



The Space Congress® Proceedings

2003 (40th) Linking the Past to the Future - A
Celebration of Space

Apr 29th, 1:30 PM - 4:30 PM

Panel Session II - The Impact of Space Telescopes on Astronomy

Harvey Tananbaum
Director, Chandra X-Ray Center

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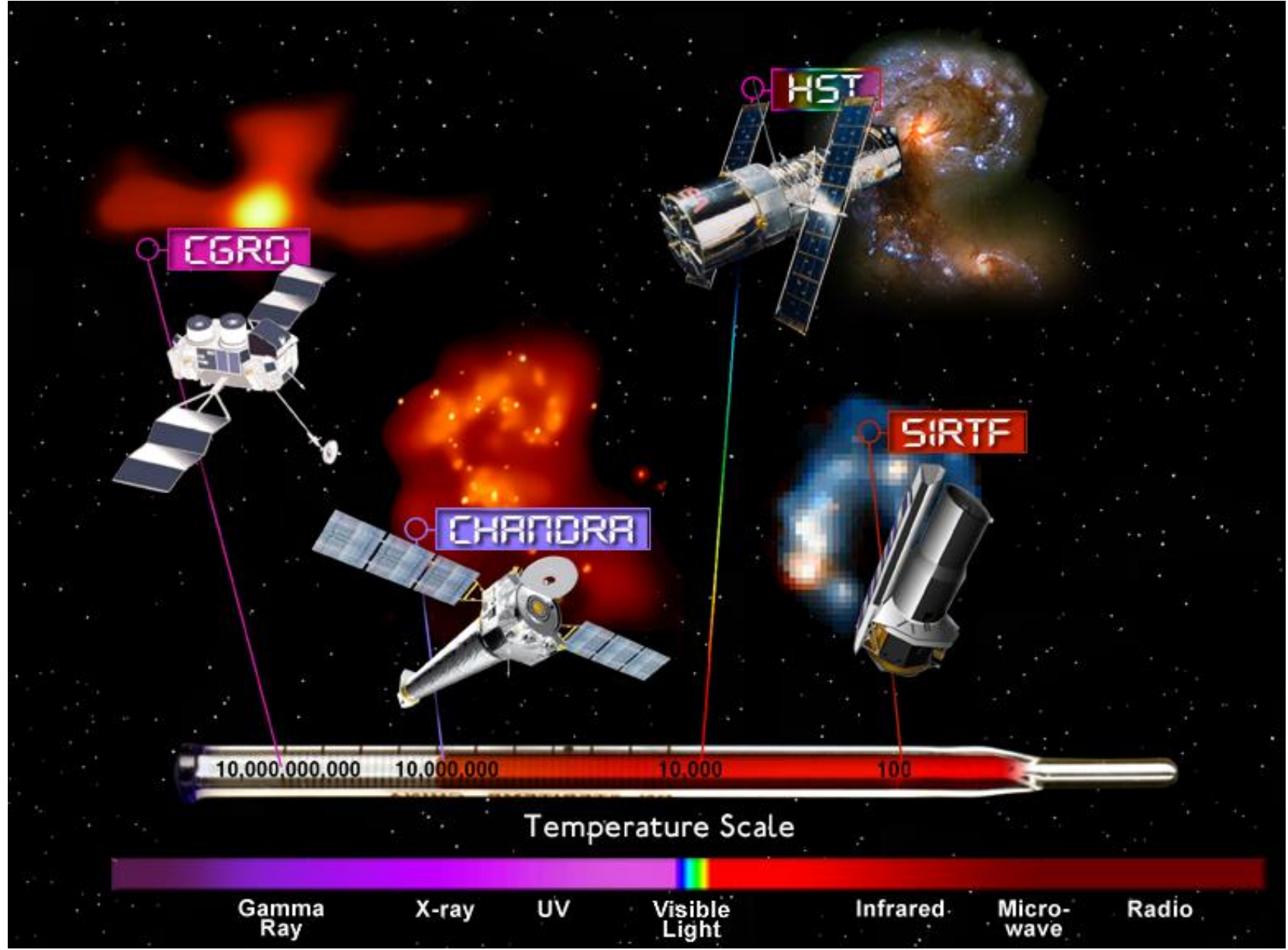
The Chandra X-Ray Observatory



Harvey Tananbaum :: Director, Chandra X-Ray Center
40th Space Congress :: The Impact of Space Telescopes on Astronomy
April 29, 2003



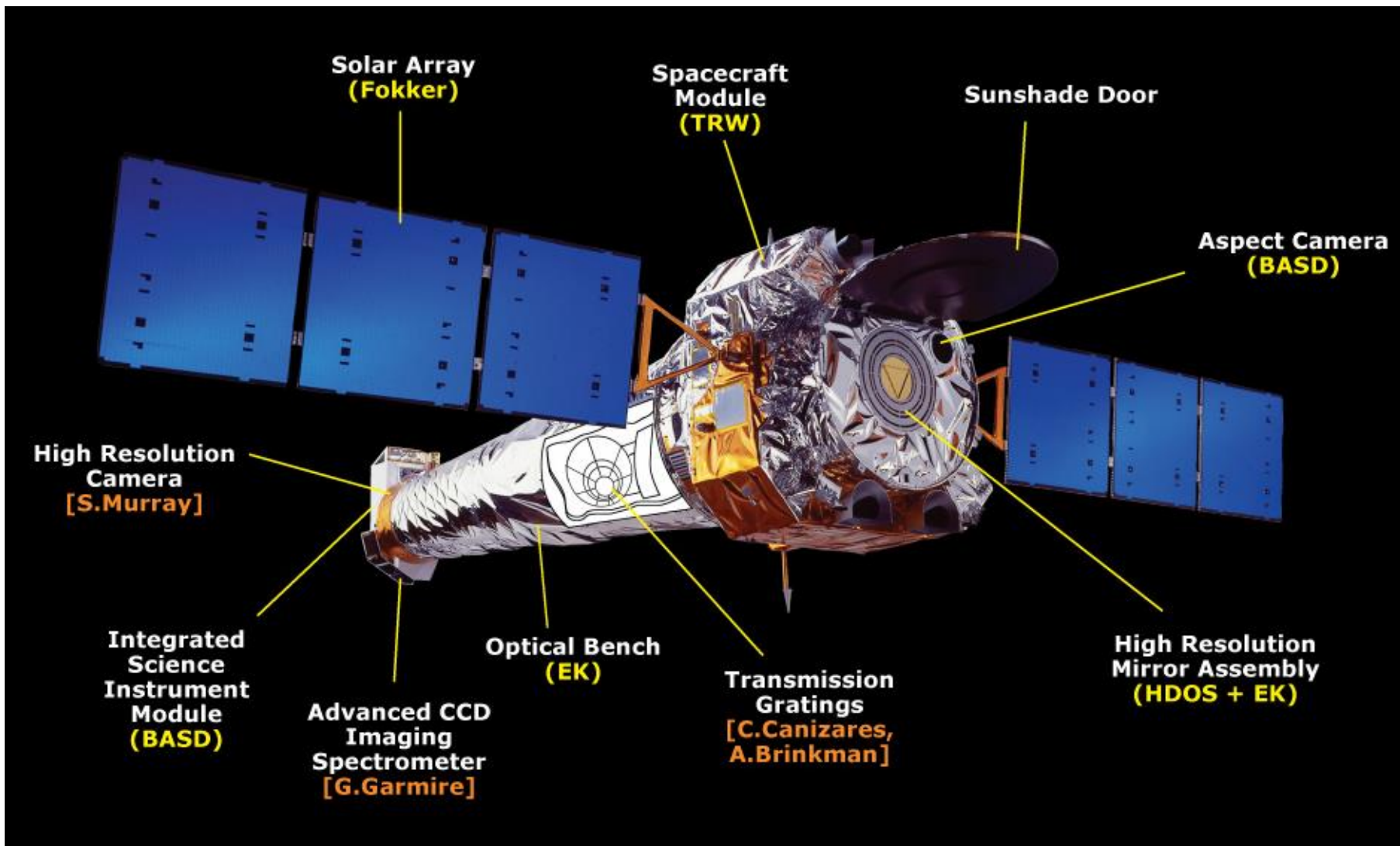
Chandra X-Ray Observatory





Chandra X-Ray Observatory

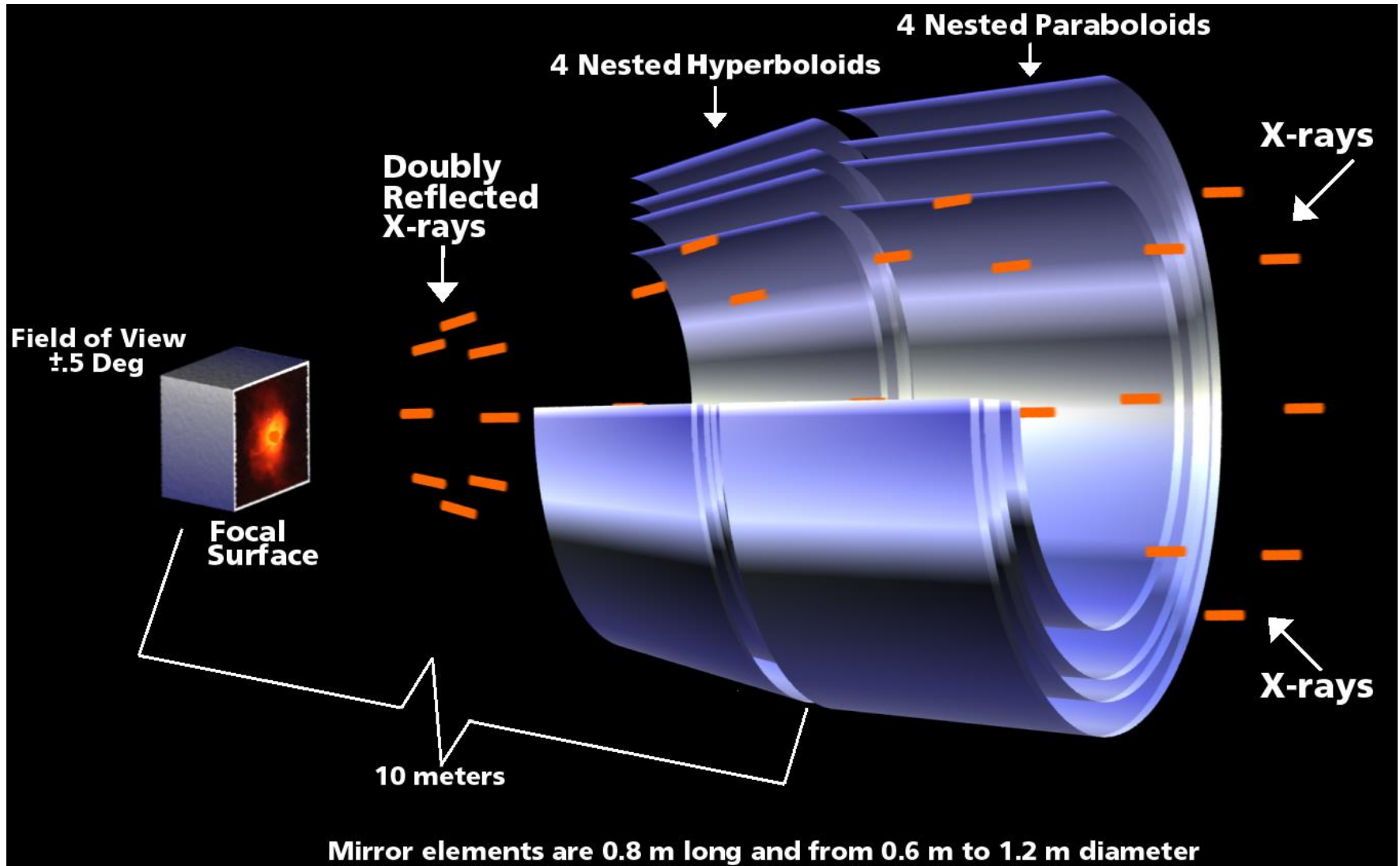
Chandra Spacecraft





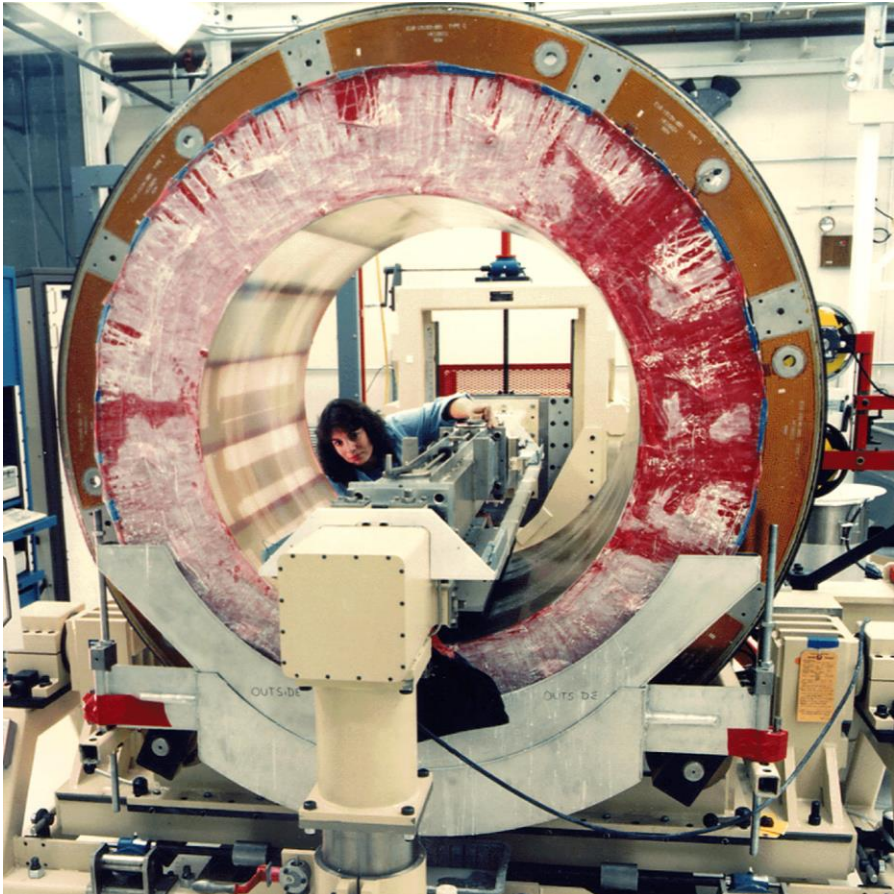
Chandra X-Ray Observatory

Schematic of Grazing Incidence, X-ray Mirror





Chandra X-Ray Observatory



Polishing a CXO Mirror Shell

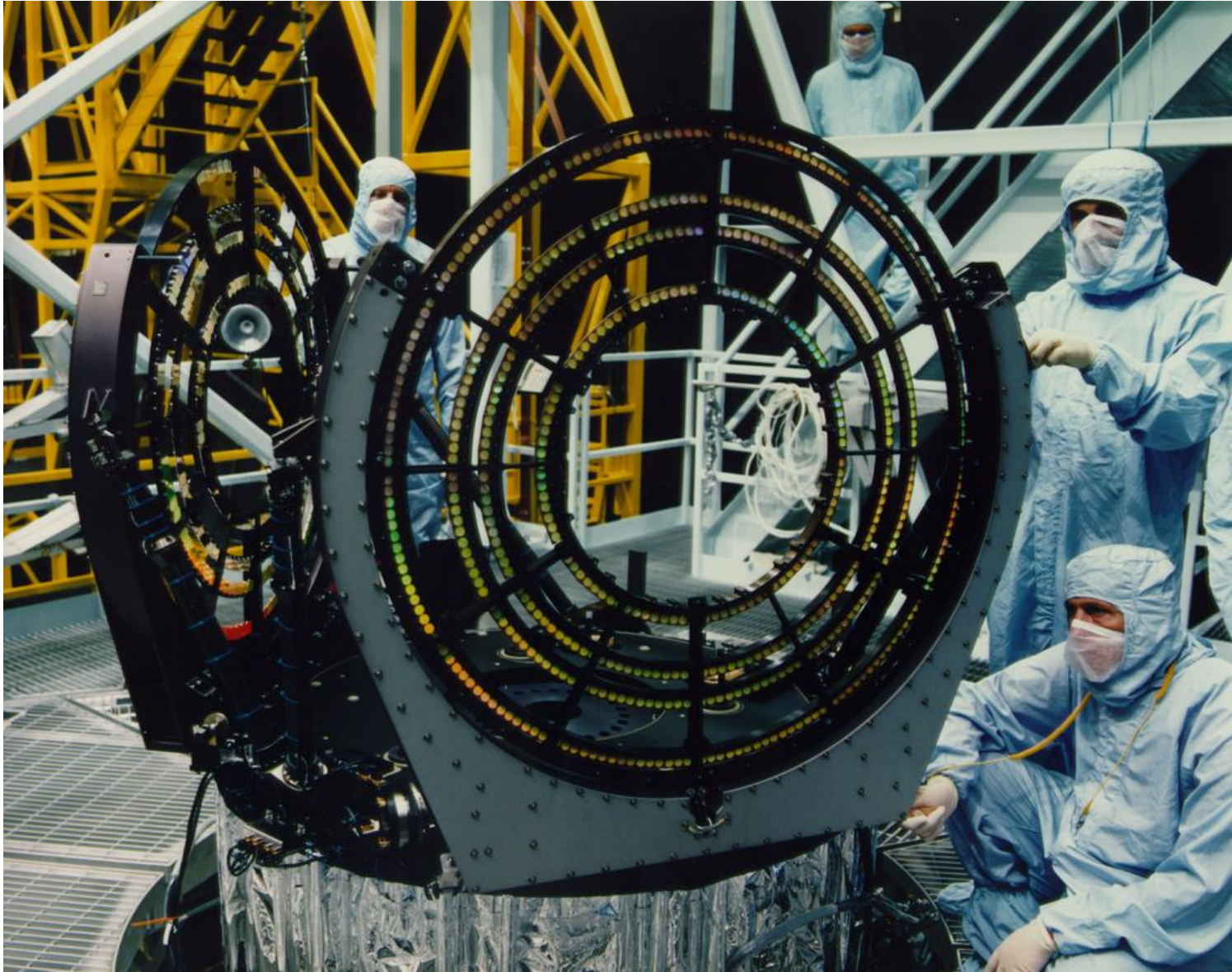


CXO Mirror Fabrication



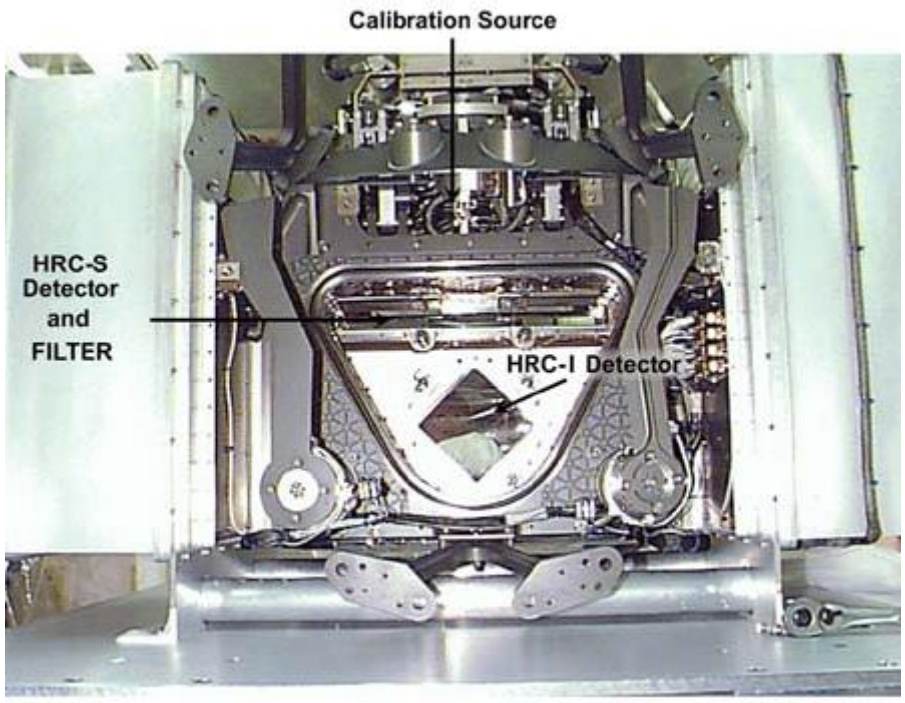
Chandra X-Ray Observatory

High- and Low-Energy Gratings

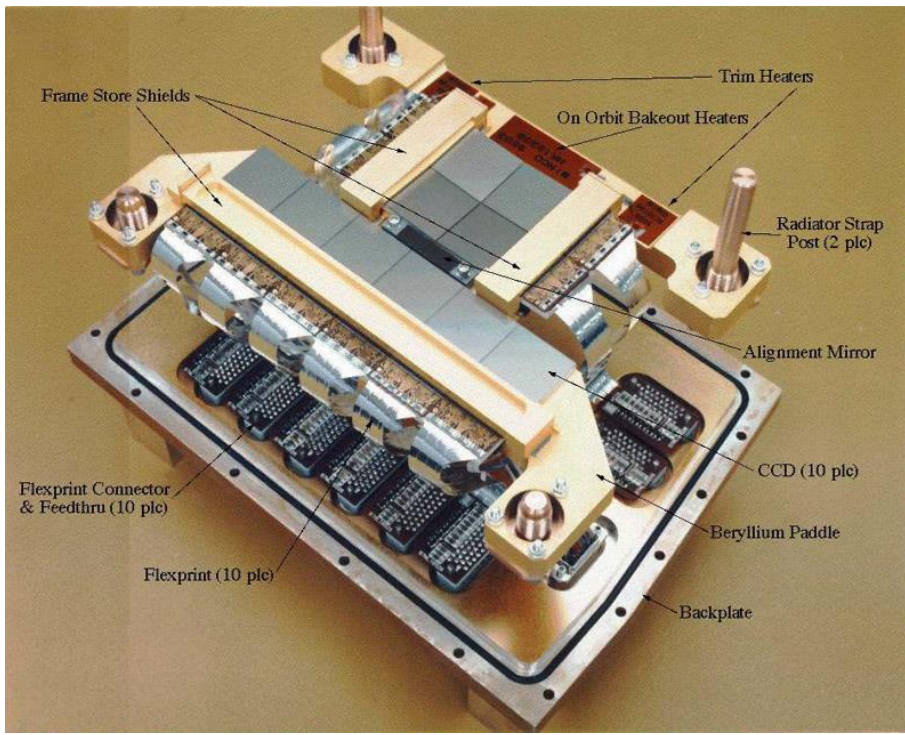




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HRC Detector

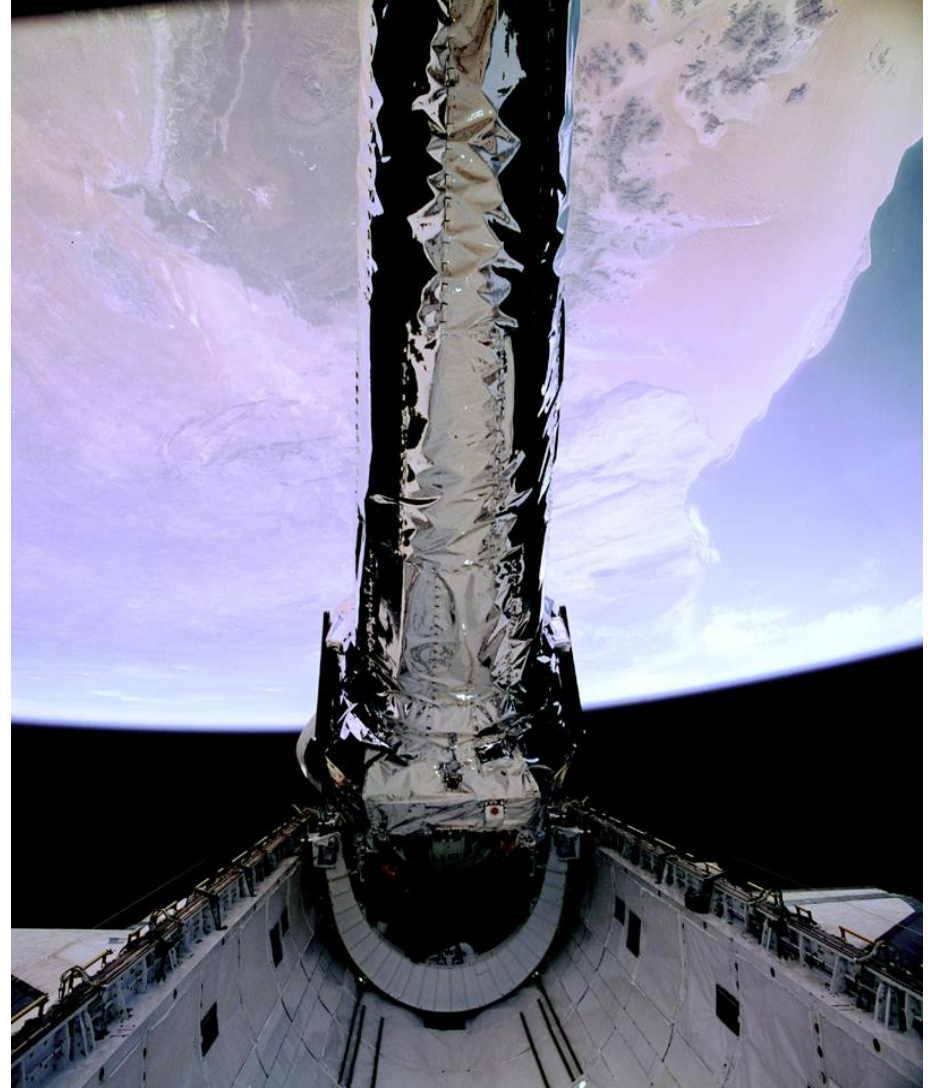


ACIS Detector



Chandra X-Ray Observatory

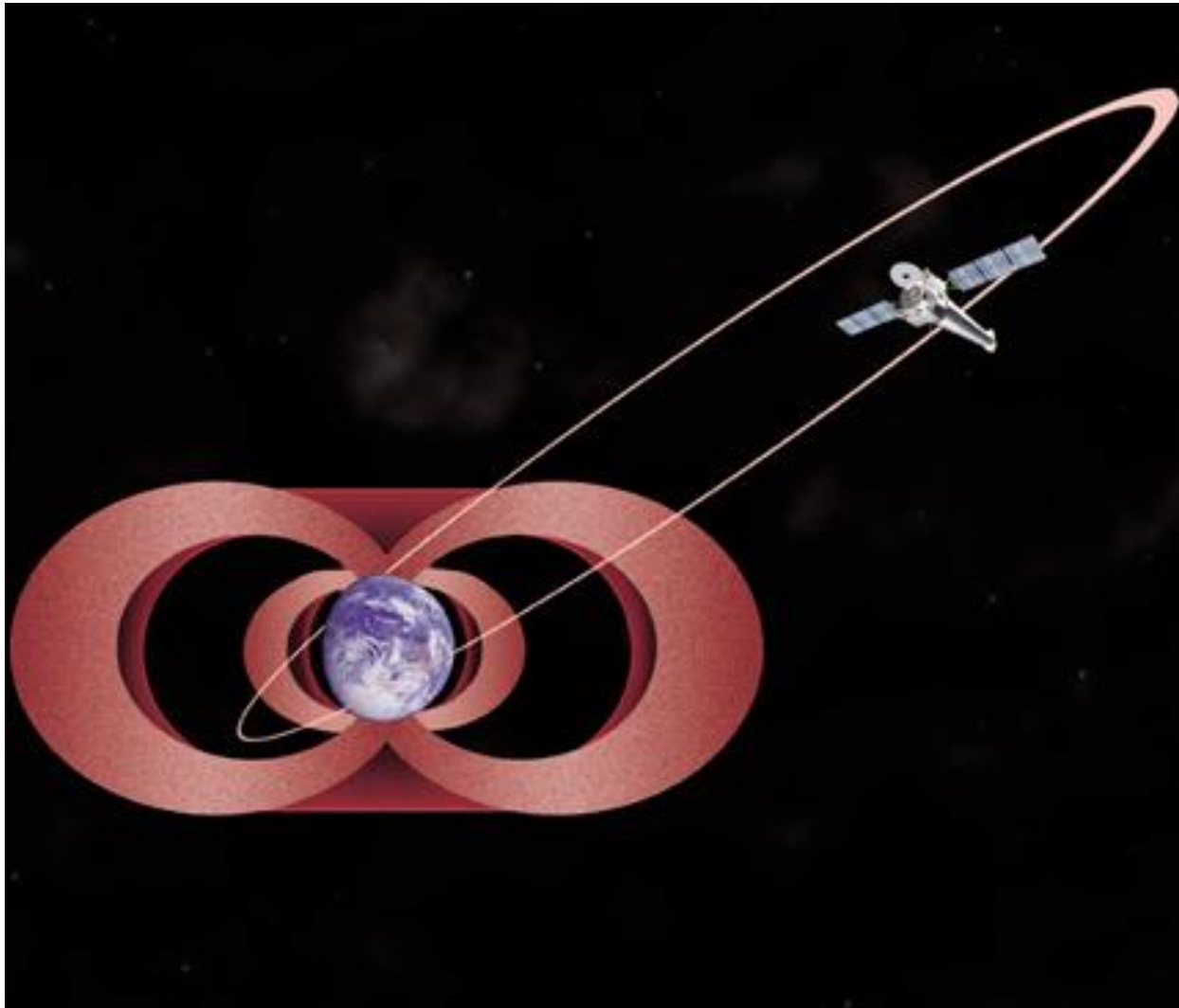
Launch & Deploy





Chandra X-Ray Observatory

Chandra's Orbit

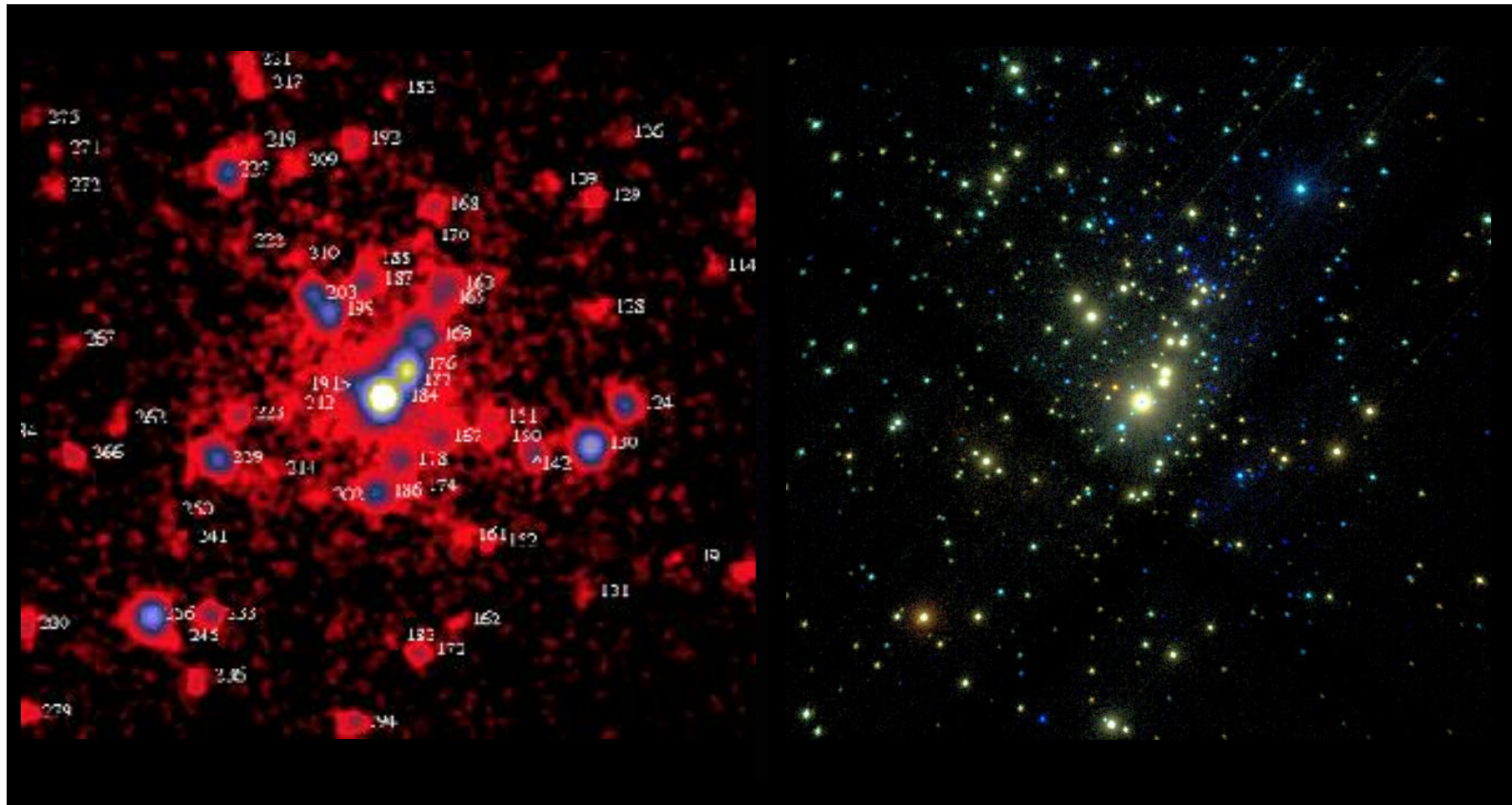


Side view, showing radiation belts



Chandra X-Ray Observatory

Orion Nebula, X-ray



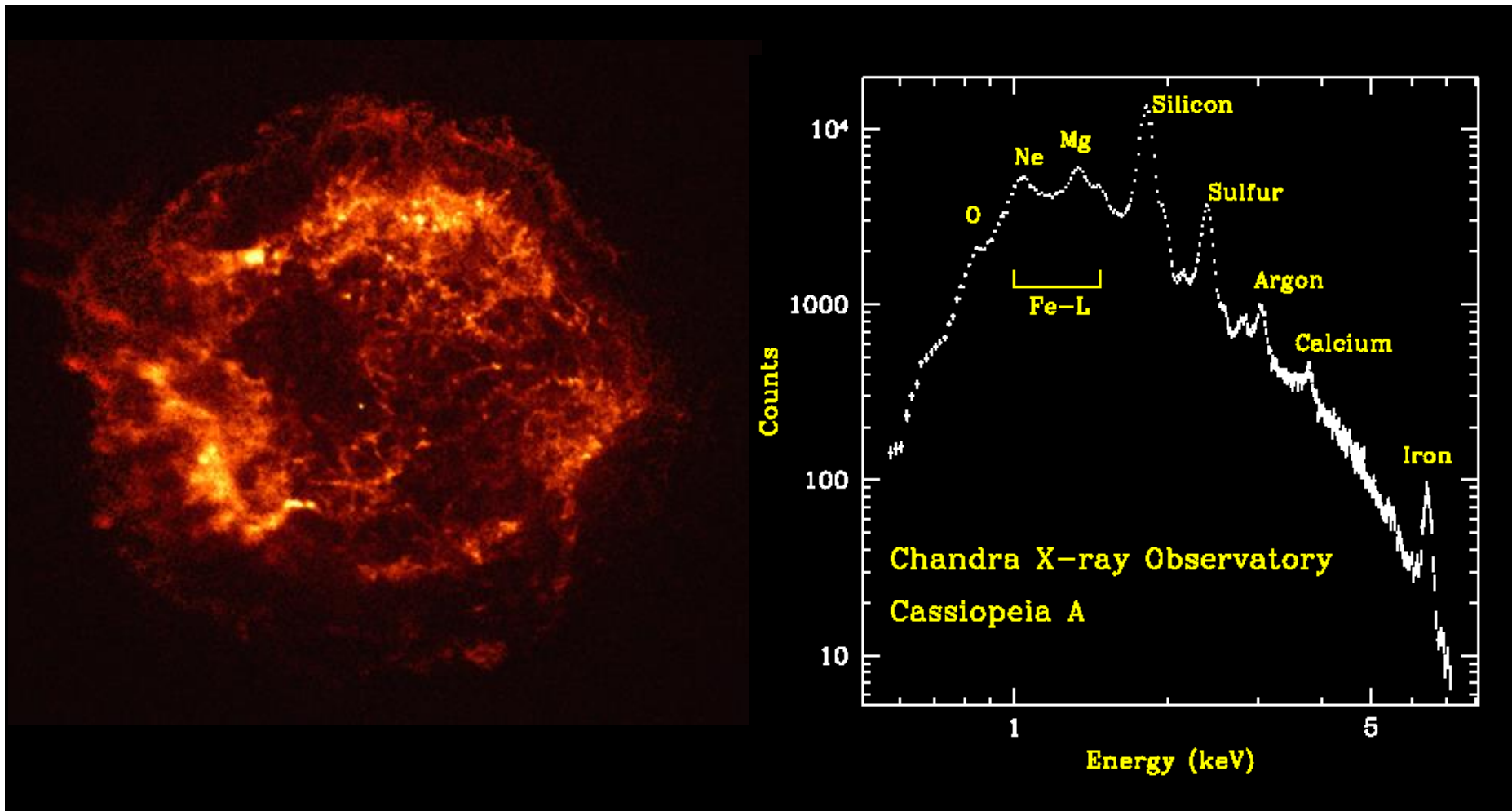
Rosat HRI Observation

Chandra ACIS Observation



Chandra X-Ray Observatory

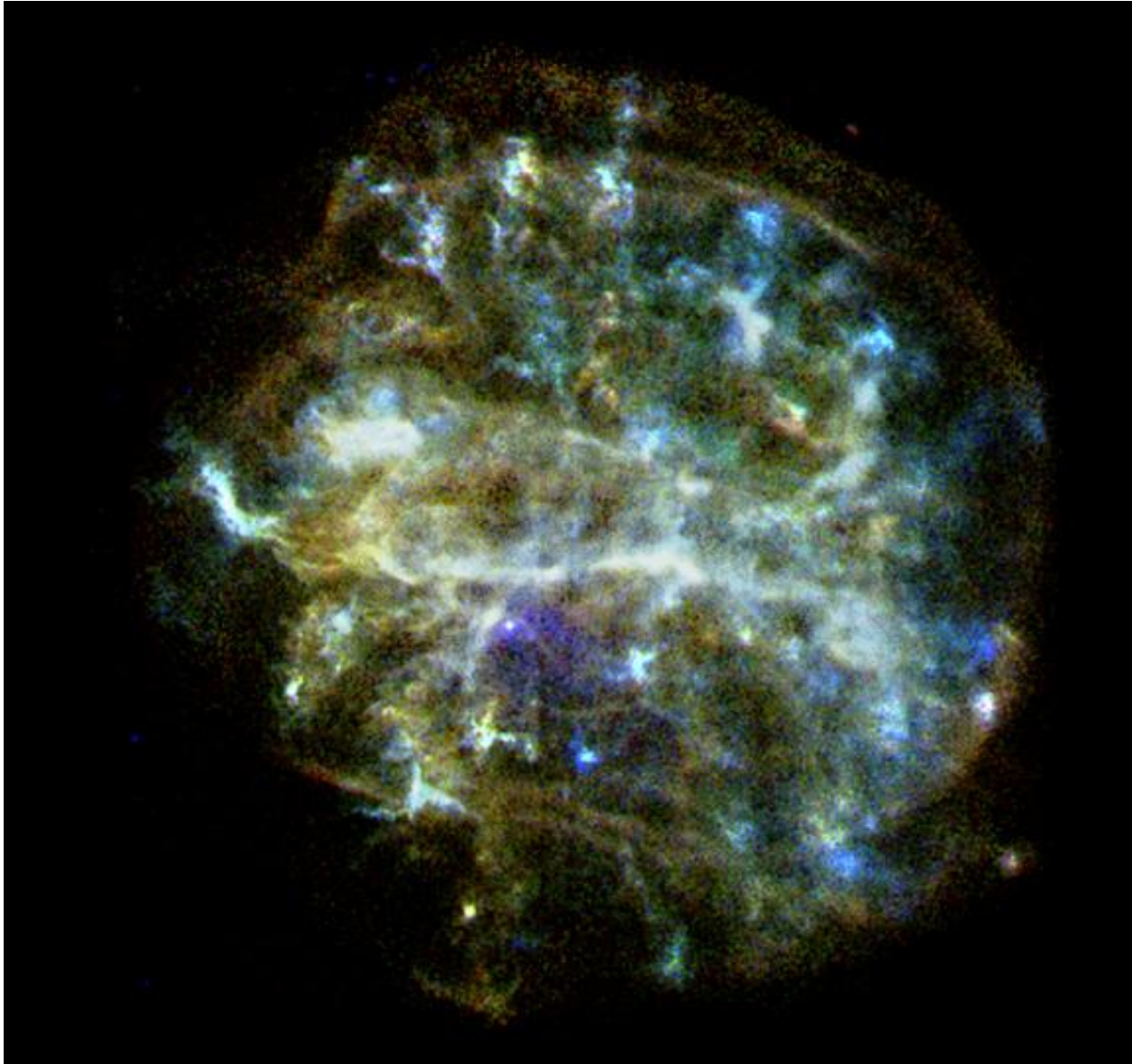
First Light: Cas A





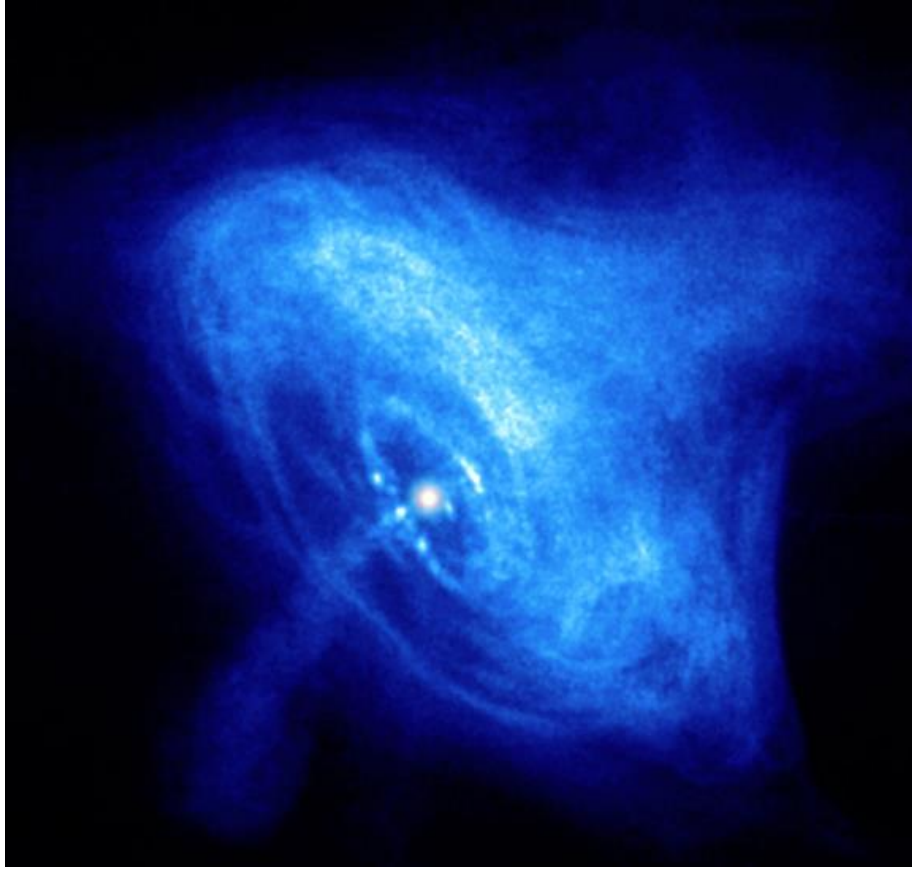
Chandra X-Ray Observatory

G292.0+1.8

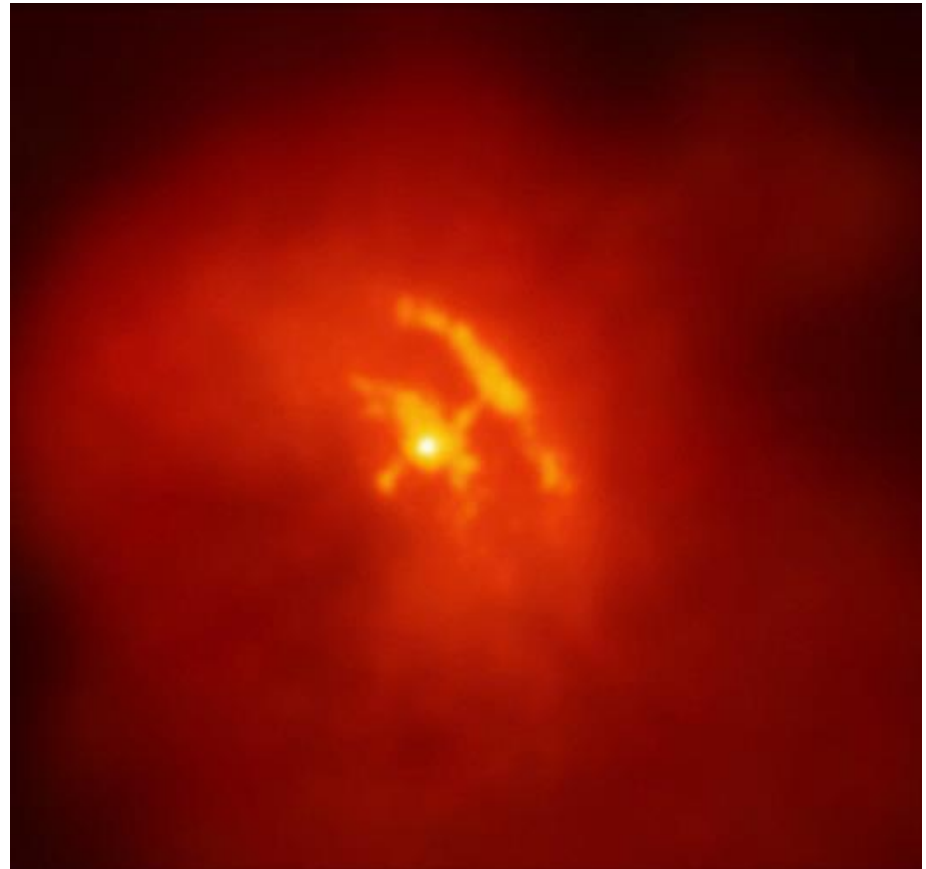




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Crab Nebula

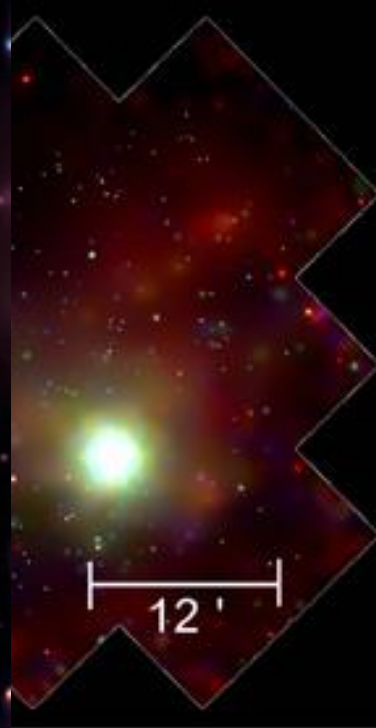
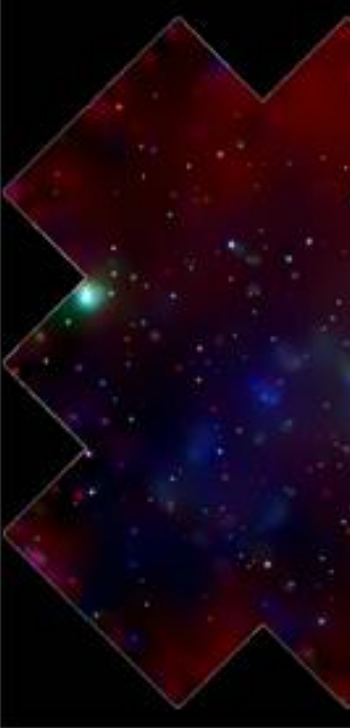


Vela Pulsar



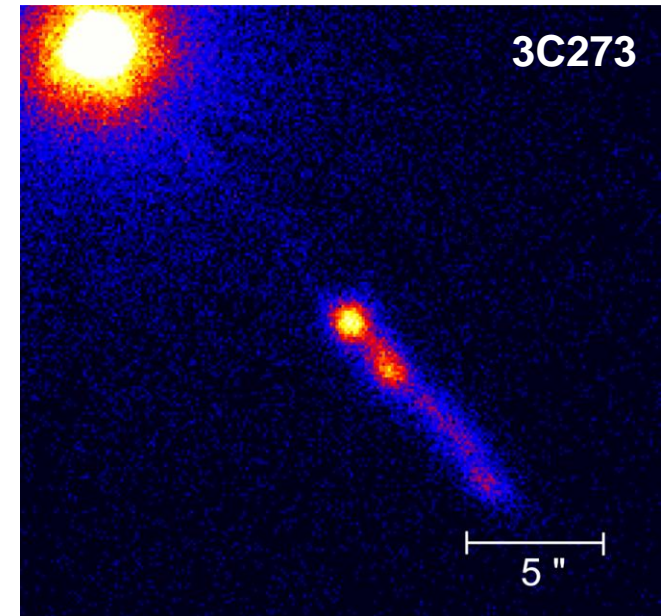
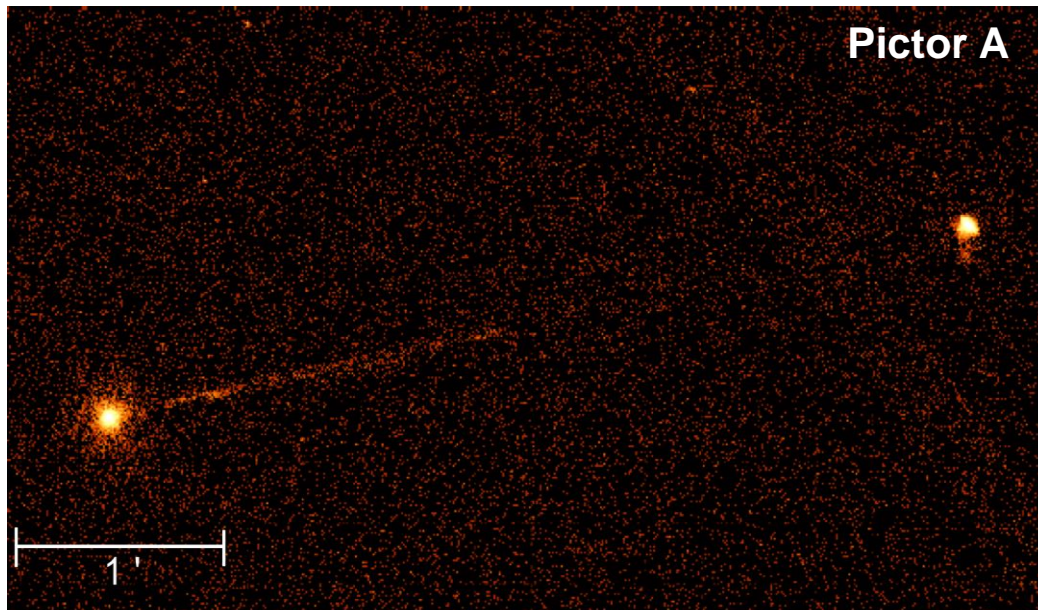
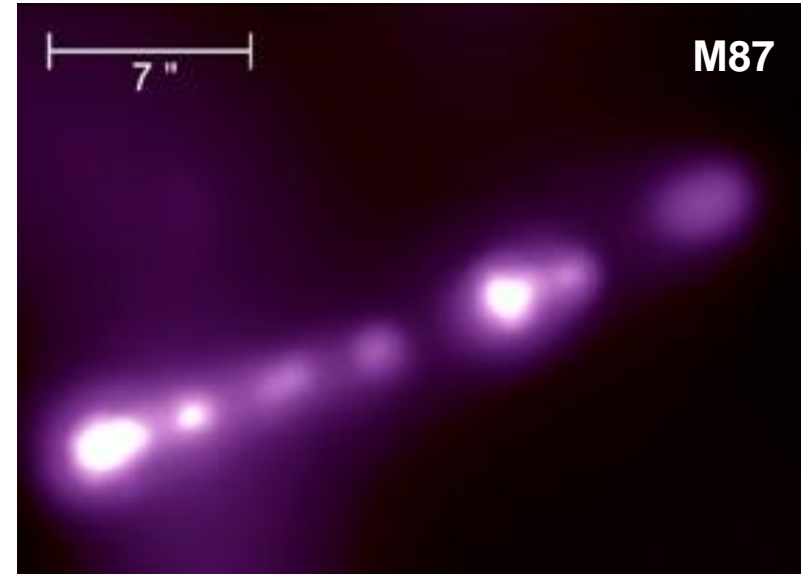
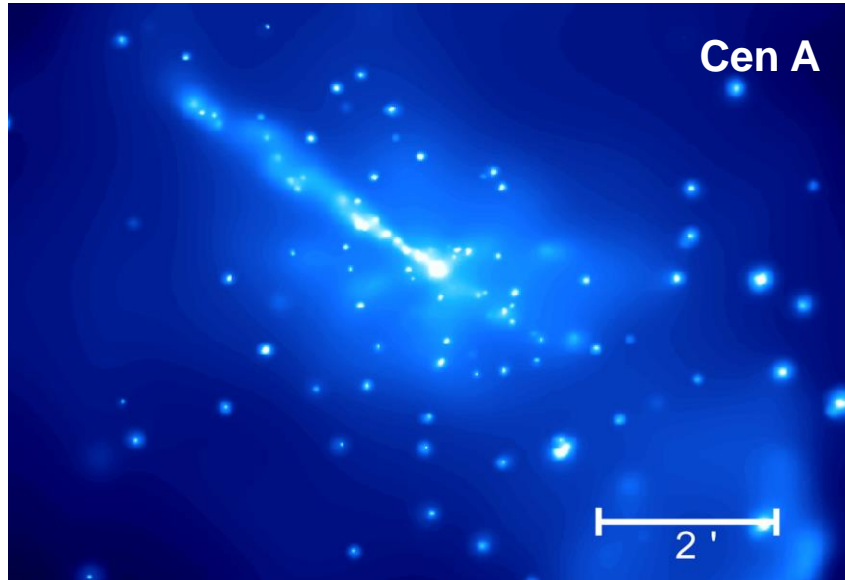
Chandra X-Ray Observatory

Galactic Center





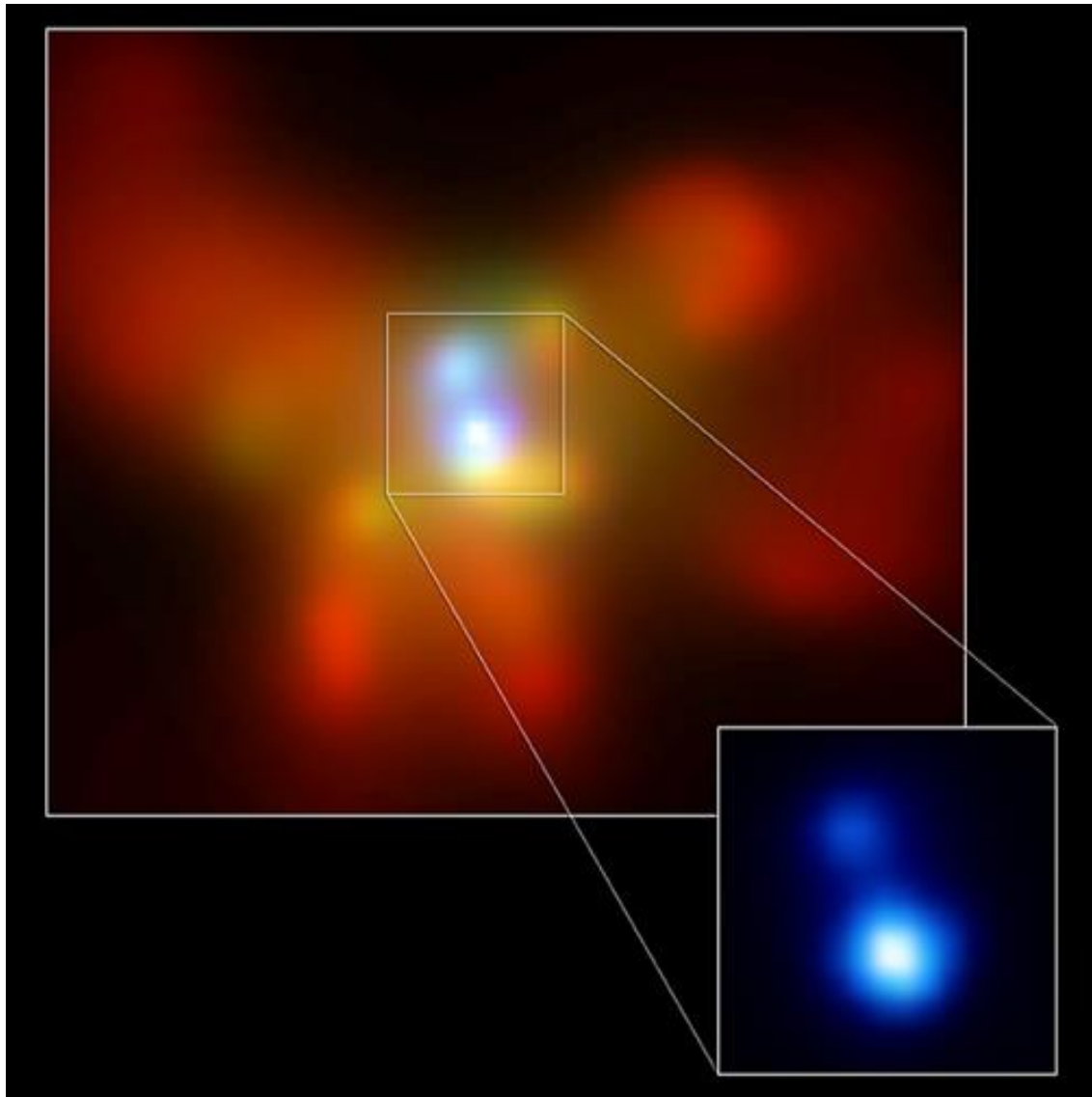
Chandra X-Ray Observatory





Chandra X-Ray Observatory

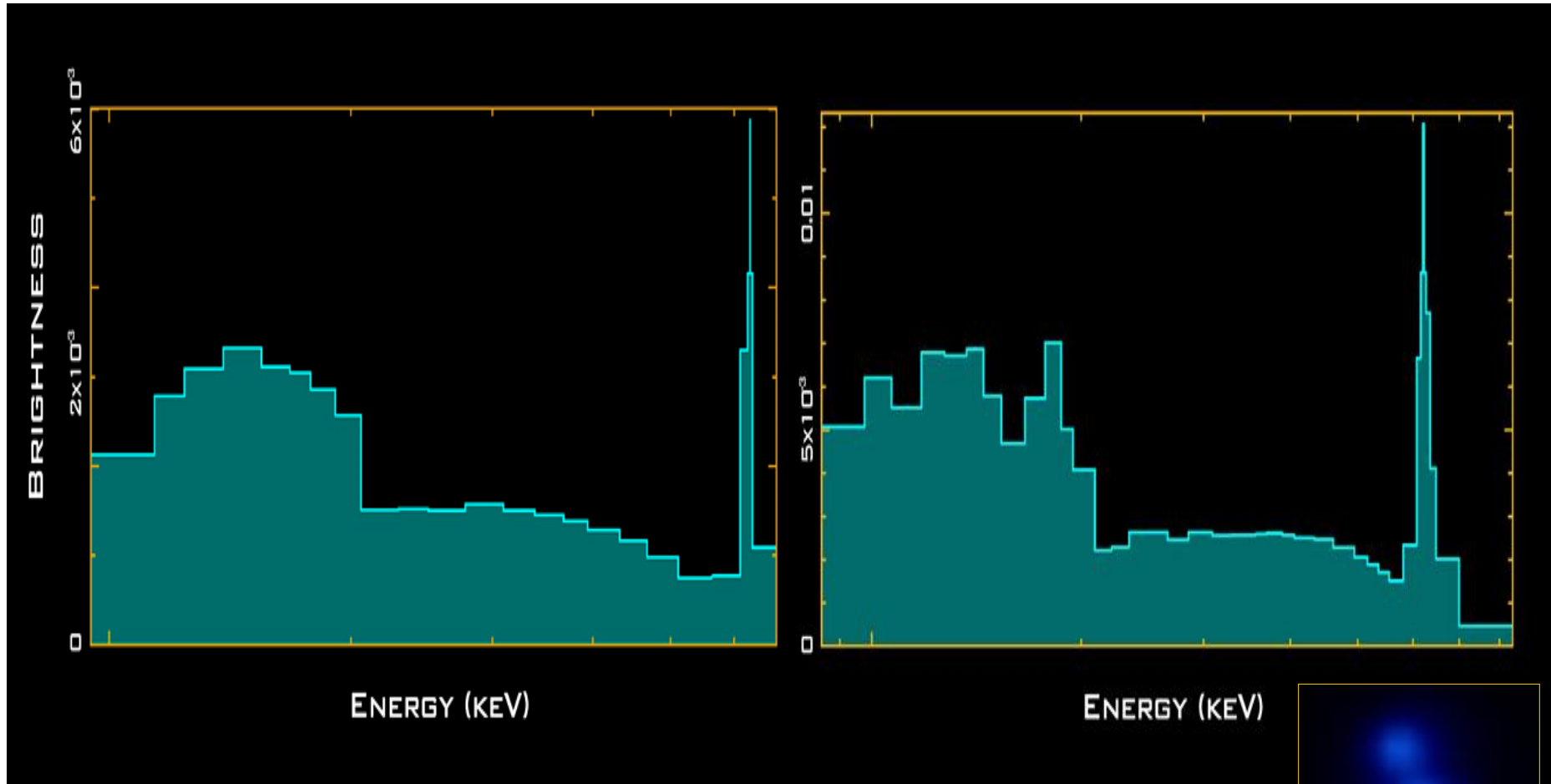
NGC 6240





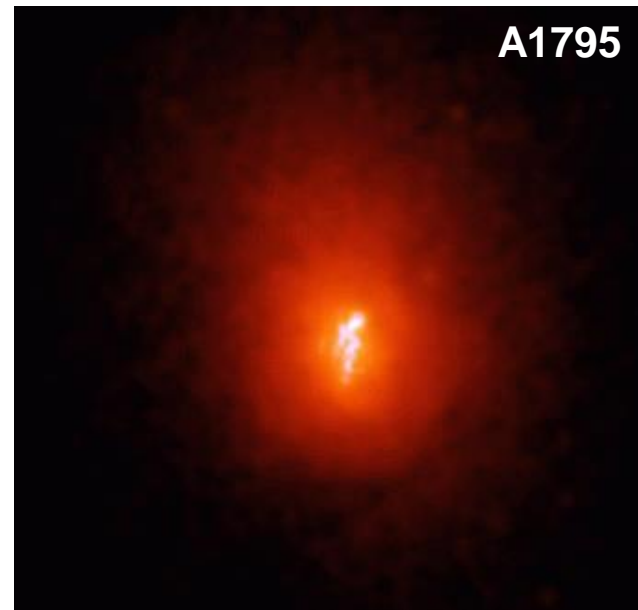
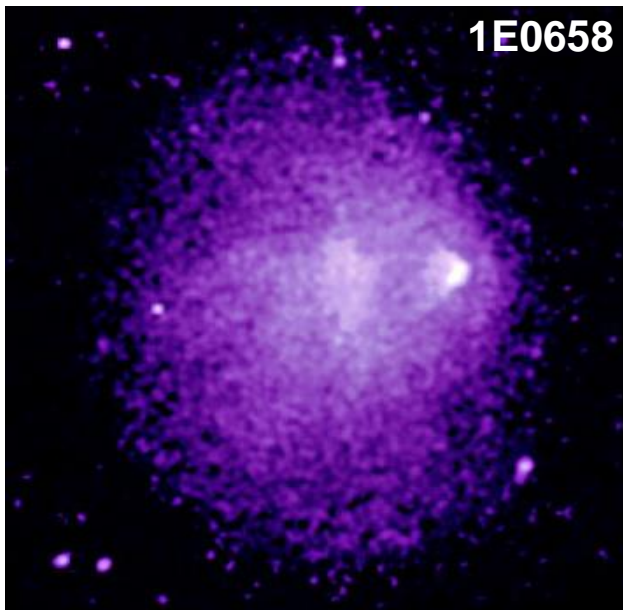
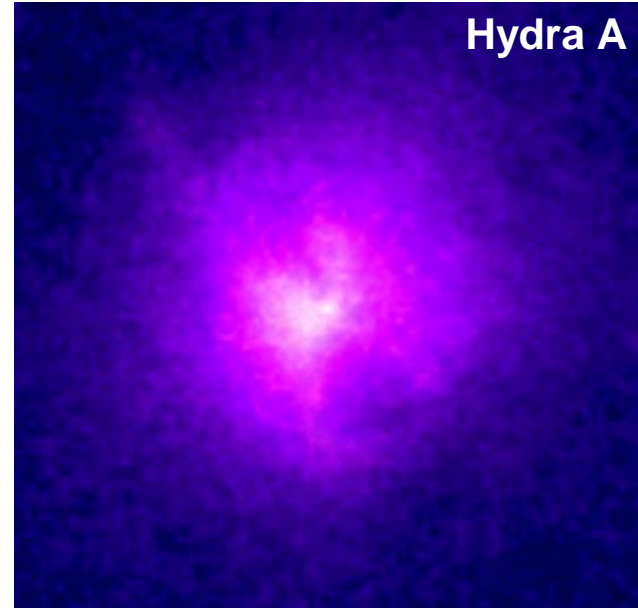
Chandra X-Ray Observatory

NGC 6240





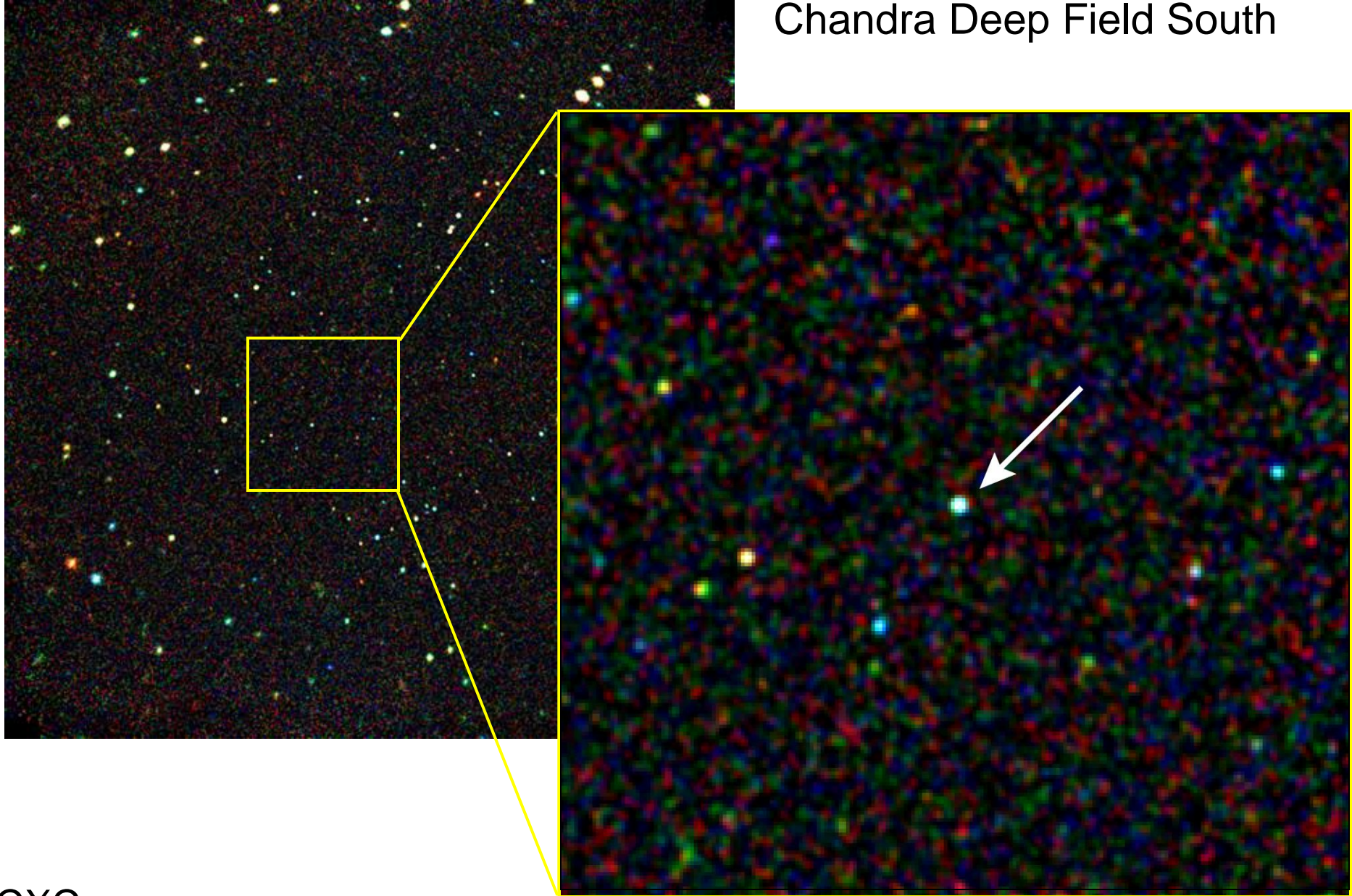
Chandra X-Ray Observatory





Chandra X-Ray Observatory

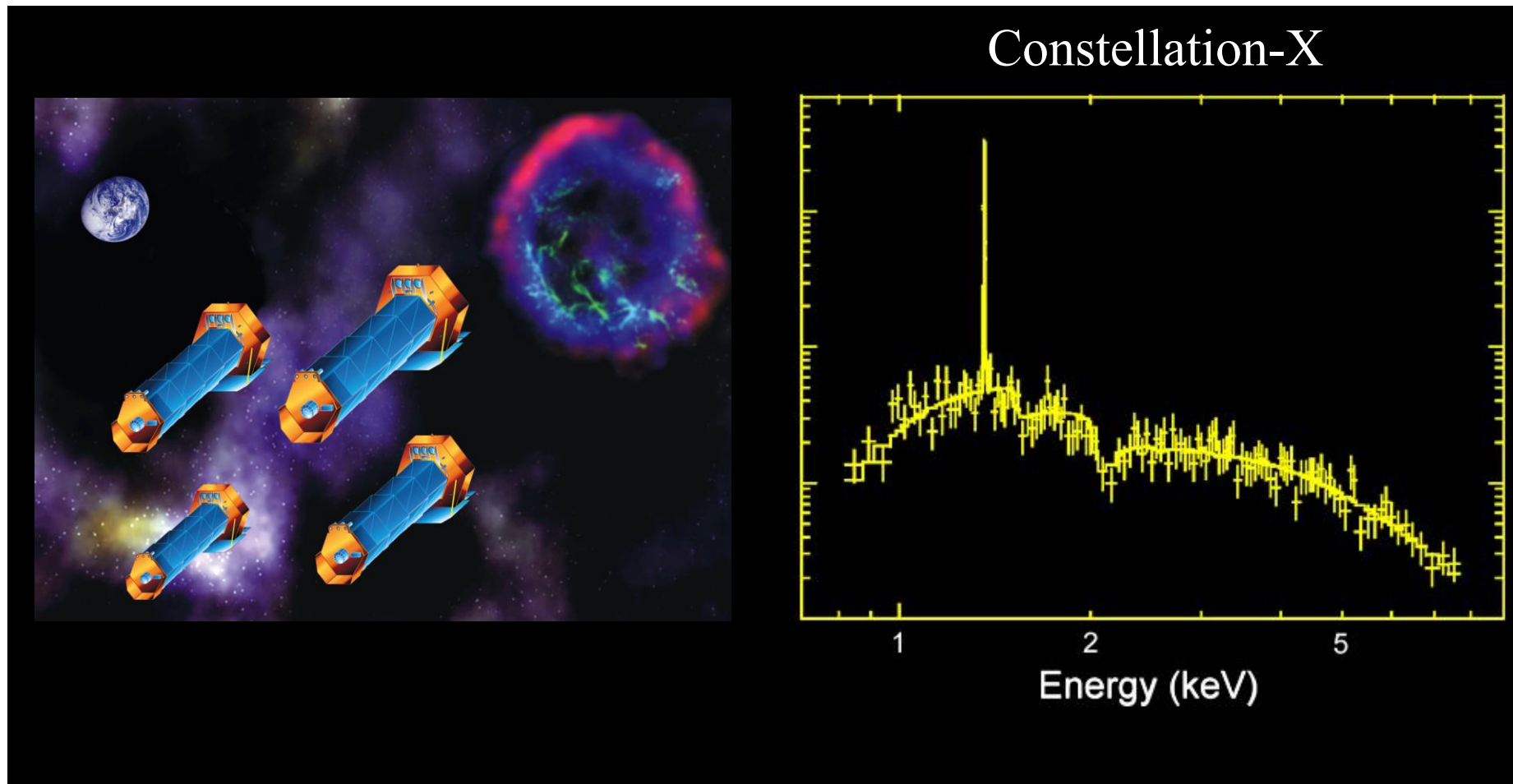
Chandra Deep Field South





Constellation X-Ray Mission

Quasar 2 at $z = 3.7$





X-ray Astronomy Roadmap


Chandra


XMM-Newton

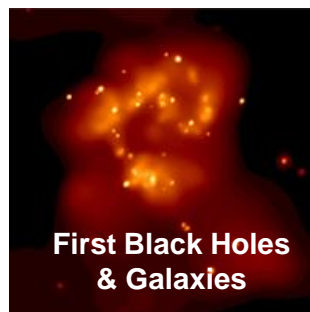
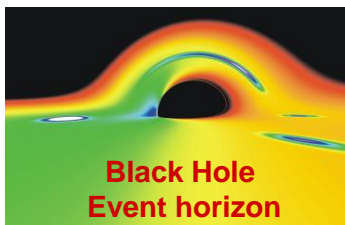

Astro-E2


0.1-0.35 m²
0.5-90 arc sec

Constellation-X
20-100 times increased sensitivity for spectroscopy



3 m²
5-15 arc sec

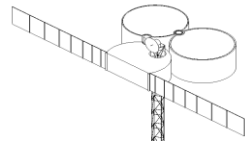


MAXIM
10 Million times finer imaging



0.1-1.0 m²
0.1 micro arc sec

Generation-X
1000 times deeper X-ray imaging

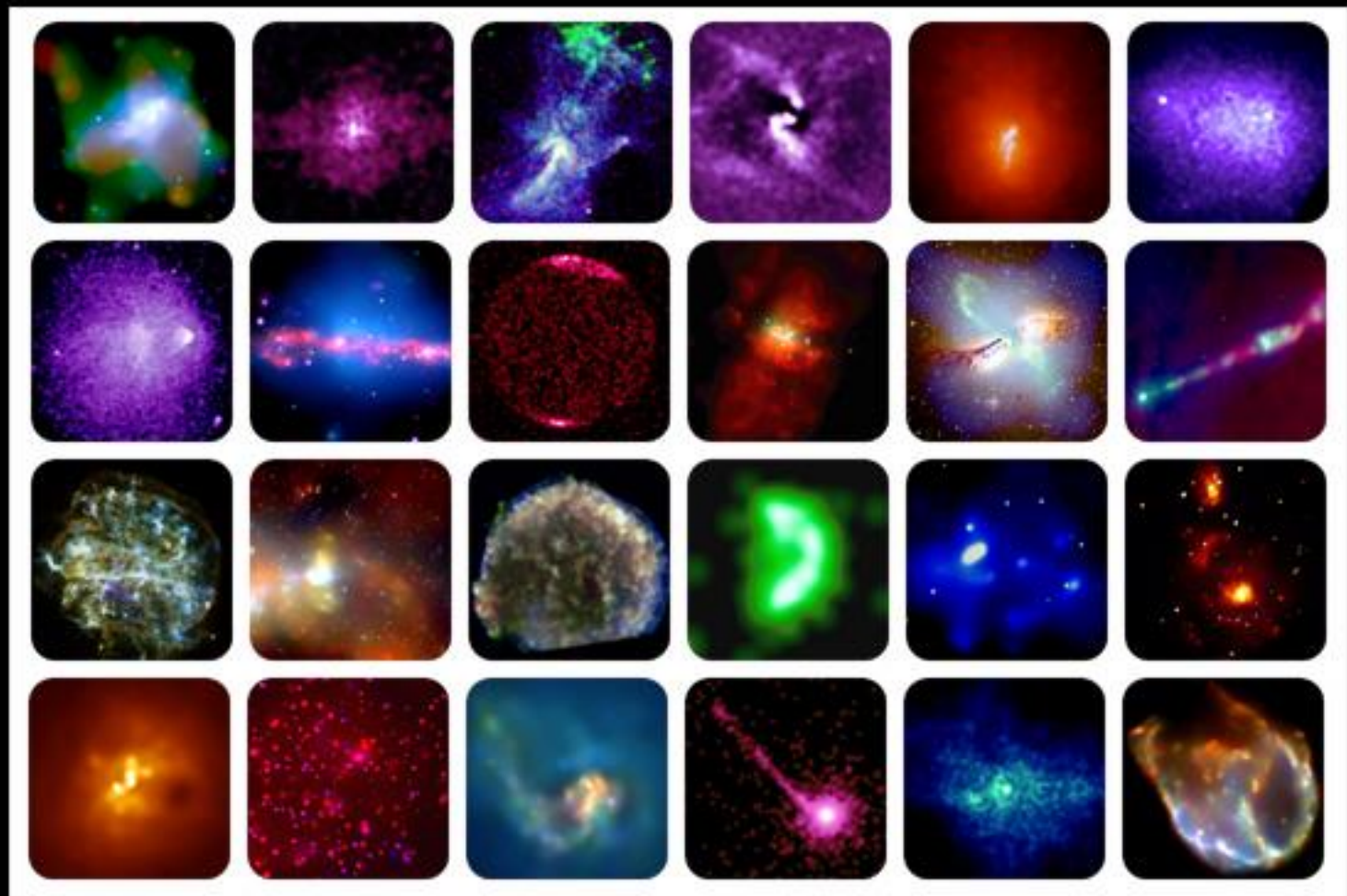


50-150 m²
0.1-1 arc sec

Constellation-X endorsed by US National Academy of Sciences McKee-Taylor Survey as a high priority mission for this decade



CHANDRA X-RAY CENTER



[HTTP://CHANDRA.HARVARD.EDU](http://chandra.harvard.edu)