Finding evolved massive stars with VO

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Background

Evolved massive stars
✓ Very hot (O/B)
✓ Very massive (>20M$_{\odot}$)
✓ Surrounded by IR nebulae
✓ “Rare” (small population)

GOAL
Find evolved massive stars (point sources) associated to IR shells
Workflow

TOPCAT crossmatch:
Mizuno’s catalog (shells @24um)
WISE (psc @ 3.6, 4.6, 12 and 22um)

Geometrical criteria
Look for point sources within
R = 10% of each shell radius
to avoid distance bias
Workflow

WISE: high density $\rightarrow$ many matches for each shell
Individual inspection in **ALADIN** to:
1. Find the most likely match
2. Discard known objects

*e.g. Supernova remnant* with 7 WISE candidates

Not what we're looking for
Future work

Mizuno’s catalog: **53% unclassified** sources

VOSA:
- SEDs for **unknown** sources
- **Comparison** with control objects
- **Expected result**: new evolved massive stars

Crossmatch with SIMBAD

LBV G24.73+0.69
(Mizuno’s catalog contains known LBV stars)