

1. Come up with an observing project for the VLA, LWA, or ELWA. Note that you can talk to anybody at all about this assignment. Some people in the department that might be good to talk to are grad students Megan Lewis, Savin Varghese, Chris DiLullo, Seth Bruzewski, and Pratik Kumar or faculty Rich Rand, Ylva Pihlstrom, and Jayce Dowell. You can also look at the list of LWA projects at <http://www.phys.unm.edu/~lwa/obs sched.html>. You may only submit one proposal. VLA targets should be within the Right Ascension range between 18h and 02h. All targets should be north of -10 degrees in Declination and avoid K and Q bands. Your proposal must include the following elements:

- a) Title, e.g. "VLA HII/SNR Study of NGC4258"
- b) Instrument desired (VLA, LWA or ELWA)
- c) your name
- d) Justification with length between 100-300 words (less than half a page). Must include some idea of what we are going to learn from this experiment.
- e) The preferred target source or class of sources
- f) The RA and Dec of the target, or range if there are more than one.
- g) Some indication of the preferred frequency for observation, doesn't have to be exact.
- h) The expected flux density of the target
- h) Any special requirements that you are aware of.
- i) Any relevant references that you are aware of.

All projects should be submitted electronically to gbtaylor@unm.edu by 4pm on Feb 1. Please use text or Word (especially if you include a figure). I will assemble the projects, and do a quick technical evaluation for each one and then distribute them for everybody to read.

Here is an example project:

VLA HII/SNR Study of NGC4258 - Caleb Grimes

NGC4258 is a spiral galaxy with well studied arm structure; however, the discrete sources within this galaxy are much less studied (Hyman et al. 2001). Therefore I propose a VLA study of NGC4258 with a focus on the discrete HII regions which can be associated with star formation regions and thus Supernova Remnants. Once star formation regions are identified a spectral map can be made to determine emission properties which can help to identify SNR type sources. Comparing these candidate radio SNRs with previously reported SNRs within NGC4258 can help to further identify SNR sources. NGC4258 is a very good candidate for observation with the VLA due to its location of

RA: 12h18m57.5s and Dec:+47d18m14s

which fits perfectly in our observation time window. The source has an extent of 5.4 arcmins which fits inside the field of view of the VLA at C-band (4-8 GHz, ~8arcmins). Since the VLA will be in the D configuration (10 km separation) we will be able to study the discrete HII sources easily with an angular resolution of ~10 arcsec which will allow us to separate discrete sources from the extended emission from the galaxy.

References:

Scott D. Hyman *et al.* 2001 *ApJ* **551** 702