ARCHES Wiki

Hands-on PDF and URLs

hands-on-xcatdb.pdf

You can connect the database here [http://xcatdb.unistra.fr/3xmmdr5/archesindex.html].

Alternatively it can be accessed from the XCatDB portal [http://xcatdb.unistra.fr/]

Simple Search

Search by simple position

Use case: Searching XMM detections around the WR star “110 HD 165688”

Step by step:

- Open the query editor
- Type `HD 165688` in the Coord/name field
- Submit

query: `Select ENTRY From EnhancedEntry In Enhanced WherePosition { isInCircle(“271.987292 -19.399111”, 1, -, ICRS) } Limit 1000`

Search by position list

Use case: Searching sources matching a position list

*Position list:*download

Step by step:

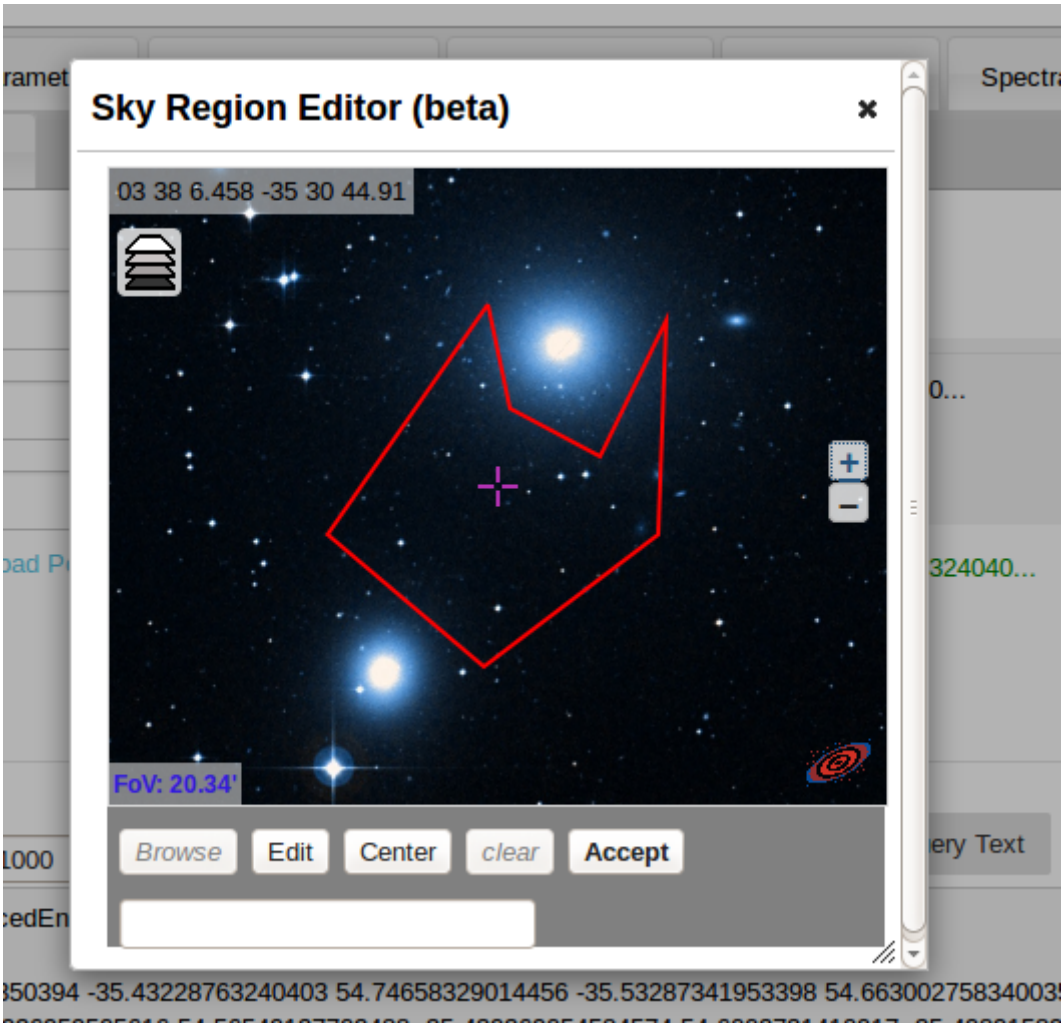
- Open the query editor
- Click on `Reset Query Form`
- Click on `Upload Position List`
- Upload the list
- Submit

Search in a region

Use case: Searching sources between NGC 1399 and NGC 1407

Step by step:

- Open the query panel
- Query sources around NGC 1399
- Open the region editor
- Draw the search region, accept and submit

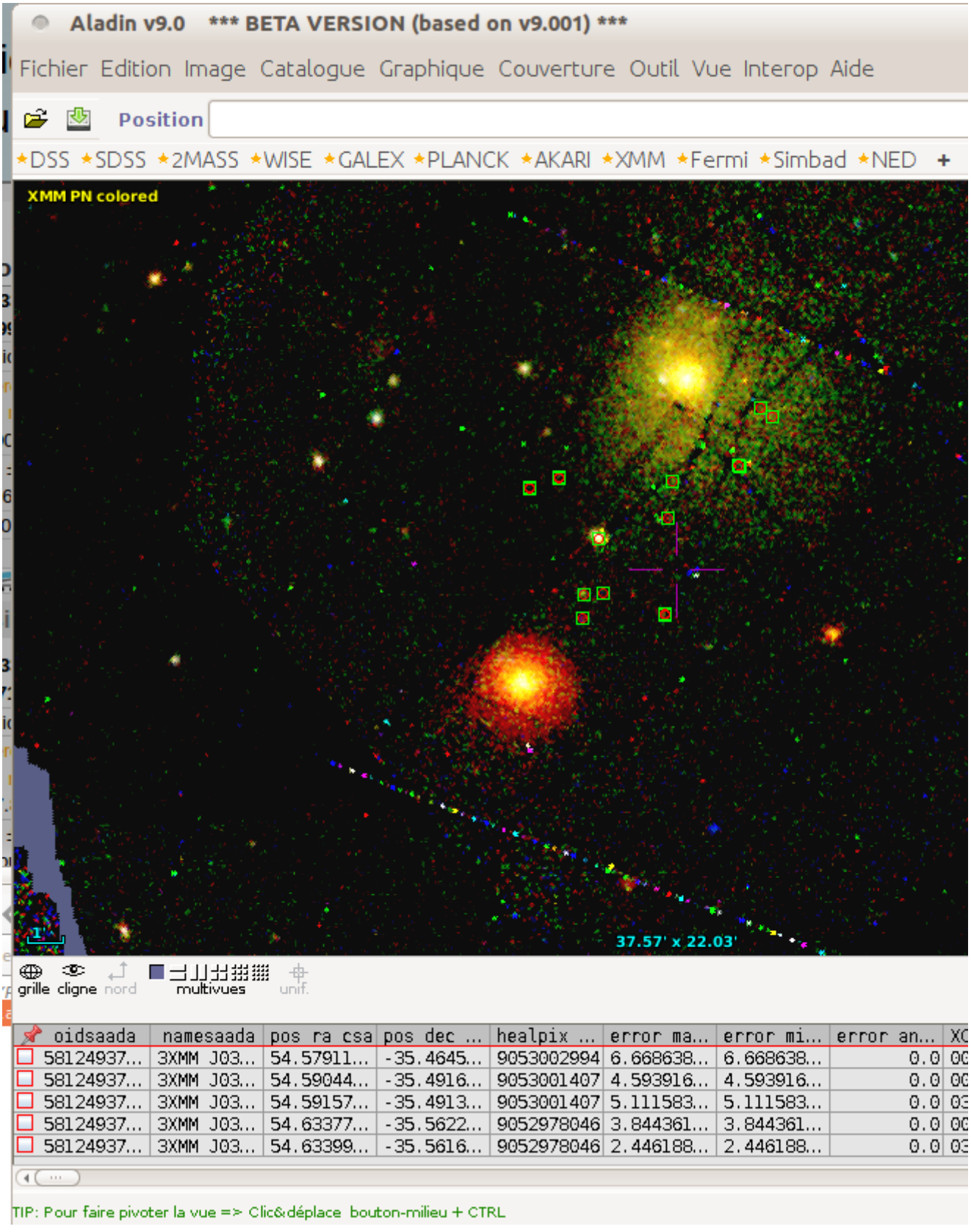


Displaying Result on VO Clients

Use case: Displaying the result of the previous exercise in Aladin or Topcat

Step by step:

- Keep the previous query result
- Open Aladin or Topcat
- CLick on the IVOA icon on the top of the data result
- Select a hub to connect to
- Wait the antenna on top of page is emitting
- Click on either Aladin or Topcat or broacast icon



Search by Detection Parameters

Use case: Searching XMM point sources with a merged flux greater than 2e-10 and wich are not variable.

Step by step:

- Open the query editor

- Click on `Reset Query Form`
- Open the `Soure Parameters` tab
- Select the `_ep_8_flux` parameter (use the search bar below)
- Set it as greater than 2e-10
- Open the `Detection Parameters` tab
- Select the `_var_flag` parameter (use the search bar below)
- Set it equals to T
- Do the same to set the `_ep_extent` paramater to 0
- Submit

query: `Select ENTRY From EnhancedEntry In Enhanced WhereAttributeSaada { (_ep_8_flux > 2e-10) AND (_var_flag = 'F' AND _ep_extent = 0) } Limit 1000`

Search by Sources with Spectra or time series

Use case: Searching XMM point sources with a merged flux greater than 2e-10 and wich are variable with a time serie.

Step by step:

- Keep the previous query
- Open the `Related Products` tab and tick `Whatever EPIC Time Serie`
- Submit

query:`Select ENTRY From EnhancedEntry In Enhanced WhereAttributeSaada { (_ep_8_flux > 2e-10) AND (_var_flag = 'T' AND _ep_extent = 0) } WhereRelation { matchPattern{ EnhancedSrcToSrcTS} } Limit 1000`

Using Spectral Features

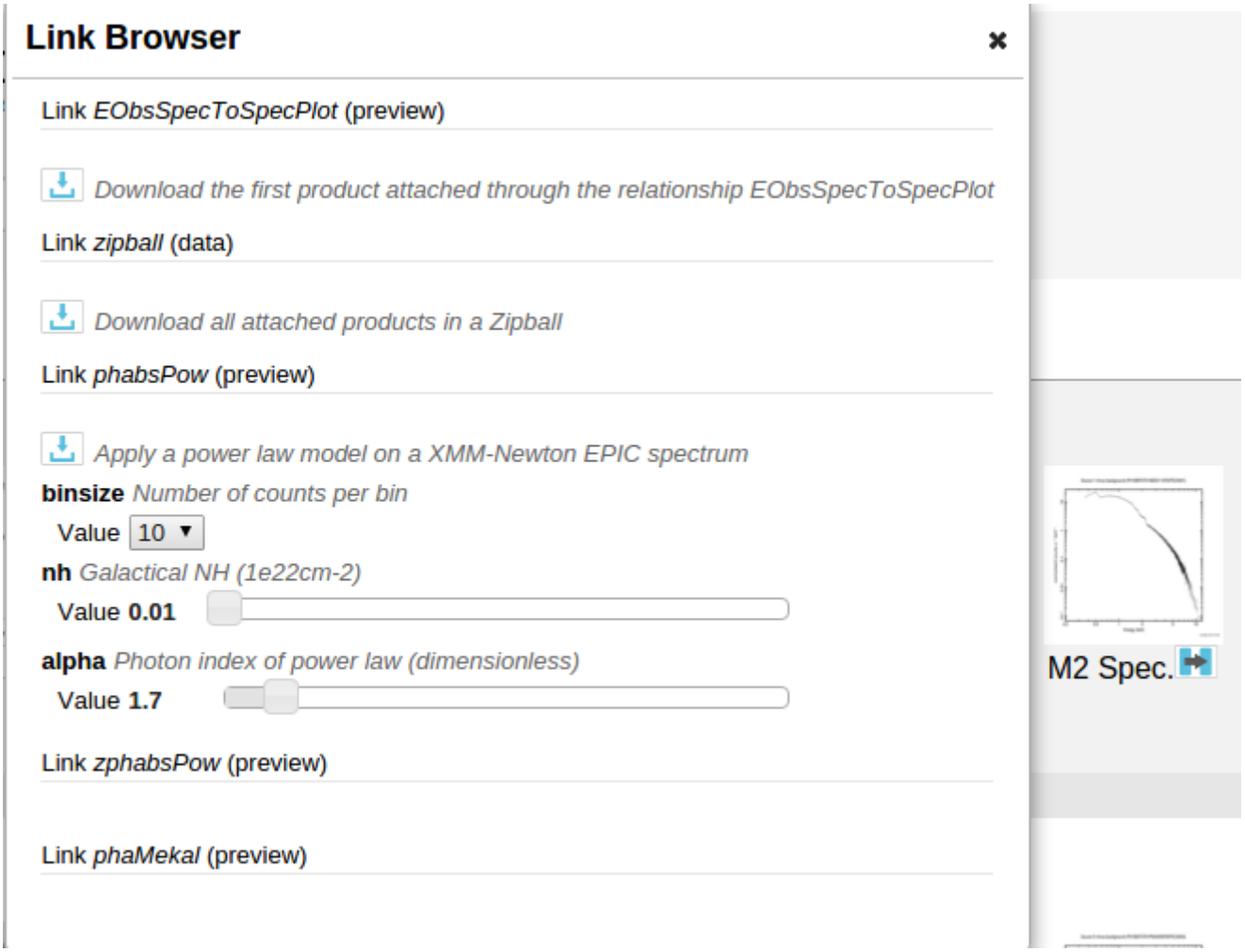
We suppose here that users are familiar with XSpec

Doing a spectral fit

Use case: Searching detections around *[SWF2005] QSO J1104+3812 abs 0.01012* which are variable point sources and which have EPIC spectra; fitting one of these sources with the Phabs Powerlaw model

Step by step:

- Open the query editor
- Click on `Reset Query Form`
- Type `QSO J1104+3812` in `Name/Coords` and click the blue arrow
- Open the `Detection Parameters` tab
- Select the `_var_flag` parameter (use the search bar)
- Set it equals to T
- Do the same to set the `_ep_extent` parameter to 0
- Submit
- Once the source is selected, open the spectral fit window from the icon below the spectum vignette.



- Choose `Phabs Powerlaw`
- Set parameters
- Submit

Query: `Select ENTRY From EnhancedEntry In Enhanced WherePosition { isInCircle("166.113792 +38.208806", 1, -, ICRS) } WhereAttributeSaada { (_var_flag = 'T' AND _ep_extent = 0) } WhereRelation { matchPattern{ EnhancedSrcToSrcTS} } Limit 1000`

Searching by Spectral Features

Use case: Searching detections fitting well WAPO but not WAMEKAL

Step by step:

- Open the query editor
- Click on `Reset Query Form`
- Open the `Spectral Fits` tab and then the `Model(s)` tab
- Click once on `Wapo`, it must turn green
- Click twice on `Wamekal`, it must turn red
- Submit

Query:`Select ENTRY From EnhancedEntry In Enhanced WhereRelation { matchPattern{ EnhancedSrcToFitParam, AssObjClass{SpectrumFitEntry}, AssObjAttSaada{ _wapo_fit = 0 AND _wamekal_fit = 1 }} } Limit 1000`

Try to reverse the filter: not fitting WAPO but fitting well WAMEKAL

Filtering by Possible Identifcations (ACDS - XMM pipeline task)

Use of the *Correlation with Arch. Src.* tab of the query editor.

Using the Vizier Keyword

User Case: Searching XMM detections which are correlated with both Wolf-Rayet and IR catalogues.

Step by step:

- Open the query editor
- Click on `Reset Query Form`
- Open the `Correlation with Arch. Src.` tab
- Select both `Stars:WR` and `IR` keywords
- Submit

Query: `Select ENTRY From EnhancedEntry In Enhanced HavingCounterpartsWith { “astronomy=Stars:WR” “wavelength=IR” } Limit 1000`

Using the Catalogues Vizier

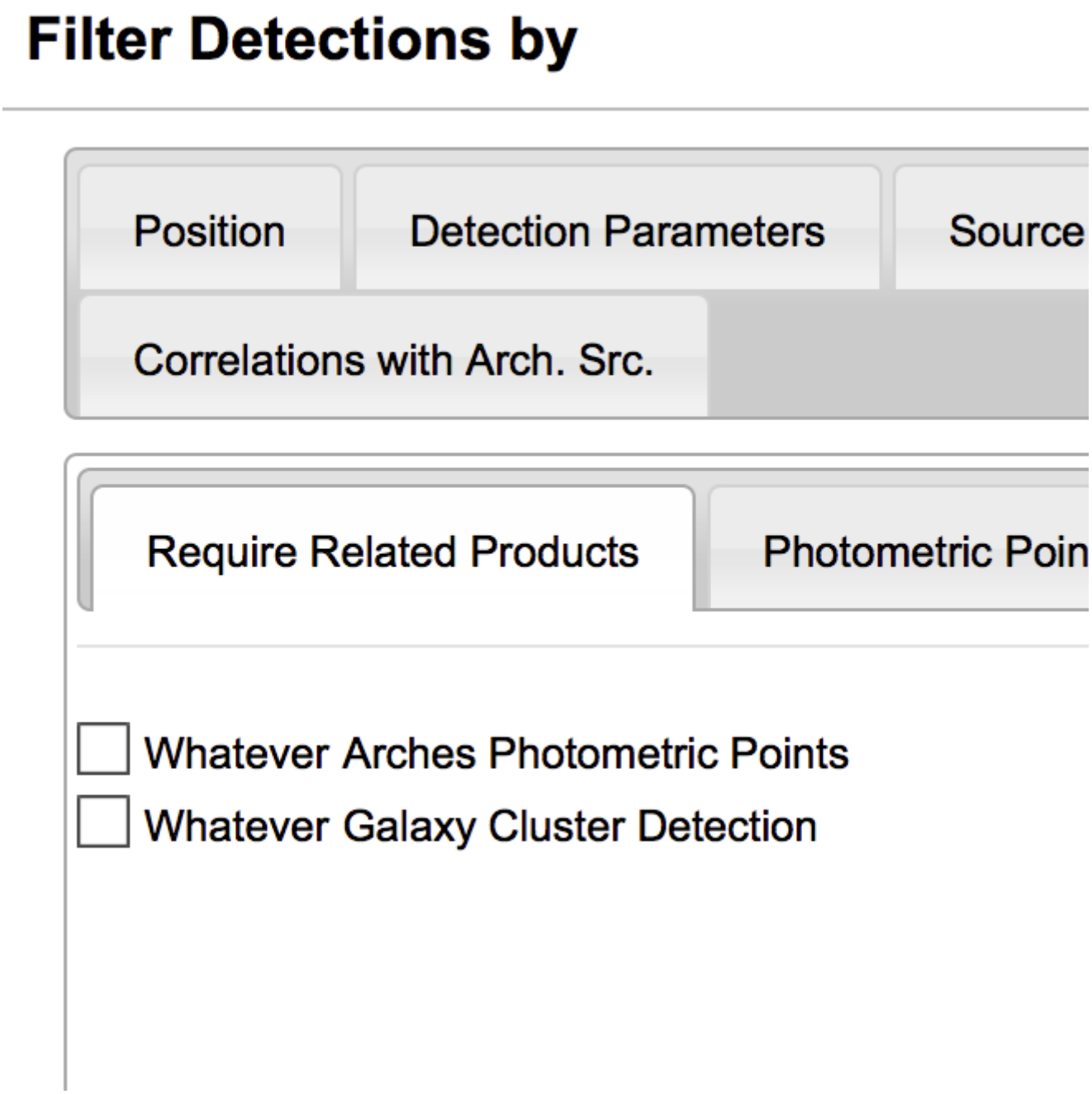
*Use Case:*Searching XMM detections located at less than 5arcsec from a source of the Veron catalogue.

Step by step:

- Open the query editor
- Click on `Reset Query Form`
- Open the `Correlation with Arch. Src.` tab and then `By Catalogue Names`
- Type `Veron` in the search bar, select the catalogue
- Set the distance as lower than 5
- Submit

Query: `Select ENTRY From EnhancedEntry In Enhanced WhereRelation { matchPattern { EnhancedSrcToArchSrc, AssObjClass{arch_7258AEntry}, Qualifier{epic_cat_dist < 5}} } Limit 1000`

Playing with Arches Data



Arches tabs of the query editor

Filtering by Catalogue Coverage

Use Case: Displaying sources covered by all catalogues.

Step by step:

- Open the query editor
- Click on `Reset Query Form`
- Open the `Arches Data.` tab and then `Photometric points`
- Click on all catalogues untils they turn green.
- Submit

Query:
```
Select ENTRY From EnhancedEntry In Enhanced WhereRelation { matchPattern{ XMatchProba
AssObjClass{ArchesProbaEntry}, AssObjAttSaada{ _isgalexcovered > 0} } matchPattern{ XMatchProba
AssObjClass{ArchesProbaEntry}, AssObjAttSaada{ _isucac4covered > 0} } matchPattern{ XMatchProba
```

```
AssObjClass{ArchesProbaEntry}, AssObjAttSaada{ _issdss9covered > 0} } matchPattern{ XMatchProba
AssObjClass{ArchesProbaEntry}, AssObjAttSaada{ _is2masscovered > 0} } matchPattern{ XMatchProba
AssObjClass{ArchesProbaEntry}, AssObjAttSaada{ _isallwisecovered > 0} } } Limit 1000
```

Filtering by Catalogue Matches

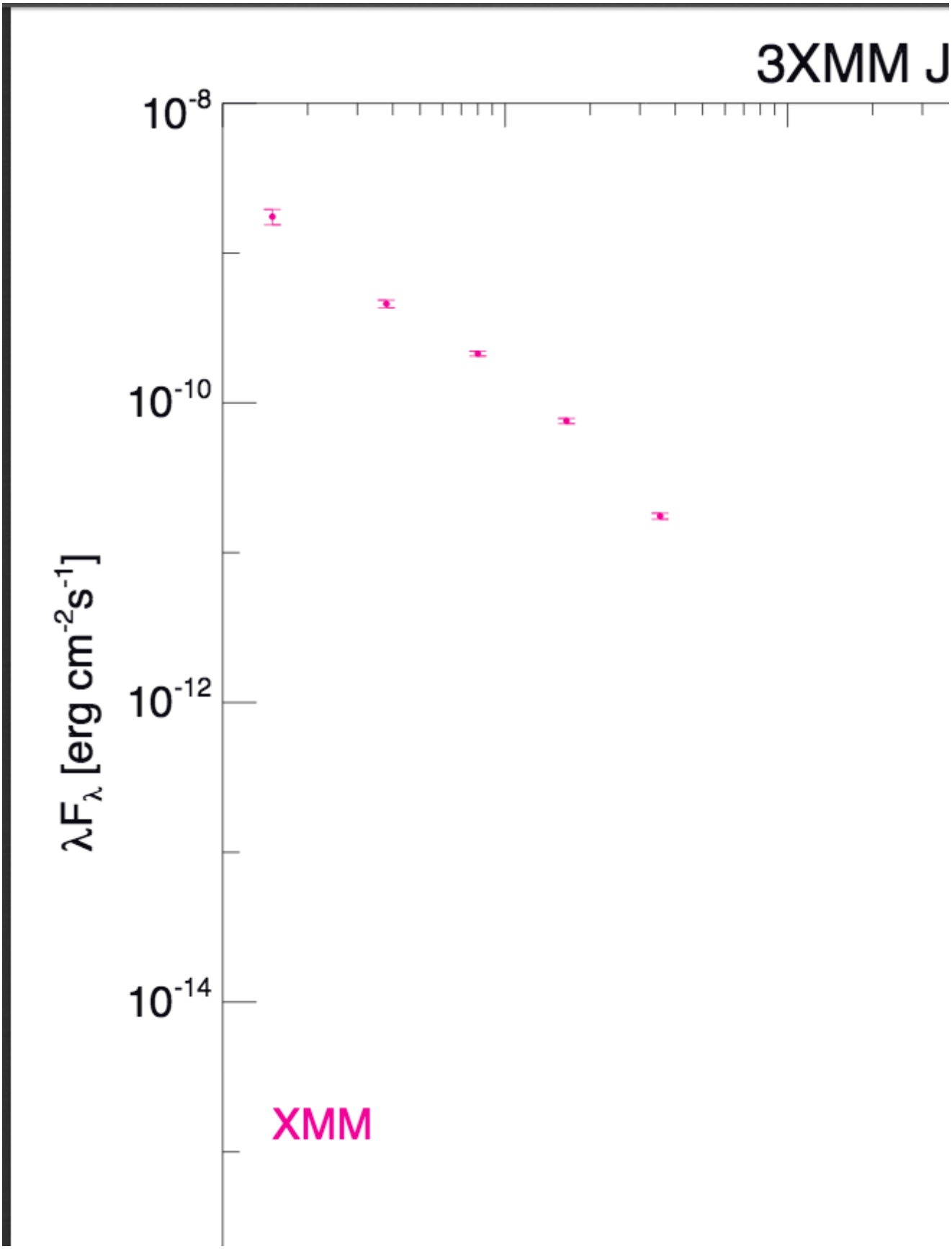
Use Case: Displaying sources matching all catalogues.

Step by step:

- Open the query editor
- Click on `Reset Query Form`
- Open the `Arches Data.` tab and then `Matching Catalogues`
- Click on all catalogues untils they turn green.
- Submit

Query:
```
Select ENTRY From EnhancedEntry In Enhanced WhereRelation { matchPattern{ XMatchProba
AssObjClass{ArchesProbaEntry}, AssObjAttSaada{_maxprobalabel1 LIKE 'proba%g%' AND _maxprobalabel1 LIKE
'proba%u%' AND _maxprobalabel1 LIKE 'proba%s%' AND _maxprobalabel1 LIKE 'proba%t%' AND _maxprobalabel1
LIKE 'proba%w%'} } } Limit 1000
```

Result sample



Filtering by Fluxes

Use Case: Searching sources with Galex FUV magnitude lower than the UCAC J magnitude

Step by step:

- Open the query editor
- Click on `Reset Query Form`
- Open the `Arches Data.` tab and then `Magnitude of Matching Src (with a typo :=()`
- Select the `_galex67_fuv_mag` and set is as `IS NOT NULL` (default value)
- Do the same for `_ucac4_jmag`
- Jump into the query text area on the panel bottom
- Replace `_galex67_fuv_mag IS NOT NULL AND _ucac4_jmag IS NOT NULL` with `_galex67_fuv_mag < _ucac4_jmag`
- Submit

Query:`Select ENTRY From EnhancedEntry In Enhanced WhereRelation { matchPattern { XMatchProba, AssObjClass{ArchesProbaEntry}, AssObjAttSaada{ _galex67_fuv_mag < _ucac4_jmag }} } Limit 1000`

Looking for Galaxy Clusters

Use Case: Searching Galaxy Cluster detected by the ICF but not identified as such by the pipeline

Step by step:

- Open the query editor
- Click on `Reset Query Form`
- Open the `Arches Data.` tab and then `Require Related Products`
- Click on `Galaxy Cluster Detection` until it turns green
- Open the `Correlation wii-th Arch. Src.` tab and then `By Vizier Keywords`
- Select the `Clusters_of_galaxies` keyword
- Jump into the query text area on the panel bottom
- Place a negation marks (!) before `Clusters_of_galaxies`
- Submit

Query:`Select ENTRY From EnhancedEntry In Enhanced WhereRelation { matchPattern{ EnhancedToClusterEntries} } HavingCounterpartsWith { “astronomy=!Clusters_of_galaxies” } Limit 1000`

Some Complex Queries

Up to you….
