⁵, F.S. Porter², D.G. Sibeck², S.L. Snowden², N.E. Thomas², D.L. Turner⁶, A. Weatherwax⁷, A. Yousuff⁴, A. Zosuls¹

¹ Boston University, Center for Space Physics; ²NASA Goddard Space Flight Center; ³NASA Wallops Flight Facility; ⁴Drexel University; ⁵The Henry A. Rowland Department of Physics and Astronomy, Johns Hopkins University; ⁶Space Science Applications Laboratory, The Aerospace Corporation; ⁷Merrimack College
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CuPID will test competing theories of magnetic reconnection by observing the magnetospheric cusps.
The 6U chassis houses \textit{two} instrument payloads and a custom avionics system for 3-axis control.
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Soft X-Ray Telescope:

Lobster Eye Optics

Human Made Optics $\rightarrow$ **Slumped Micro-pore Reflector**

Slide content originated from B.M. Walsh
Soft X-Ray Telescope:

**Lobster Eye Optics**

Micro-Pore Reflector allows for filtering material to be added on top of optic array

Polyimide/Aluminum

DXL/STORM

[Collier, 2015]
Soft X-Ray Telescope:

“Magnetic” Optics

Magnet Array

Light Baffles

[Collier, 2015]
Soft X-Ray Telescope:

Micro-Channel Detector Plate

CuPID First Light 11/04/2016

Point Spread Function

Recent Testing 06/13/2018
The 6U chassis houses *two* instrument payloads and a custom avionics system for 3-axis control.
Micro-Dosimeter Suite:

Collimation

Mechanical FOV is ~45 degrees

Experimental FOV is ~50 degrees
(still undergoing testing)
Micro-Dosimeter Suite

Detection

Foil layer before silicon detector

Dos-A

18μm Aluminum
> 50keV Electrons

Dos-B

0.2μm Nickel
> 50keV Electrons and Protons

Bench testing at BU
Instrument Heritage

**Soft X-Ray Telescope:**
DXL Sounding Rocket 2015

**Micro-Dosimeters**
Aerospace Corp. AeroCube-6
Questions?