

A Few HEA ObsCore Data Discovery Use Cases

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Spatially Resolved Crab X-ray Polarimetry

- Identify all observations of the Crab that intersect the energy range 1.0–100.0 keV, have calibrated spatial and time axes, are spatially resolved in 2 dimensions, have spectral resolution $R > 100$, and include polarimetry measurements, and return the event lists and associated responses
 - Information needed:
 - Spatial coordinates (RA, Dec)
 - Energy range
 - Spectral resolution
 - Number of physical axes in each dimension (spatial, spectral, time, polarimetry)
 - Calibration status of each physical axis
 - Return event lists, associated responses (multiple)

M31 Light Curves and Aperture Photometry Intersecting a Specific Interval

- Identify all archival X-ray light curves and aperture photometry MPDFs of sources in M31 in the energy range 0.3–7.0 keV that include observation data in the interval MJD 56320–56325
 - Information needed:
 - Spatial coordinates (RA, Dec)
 - Energy range
 - Actual time coverage for light curve components (t_{\min}/t_{\max} not adequate)
 - Return light curves, aperture photometry MPDFs

Impossible(?) Sgr A* Search

- Identify all spatially resolved Chandra observations of Sgr A* for which the spatial resolution at 1 keV at the location of Sgr A* within the field of view is no worse than 2 arcsec, and return a list of available data products
 - Recall that the Chandra PSF is a function of energy and off-axis angle (by a factor of ~ 50)
 - Information needed:
 - Spatial coordinates (RA, Dec)
 - Energy range
 - Spatial resolution vs. energy and off-axis angle within each observation
 - Return list of data products