

ESA's High Energy Space Science Programme

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Current Studies involving ESA*

** Minutes Astronomy Working Group, ASTRO (2002)6, Annex*

• ROSITA (DLR/ESA)

- + ISS version of ABRIXAS
- + 7 X-ray telescopes focused on CCD, 3 year scanning
- + $\sim 10^{-13} > \sim 10^{-14}$ erg cm⁻² s⁻¹
- + (0.5 – 12) keV
- + L: 2009

• LOBSTER-ISS (UK/NASA/ESA)

- + All-sky monitor, curved micro-channel plate (“lobster-eye”)
- + (0.1 – 3.5) keV
- + survey depth: 2×10^{-12} erg cm⁻² s⁻¹
- + Phase A study, L: 2009

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Current Studies involving ESA (continued)

- **XEUS (ESA/ISAS?)**

- + AR V launch (2012-2015), mirror assembly and servicing by ISS
- + (0.1 –30) keV
- + Cryo imaging spectrograph ($\Delta E = 2\text{-}5\text{ eV}$, 5")
- + Wide-FOV CCD imager (5'-15')

- **DUET (ESA/NASA)**

- + Survey-type MIDEX using spare XMM-Newton mirror
- + (0.5-2) keV
- + depth: 5×10^{-14} erg cm⁻² s⁻¹

Technology Reference Mission

- Under study (Office for Science Payload and Advanced Concepts, SCI-A)
- Gamma-ray Imaging aiming at XMM-class angular resolution
- Energy resolution in the 0.2% to 1% range (I.e. 1 to 5 keV @ 511 keV)
- Envisage long focal length, likely requiring two s/c (optics, det.) formation flying
- Spectral range covering 511 keV, probably (200 – 600) keV, pending trade-off bandwidth versus effective area
- Sensitivity 10x above levels achieved today
- Baseline semi-conductors. Investigate new compound semi-conductor detectors

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Long Term Future

ESA is embarking on *Towards Vision 2020* to define the >2012 science programme

- D/SCI wants to implement new missions to resolve outstanding problems (themes), I.e. **no** proposals for missions.
- First stage to find the science themes for the >2012 science programme with 3 *cross-disciplinary perspective groups* (XPG) established:
 - + Physics of the Universe (chair: P. Cargill, secr.: J. Clavel)
 - + Universe and Life (chair: C. Turon, secr.: G. Schwehm)
 - + Space and Society (chair: S. Vitale, secr.: E. Daly)
- Once the themes are identified, the scientific community will be asked to react in a TBD mechanism. In parallel, the major technological developments needed will be identified. These activities are expected to take place over the summer 2003 with a report to SPC in November.

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