

Search for optical variable sources
with HST -
Identification & classification of AGN
with VO tools

Ektoras Pouliasis



NATIONAL
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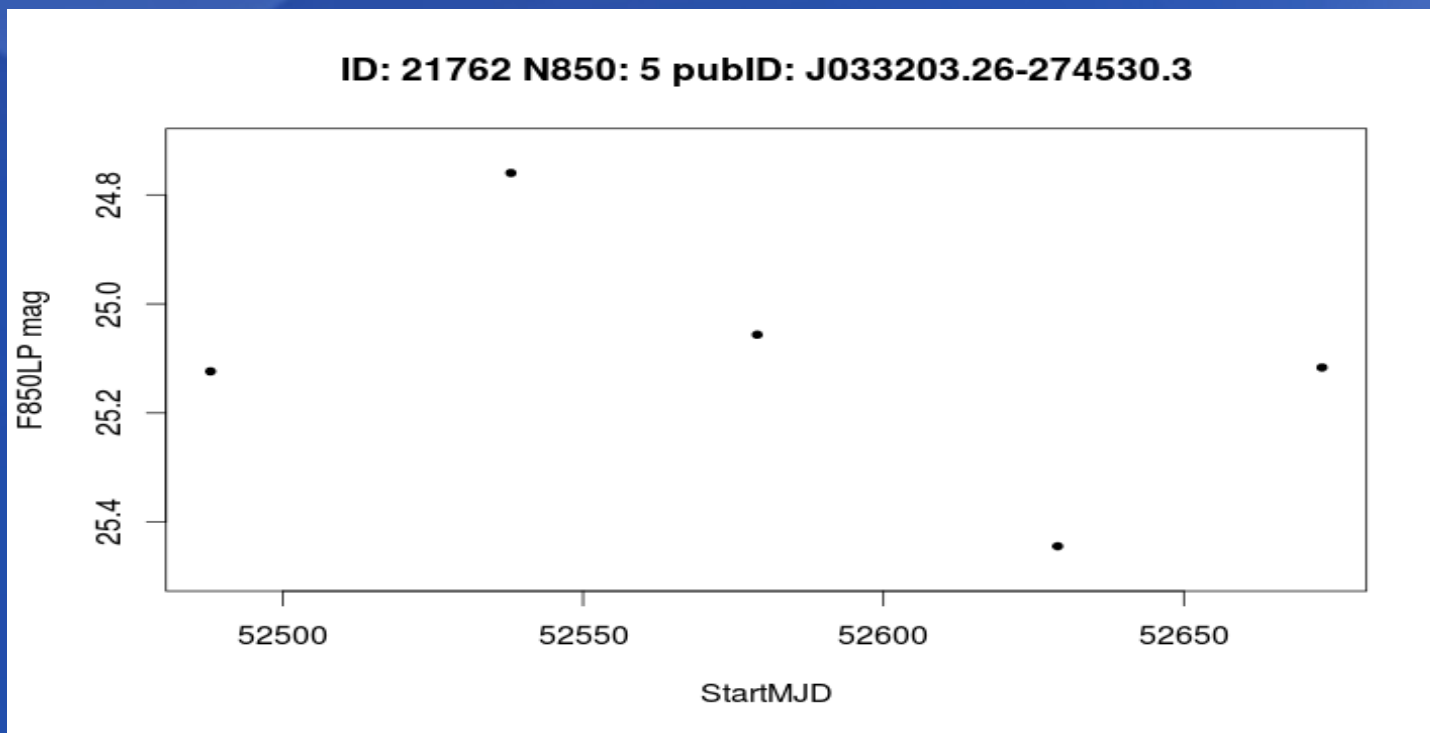


Work packages

- Identify variable sources in a field (point-like + extended)
 - Rejection of stars + SN
→ AGN candidates Catalogue
- Create SEDs for AGN candidates
- SED fitting → AGN classification
 - Compute redshifts

Identify variable sources in a field

- Reduction of data (MAST Portal – Casjobs)
(VO tools maybe faster?)
- Variability Algorithms (Java, R, Python)



Rejection of stars + SN

- Cross-match the AGN candidates catalogue with all published catalogues to reject stars-binaries-SN
- **With VO Tools → EASY! + FAST!**
Using Aladin + Simbad + TopCat

Rejection of stars + SN

*** BETA VERSION (based on v9.003) ***

File Edit Image Catalog Overlay Coverage Tool View Interop Help

Location 03:33:10.13 -27:38:21.0 Frame ICRS

DSS SDSS 2MASS WISE GALEX PLANCK AKARI XMM Fermi Simbad NED +

DSS colored

The screenshot displays the ALADIN software interface. The main window shows a star field with a green rectangular box highlighting a specific region. The interface includes a menu bar at the top with options like 'File', 'Edit', 'Image', 'Catalog', 'Overlay', 'Coverage', 'Tool', 'View', 'Interop', and 'Help'. Below the menu bar is a location input field containing '03:33:10.13 -27:38:21.0' and a 'Frame' dropdown menu set to 'ICRS'. A list of data sources is visible, including DSS, SDSS, 2MASS, WISE, GALEX, PLANCK, AKARI, XMM, Fermi, Simbad, and NED. The main display area shows a star field with a green box highlighting a region. The right-hand panel contains a toolbar with various tools (select, pan, zoom, dist, phot, draw, tag, filter, x-y, rgb, crop) and a list of layers (Simbad, AGNcand, Simbad~2, JApJ/723/737, VII_155_rc3~2, VII_155_rc3~1, VII_155_rc3, Simbad~1, frame-r-0037, DSS colored). The bottom right corner shows a zoomed-in view of the highlighted region with a coordinate grid and a red dot indicating a specific point.

15' 1.06° x 26.45'

Frame: ICRS

+180 +90 -180 -90

03:32:40.28 -27:49:49.5
1.06° x 26.45'

Rejection of stars + SN



Portal Simbad VizieR Aladin X-Match Other ▾ Help



SIMBAD: Query by criteria

other query modes :

[Identifier query](#)

[Coordinate query](#)

[Criteria query](#)

[Reference query](#)

[Basic query](#)

[Script submission](#)

[TAP](#)

[Output options](#)

[Help](#)

Enter a search expression:

```
maintypes="Star" & region(circle,+03 32 45) -27 45 53,15m)
```

submit query

clear

Enter the name of an ASCII file containing a search expression:

Browse... No file selected.

submit file

clear

Criteria queries may require some time, especially if they are complex or involve a large number of objects. Limited to 5 criteria. Please, wait for their completion if it is the case.

Example:

```
ra > 15 & ra < 30 & dec > 70  
(cat = 'PPM' | cat = 'HIP')  
mes = 'ROT' & ubv.v <= 10.0
```

Return :

- object count
- display objects
- get references from the selected objects

Description of the queriable fields (256) :

Rejection of stars + SN

The image shows a screenshot of the TOPCAT software interface. The main window displays a 'Table List' on the left with tables 16: south, 18: stars, 19: AGNcand, and 20: stars2. The 'Current Table Properties' for the selected 'match(16,18)' table are shown on the right, including Label: AGNcand, Location: match(16,18), Name: Joined, Rows: 68, Columns: 14, Sort Order: ↑, Row Subset: All, and Activation Action: (no action). Below the table list is a plot of Wavelength (μm) on a logarithmic scale from 1.0e+0 to 1.0e-17, showing data points with error bars.

Overlaid on the TOPCAT window is a 'Match Tables' dialog box. The dialog has a title bar with 'Match Tables' and standard window controls. Below the title bar are icons for Edit, Zoom, Help, and Close. The 'Match Criteria' section includes an 'Algorithm' dropdown set to 'Sky' and a 'Max Error' input field set to '1.0' with a unit dropdown set to 'arcsec'. The 'Table 1' section has a 'Table' dropdown set to '16: south', an 'RA column' dropdown set to '_RAJ2000' with a unit dropdown set to 'degrees', and a 'Dec column' dropdown set to '_DEJ2000' with a unit dropdown set to 'degrees'. The 'Table 2' section has a 'Table' dropdown set to '18: stars', an 'RA column' dropdown set to 'RA_d' with a unit dropdown set to 'degrees', and a 'Dec column' dropdown set to 'DEC_d' with a unit dropdown set to 'degrees'. The 'Output Rows' section includes a 'Match Selection' dropdown set to 'All matches' and a 'Join Type' dropdown set to '1 not 2'. At the bottom of the dialog, there is a status area with a progress bar, the text 'Scanning rows for table 2...', 'Elapsed time for match: 0 seconds', and 'Match succeeded'. Below the status area are 'Go' and 'Stop' buttons.

Create SEDs for candidate AGN

Portal Simbad VizieR Aladin X-Match Other Help

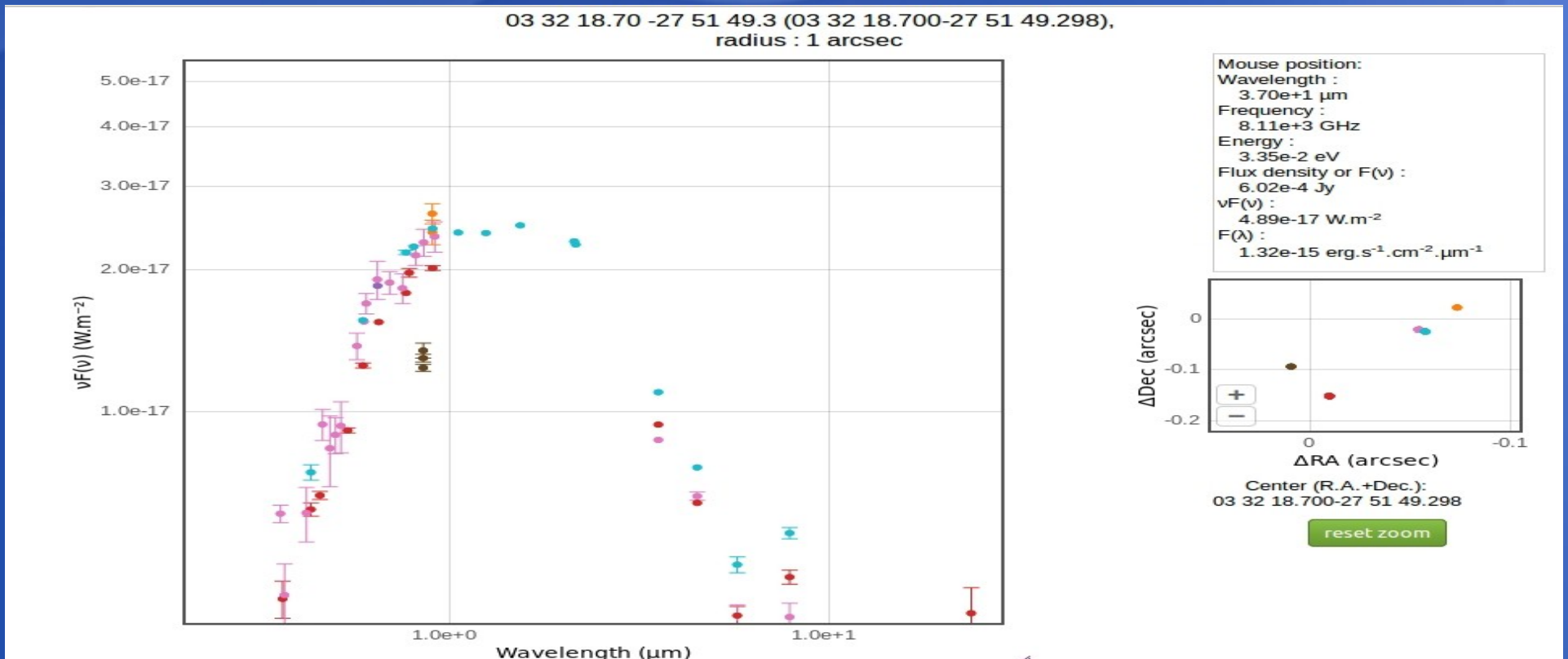
VizieR Photometry viewer

Documentation

Target:

Radius (in arcsec):

[settings](#) [share](#)



SED fitting + Redshifts

- Redshifts using SPLAT-VO?
- Not any AGN (QSO, Seyf. I&II, Blazar) fitting SED models in VO tools
 - Propose AGN models to VO Tools Team?
 - Different approach/tools?

VO Tools are Useful!!

Thank you!