IMAGING

## Image a supernova remnant with Chandra

## Basic Steps:

- 1. Find 10 ksec or longer Chandra observation of SNR E0102-72 in archive that is suitable for energy-dependent imaging. Obsid:
- 2. What mode was Chandra observing in:
- 3. Does data need to be reprocessed? Why or why not?
- 4. Create image of source.
- 5. What is the energy of the strongest O VII line?
- 6. What is the energy of the strongest O VIII line?
- 7. Create image of E0102-72 in 100 eV band around O VII, O VIII lines
- 8. Measure diameter of each image: O VII: O VIII:

## Advanced Topics:

- 1. Why is one line's ring internal to the other?
- 2. Assuming the standard distance to the SMC, what can be said about the energy of the explosion, the density of the surrounding medium, and the age of the remnant,
- 3. Extract entire SNR spectrum and fit. What can be said about the abundances?

Suggested reading: "Chandra X-Ray Observatory Arcsecond Imaging of the Young, Oxygen-rich Supernova Remnant 1E 0102.2-7219," by Gaetz et al. 2000, ApJL, 534, L47