



# Observing Application

Date : Mar, 11 2010  
 Proposal ID : VLA/10A-249  
 Legacy ID : AC992  
 PI : Laura Chomiuk  
 Type : Rapid Response -  
 Exploratory Time  
 Category : Extragalactic  
 Total Time : 4.0

## Pilot Study For A Survey of Diffuse Synchrotron Emission in Dwarf Galaxies

### Abstract:

We propose a pilot study to map four low-luminosity galaxies in L-band radio continuum with the D configuration, in preparation for a larger complete survey of nearby dwarf galaxies. Our study takes advantage of the nearly full 1 GHz bandwidth available at L band, and is ten times more sensitive than the deepest existing survey of dwarfs. Sample galaxies are drawn from the Local Volume Legacy Survey, so there are rich complementary data sets at IR, optical, and UV wavelengths already in hand for them. We will use these data to probe the connection between cosmic rays and star formation---and the importance of cosmic ray feedback and escape---in low-mass galaxies. Our survey will enable systematic studies of the global and spatially-resolved FIR--radio correlation and variations of the radio thermal fraction in dwarf galaxies. Note: This is an exploratory commissioning staff (RSRO) proposal.

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### Related proposals:

AC976, AC987

### Joint:

Not a Joint Proposal

### Observing type(s):

**VLA Resources**

Name	Conf.	Frontend & Backend	Setup
Dconfig	D	L Band 20 cm 1000 - 2000 MHz  WIDAR ECSO	Comments: We request 16 subband pairs, which will enable full polarization observations (4 pol. products) and coverage of the entire L band frequency range (1 - 2 GHz). Each subband has 64 MHz bandwidth and 64 channels per polarization product. The observations will provide a total of 4096 channels; if we use a 10s dump time and assume 25 operational antennae, this setup results in a data rate of 1.2 MBy/s. We will perform the following kinds of calibration: Flux Density Calibration; Phase Calibration; Self Calibration; Polarization Calibration. Our immediate post processing requirements include wide-band calibration and wide-field/wide-band imaging.

**Sources:**

Name	Position		Velocity		Group
NGC2366	Coordinate System	Equatorial	Convention	Radio	N2366
	Equinox	J2000			
	Right Ascension	07:28:51.85 00:00:00.0	Ref. Frame	LSRK	
	Declination	+69:12:31 00:00:00	Redshift	0.00033	
NGC4214	Coordinate System	Equatorial	Convention	Radio	N4214
	Equinox	J2000			
	Right Ascension	12:15:39.16 00:00:00.0	Ref. Frame	LSRK	
	Declination	+36:19:36 00:00:00	Redshift	0.0009770	
SextansA	Coordinate System	Equatorial	Convention	Redshift	SexA
	Equinox	J2000			
	Right Ascension	10:11:00.8 00:00:00.0	Ref. Frame	LSRK	
	Declination	-4:41:34 00:00:00	Redshift	0.001081	
UGC7577	Coordinate System	Equatorial	Convention	Radio	U7577
	Equinox	J2000			
	Right Ascension	12:27:41.86 00:00:00.0	Ref. Frame	LSRK	
	Declination	+43:29:39 00:00:00	Velocity	195	

**Sessions:**

Name	Session Time (hours)	Repeat	Separation	LST minimum	LST maximum	Elevation Minimum
N2366D	1.00	1	0 day	00:00:00	24:00:00	0
N4214D	1.00	1	0 day	00:00:00	24:00:00	0
SexA_D	1.00	1	0 day	00:00:00	24:00:00	0
U7577D	1.00	1	0 day	00:00:00	24:00:00	0