

Arecibo Observatory
William E. Gordon Telescope
Observing Time Request
COVER SHEET

Section I - General Information

Submitted for Sep 1 2012.

This proposal has been submitted before.

The previous proposal number is A2130.

Proposal Type:	Large
General Category:	Astronomy
Sub-Category:	Continuum
Observation Category:	Extragalactic
Time Requested this semester:	306
Hours Next Semester:	78
Hours already used for this project:	1561
Additional Hours required to complete project:	
Minimum Useful Time:	6.2
Expected Data Storage:	over 500 GB

Proposal Title: Completion of GALFACTS Observations

ABSTRACT:

This proposal request time for the last 20% of observations to complete the GALFA Continuum Transit Survey (GALFACTS). GALFACTS, a spectro-polarimetric continuum survey of the whole Arecibo sky, provides the most sensitive imaging to date of polarized radiation over almost one third of the celestial sphere, while the high-spectra resolution, full-Stokes cubes enable Faraday rotation synthesis to be applied to both diffuse emission and a high-density grid of discrete compact sources. GALFACTS is a major observational advance in imaging the polarized radiation from both the Milky Way and the extragalactic universe for exploration of the origin and evolution of cosmic magnetism. It provides a rich new database for exploration of the magnetic field of the Galaxy, the properties of the magneto-ionic medium, the polarization properties of a vast number of extragalactic sources, and of intergalactic fields.

Outreach Abstract:

The ALFA multi-beam receiver system allows the largest aperture telescope in the world to be used for imaging the structure of the polarization of cosmic radio waves. Radio polarization is a unique and powerful probe of magnetic fields in the cosmos. Magnetic fields are ubiquitous in the present day Universe. One of the central questions of modern astrophysics is where do the magnetic fields that thread galaxies come from, and how does their growth and presence change the manner in which the matter in the universe evolves to form stars, planets and life. The GALFACTS project brings together a large global community of researchers to use the Arecibo telescope to build a picture of the polarized sky and in the data seek answers to the questions of the origin, evolution and influence of cosmic magnetic fields.

Name	Institution	E-mail	Phone	Student
Andrew R Taylor	University of Calgary	russ@ras.ucalgary.ca	403-220-5416	
Chris J Salter	NAIC, Arecibo Observatory		7870878-2612 ext 281	

Additional Authors

M. Andrecut (mircea.andrecut@gmail.com)	P. Federl (federl@gmail.com)	J. Han (hjl@nao.cas.cn)
S. Baci - undergraduate student (sonia.baci@student.manchester.ac.uk)	T. Foster (fostert@brandonu.ca)	L. Harvey-Smith (lisa.harvey-smith@csiro.au)
J. Brown (jocat@ras.ucalgary.ca)	B. Gaensler (bryan.gaensler@sydney.edu.au)	M. Haverkorn (m.haverkorn@astro.ru.nl)
A. Despande (desh@rri.res.in)	J. Geisbuesch (Joern.Geisbuesch@nrc-cnrc.gc.ca)	T. Jaffe (tess.jaffe@cesr.fr)
M. Davis (mdavis@seti.org)	S. George (sgeorge@mrao.cam.ac.uk)	18 additional collaborators missing
K. Douglas (kevindouglasphd@gmail.com)	N. Gheissar - graduate student (niloofar@physics.usyd.edu.au)	due to lack of space on
J. Farnes - graduate student (j.farnes@mrao.cam.ac.uk)	T. Ghosh (tghosh@naic.edu)	web form, including 2 graduate and
D. Farnsworth - graduate student (farnsworth@astro.unm.edu)	S. Gibson (steven.gibson@wku.edu)	1 undergrad student.
	S. Guram -graduate student (ssguram@ucalgary.ca)	

This work is part of both a PhD and a MS thesis.

Remote Observing Request

- Observer will travel to AO
 Remote Observing
 In Absentia (instructions to operator)

Section II - Time Request

The following times are in LST.

For these observations night-time is required.

Begin – End Interval–Interval	Days Needed at This Interval
06:50 – 13:10	30
04:50 – 06:50	11
00:00 – 06:20	6
06:00 – 12:20	6

Time Constraints (Must Be Justified in the Proposal Text)

observations at night time for high precision polarimetry

Next Semester Time Request

Begin – End Interval–Interval	Days Needed at This Interval
12:00 – 18:20	6
18:00 – 00:20	6
13:00 – 13:45	11
–	

Time Constraints (Must Be Justified in the Proposal Text)

night time observing

Section III - Instruments Needed

ALFA

Atmospheric Observation Instruments:

Special Equipment or setup: none

Section IV - RFI Considerations

Frequency Ranges Planned

1225 - 1525

This proposal requires Iridium RFI protection at 1612 MHz between 10pm and 6am EST.

This proposal requires coordination with Punta Salinas radar within the band 1222-1381 MHz..

This proposal requires coordination with GPS L3 at 1381 MHz.

Section V - Observing List

Target List

GALFACTS survey region N1

Zenith strip Z1

Zenith strip Z2

Zenith strip Z3

Zenith strip Z4

calibration sources

3C286