



SOAR Near Infrared Spectra of LMC *Spitzer* SAGE Sources

Bob Blum

National Optical Astronomy
Observatory

Credit: Karl Gordon, SAGE Team

SAGE

- Surveying the Elements of a Galaxy's Evolution
- 7 x 7 degree Large Magellanic Cloud Survey
- *Spitzer* Space Telescope
- All imaging bands
 - IRAC (3.6 μm , 4.5 μm , 5.8 μm , 8 μm)
 - MIPS (24 μm , 70 μm , 160 μm)
- Combined with 2MASS (JHKs)

3.6 μm , 8 μm , 24 μm

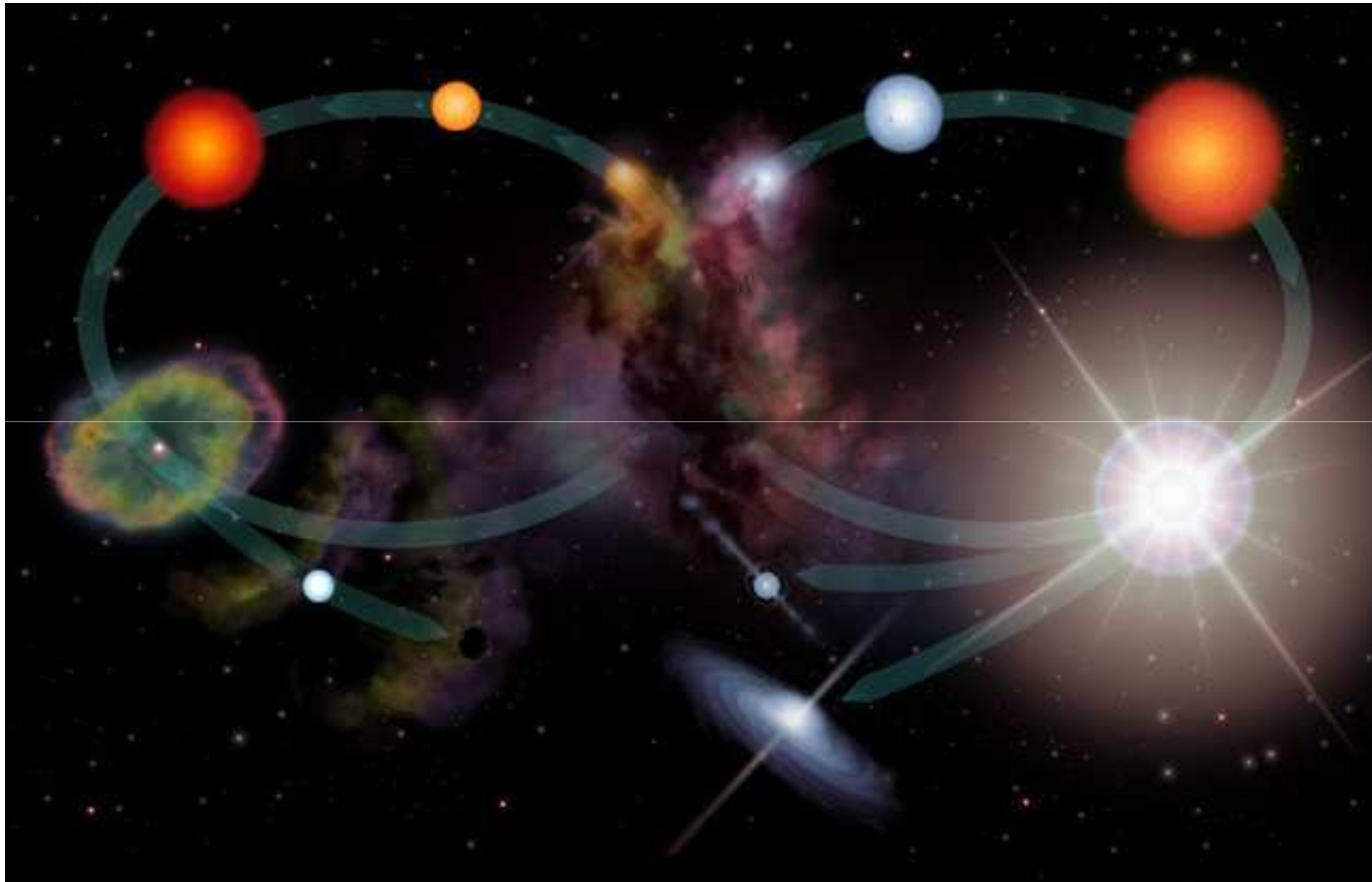
Credit: Karl Gordon, SAGE

5/16/11

FISSS Maresias, Brazil

3

SAGE

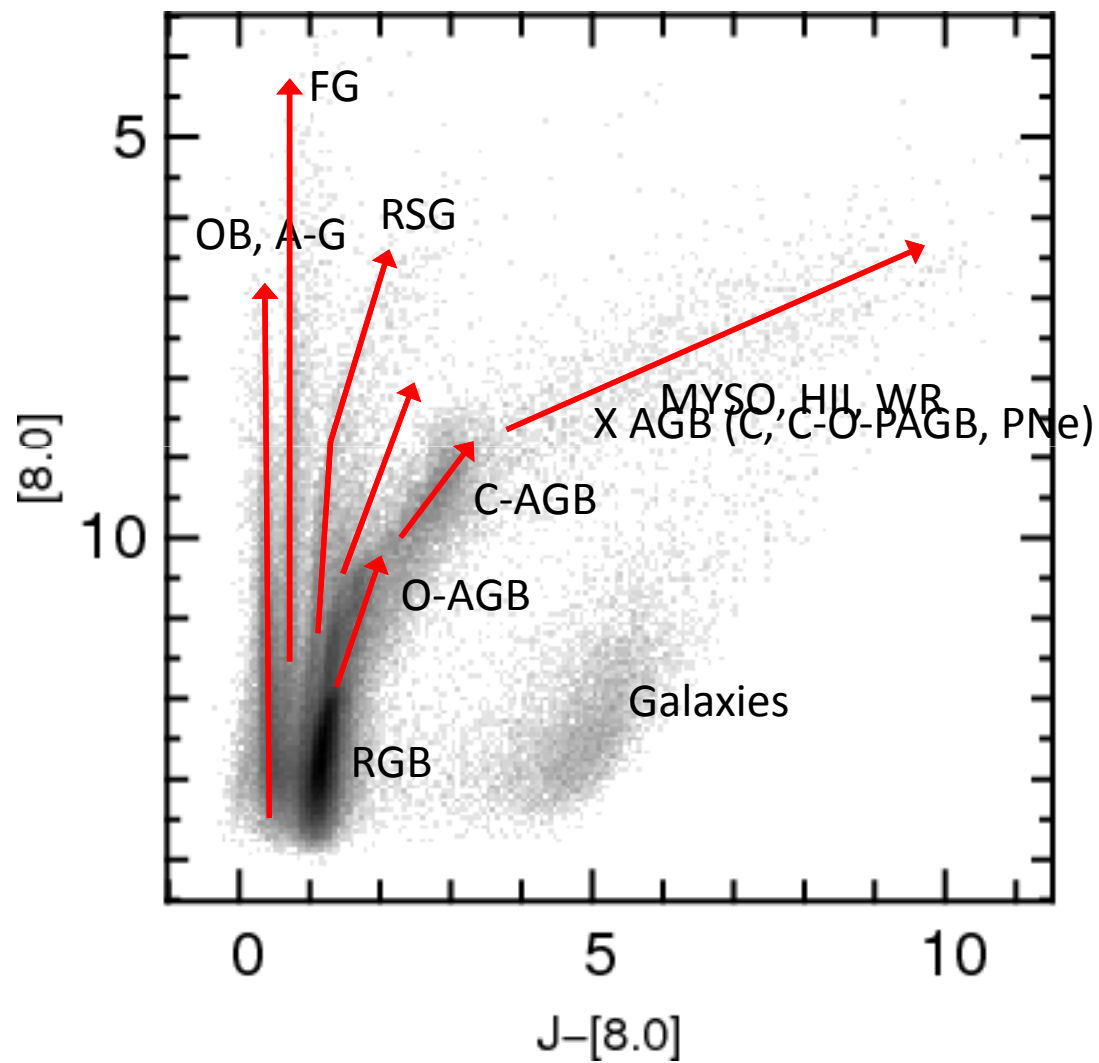


credit: <http://hea-www.cfa.harvard.edu/CHAMP/EDUCATION/PUBLIC/ICONS/>

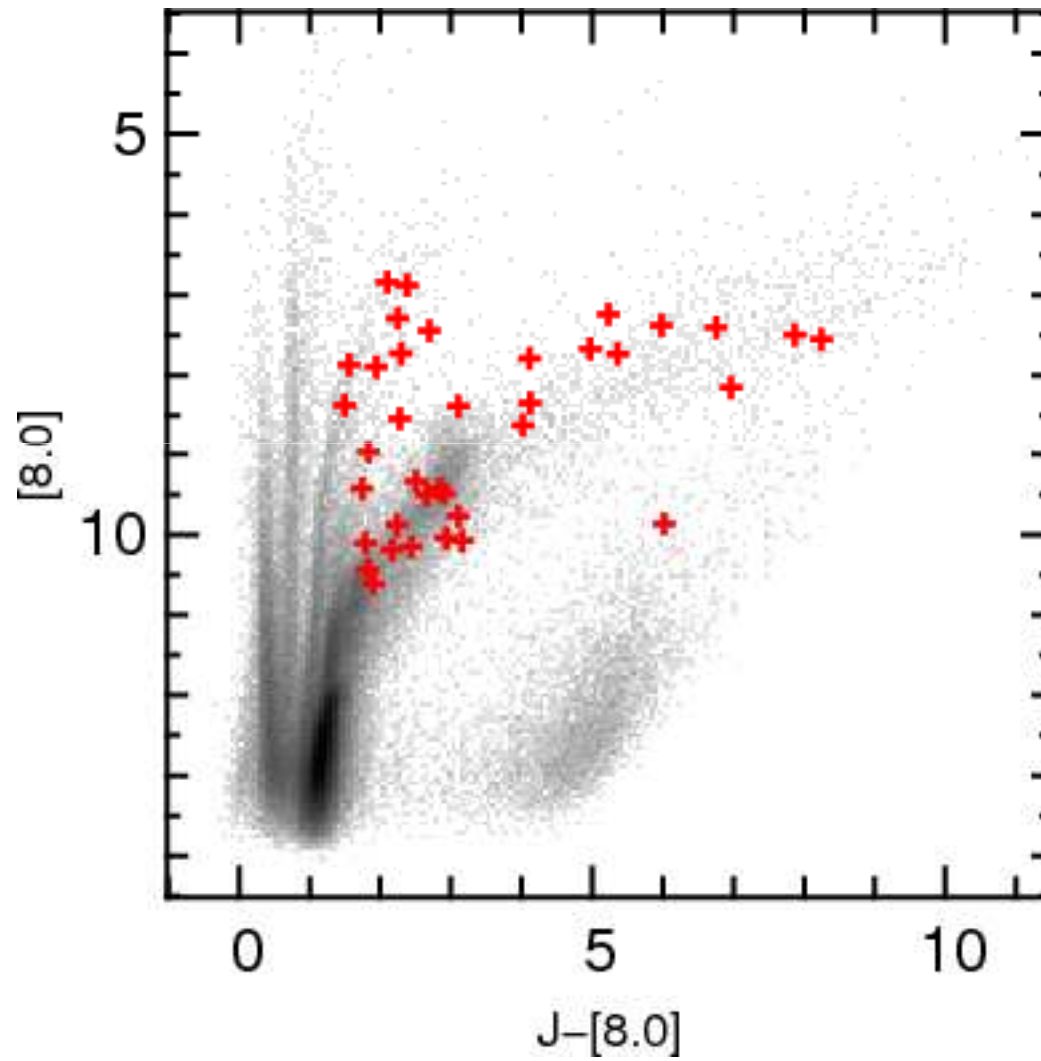
SAGE Spec

- SAGE follow up with *Spitzer* IRS
- ~ 200 IRS targets spanning SAGE CMD, color-color space: Evolved Stars (inc PNe, PAGB), YSOs, WR, HII
- SOAR/OSIRIS *K*-band Spectra
- Goals:
 - Detailed study of LMC sources
 - Verify photometric classifications

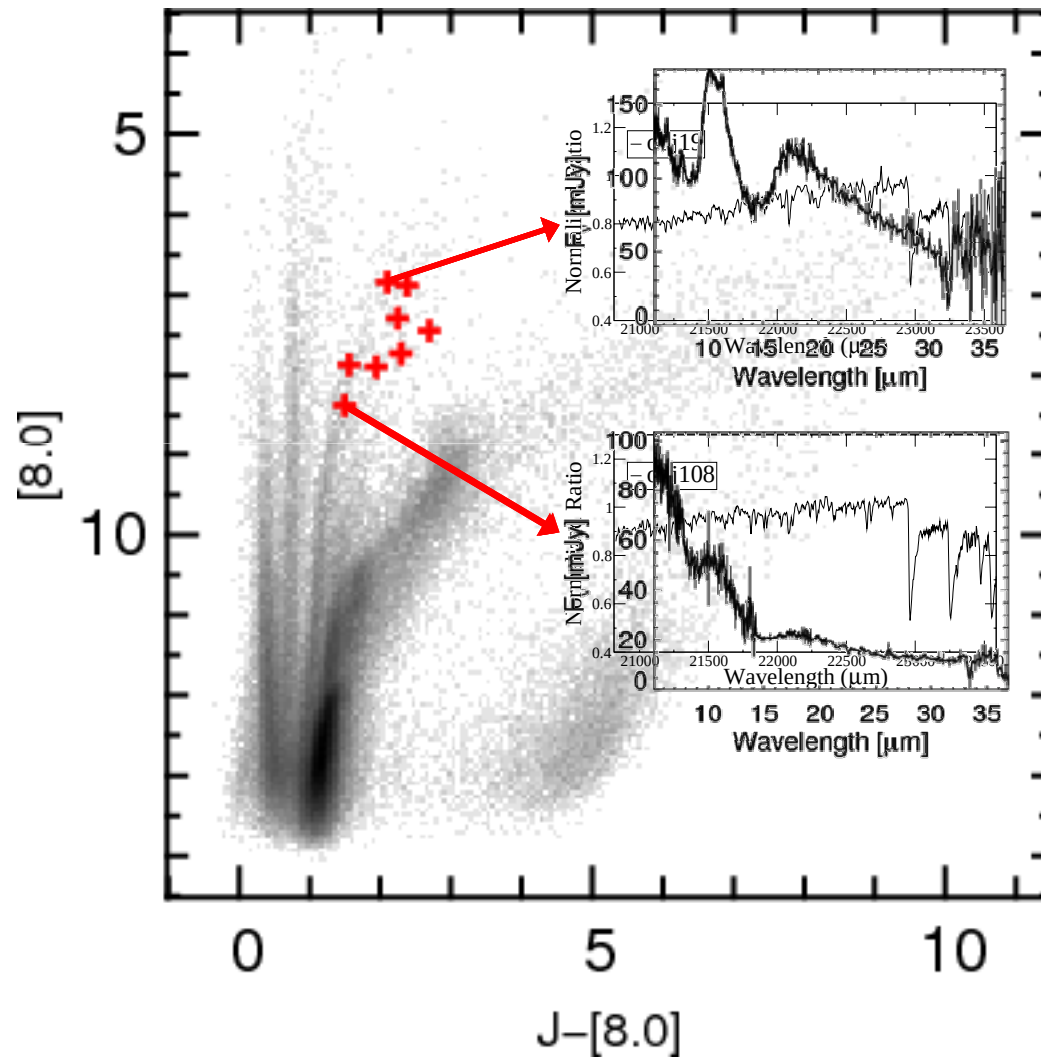
SAGE



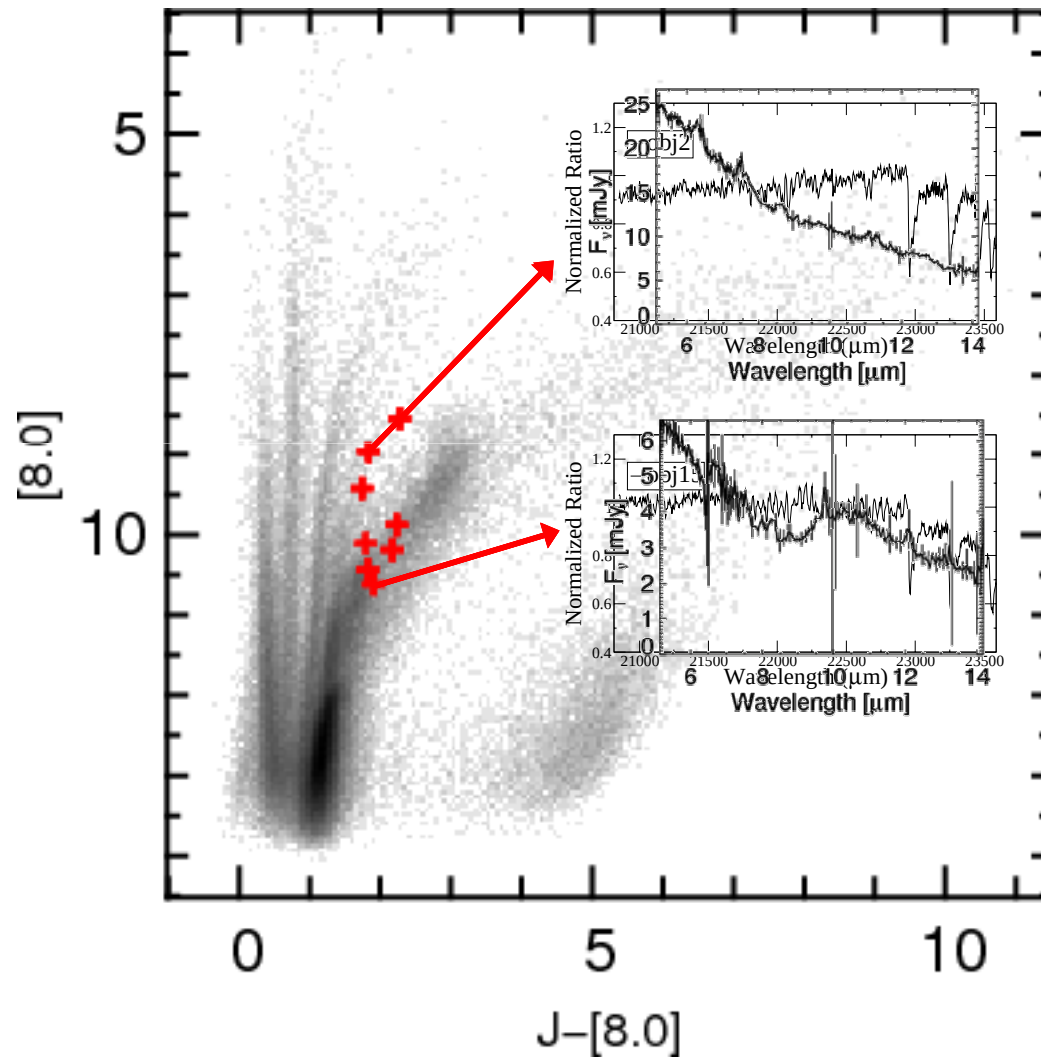
SOAR Sources



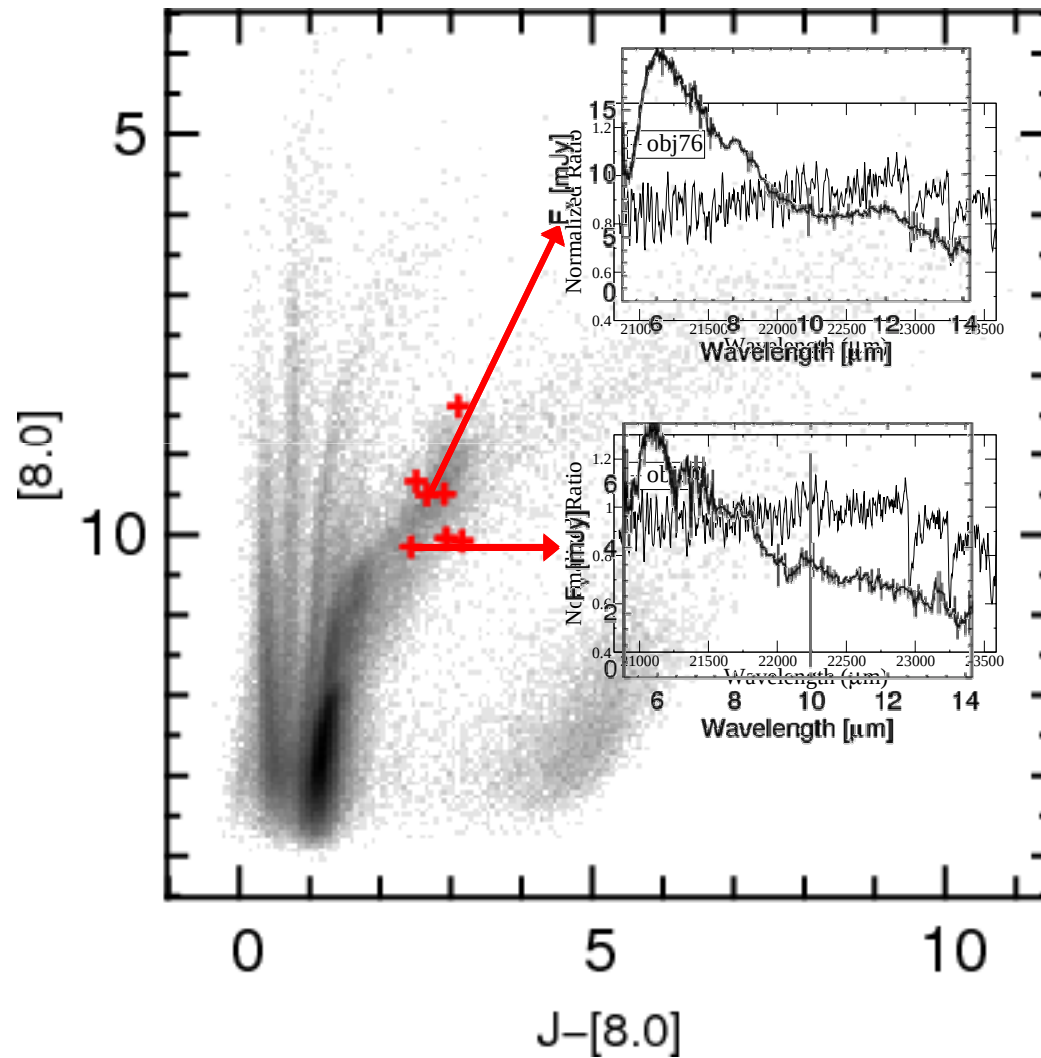
SAGE RSG



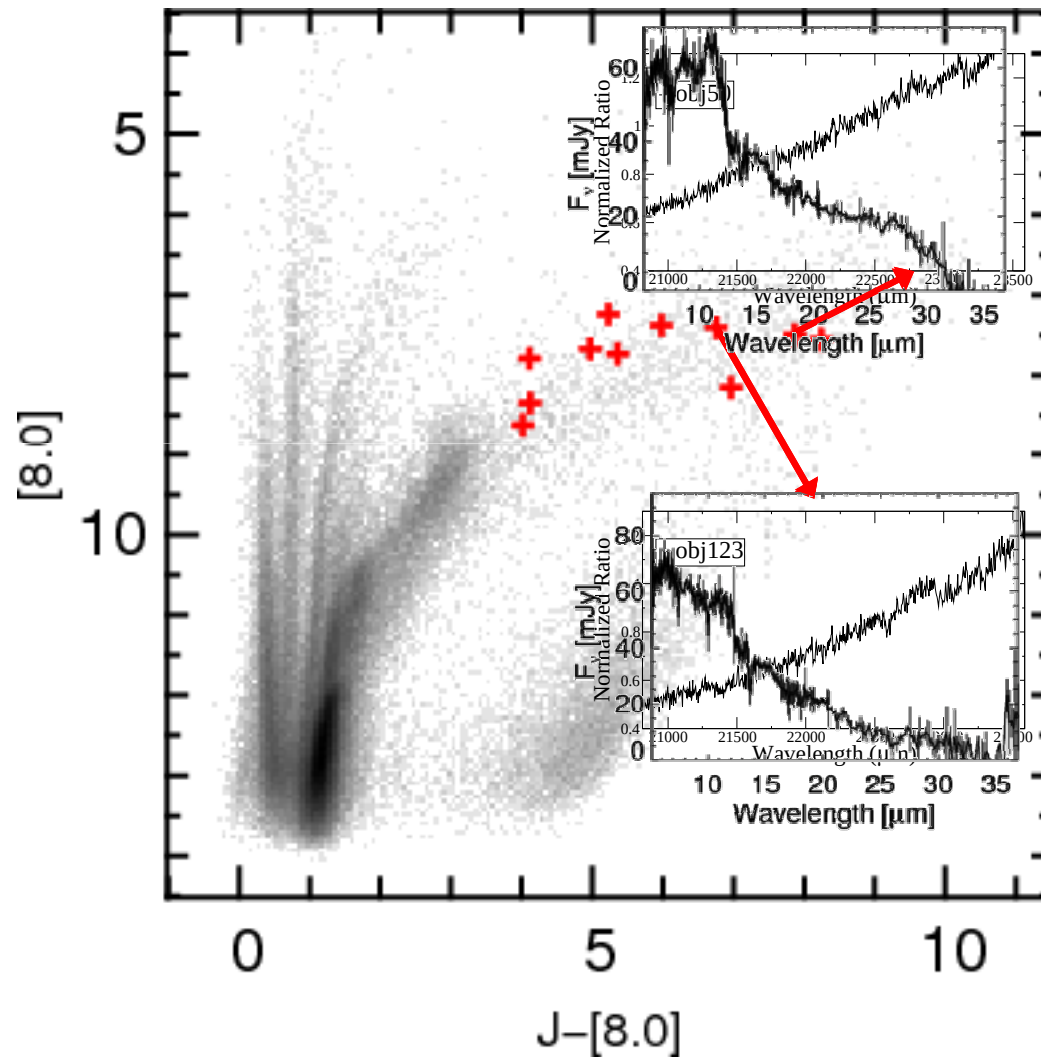
SAGE O-Rich



SAGE C-Rich



SAGE X-AGB



Models

- SOAR spectra provide key input for stellar “core” (spectral type, L , T_{eff})
- Detailed dust models for sources give mass loss.
- Use models of individual sources to derive global LMC properties

Summary

- SOAR OSIRIS spectra match LMC photometric classification very well.
- X-AGB stars have unexpected IRS spectra
- Spitzer SAGE data products are public.
Excellent resource for LMC studies of evolved stars, and good match to SOAR capabilities
- <http://data.spitzer.caltech.edu/popular/>
- <http://sage.stsci.edu/>