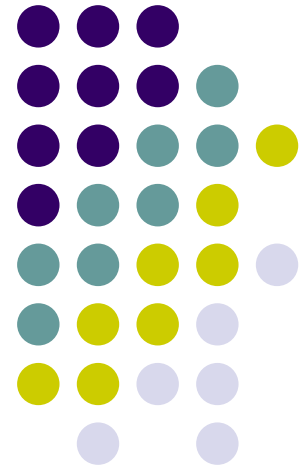


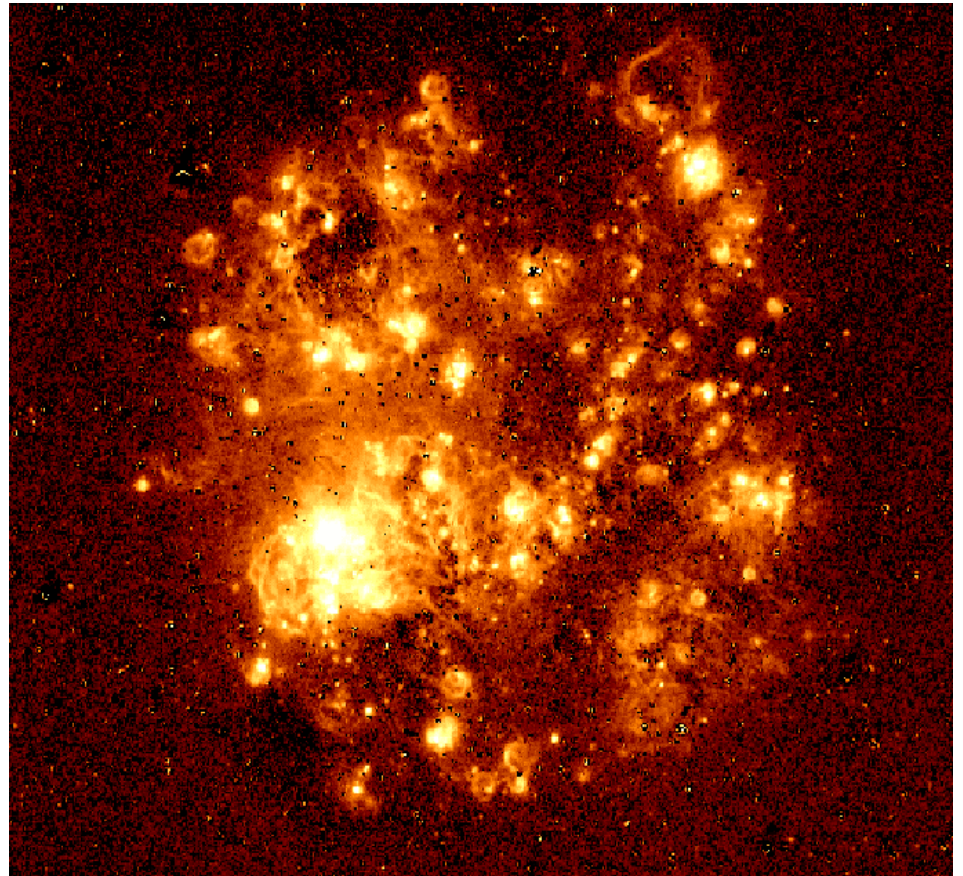
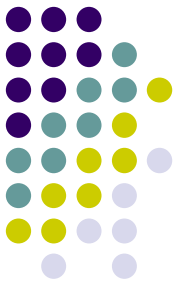
# HII Regions in the LMC: Comparison of Predicted and Observed Fluxes

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New Mexico Space Grant  
Colloquium  
Oct. 31, 2003



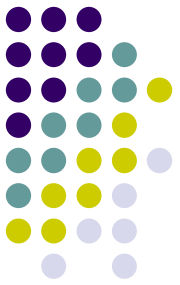
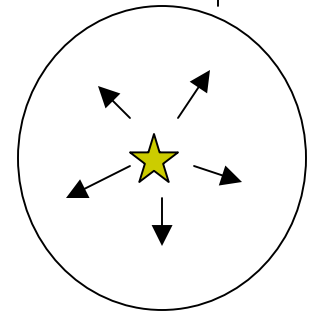
# Large Magellanic Cloud

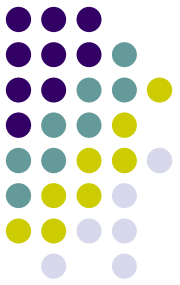
- One of two known satellites of the Milky Way
  - About 50 kpc away
  - An irregular galaxy
  - Recent star formation



# Star Formation

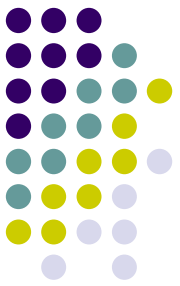
- Young, Massive O and B stars
  - Far UV radiation creates HII regions
- Do the HII regions leak?
  - Might be responsible for the ionization of the DIG
  - Would influence phase balance of the ISM
    - Influence future star formation
- How do we explore whether HII regions leak?
  - Compare observed and predicted ionizing fluxes





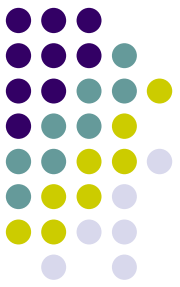
# Observed Fluxes

- Actually inferred
- Aperture photometry—SHASSA calibrated CCD image
- Multiply  $H\alpha$  flux by 2.174



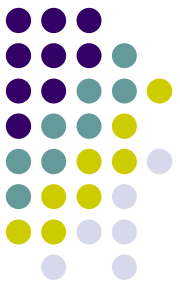
# Predicted Fluxes

- Cross correlate UBV<sub>R</sub> catalog with DEM regions
- Determine which stars are DEM members
- Find candidate massive stars from CMDs
  - Verify with spectral types
    - Cataloged spectroscopic observations
    - Broadband photometry estimations
- Assign fluxes from Smith et al. models and sum them up!



# Thus far...

- Cross-correlated:
  - the optical catalog with the DEM regions
  - the stars with spectral types with DEM regions
  - The UIT catalog with optical and spectral type catalog
    - Too few overlaps, so I am using SMC data
    - In process of creating UV-U vs. Spectral Type calibration
- Created code to assign fluxes
- Begun aperture photometry



# In the future...

- Decide on best way to estimate unknown spectral types
- Examine each region individually and make comparisons
- Considerations:
  - Morphology
  - Number of members
  - Types of members

Thank you to the New Mexico Space Grant for generously funding of this project!