The EXTraS Project: Exploring the X-ray Transient and variable Sky
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EXTraS in short

EXTraS (EU-FP7 framework) is the first systematic search for (and characterization of) all variable soft X-ray sources at all time scales in the whole archive of observations collected by the European Photon Imaging Camera (EPIC) instrument onboard XMM-Newton since its launch in 1999, looking for transients, aperiodic, periodic and long term variability. The project includes the phenomenological classification of all detected variable sources, extending and improving 3XMM catalogue. All results will be released in a public archive, together with new software tools.

VARIABILITY SERENDIPITY XMM/EPIC

EXTraS WILL PROVIDE TO THE COMMUNITY THE MOST COMPLETE AND DETAILED STUDY OF VARIABILITY IN THE SOFT X-RAY SKY TO DATE.

What science will YOU do with EXTraS?

- Supernovae
  X-ray burst from shock wave (as SN 2008D and XRF060218)
  EXTraS expects ~10 events like this.

- Fast Radio Bursts
  ~ms in radio
  Looking for X-ray counterparts
  EXTraS potential: ~100 FRBs!
  Very interesting discovery space

- ULX
  - Charact. variability, also for faint sources
  - Blind search for spin and orbital periodicity
  - Look for outbursts

- Tidal Disruption Events
  X-ray flares and flux decay
  Variability time scale
  Info on physics
  Constrain TDE rates

- AGNs
  3XMM → sample of ~100 AGN
  with the possibility to:
  - measure the BH mass
  - better calibrate the variability-luminosity relation locally.

- Blazars:
  - Ultra fast X var.: - Exist? - What sources? -Correlation?

- Magnetars / SGRs / XDINs
  Bursts and pulsations from several new objects

- Stellar Flares:
  thousands of bursts from a broad population of stars and prestars (YSOs)
  Bursts and orbital modulations from Dwarf Novae and Cataclysmic Variables.

- X-ray Binaries
  LMXB-bursters
  HMXB-SFXT:
  Monitor for bursts and flares
  Search for periodicity and pulsations

The EXTraS collaboration

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- Istituto Nazionale di Astrofisica (INAF), Italy (Coordinator)
- Istituto Universitario di Studi Superiori di Pavia (IUSS), Italy
- Istituto di Matematica Applicata e Tecnologie Informatiche (CNR-IMATI), Italy
- Max-Planck-Institut für Extraterrestrische Physik (MPE), Germany
- University of Leicester (UK)
- Erlangen Centre for Astroparticle Physics (Germany)

All references and credits at http://www.extras-fp7.eu/