

Technical Page

This proposal has not been submitted before.

Proposal Type: Regular
 General Category: Pulsars
 Observation Category: FRB
 Total Time Requested: 75 Hours
 Minimum Useful Time:

Proposal Title: A Pilot ALFA Survey for Fast Radio Bursts from the Virgo Cluster
ABSTRACT:

Fast Radio Bursts (FRBs) are one of the most exciting astronomical discoveries of the last decade. It is essential to find a larger number and to have a good localization in order to understand their nature and to fully exploit their potential. We aim to perform a pilot survey targeting the 22 brightest star-forming galaxies in the Virgo Cluster. Recent studies like our discovery of a repeating FRB (Spitler et al. 2016, Nature, DOI:10.1038/nature17168) suggest that at least some FRBs originate from young, energetic, and/or highly magnetized neutron stars. If so, then their dispersion measures may be dominated by material close to the source, placing them at 10s of Mpc as opposed to much larger, cosmological distances. We will survey Virgo using Arecibo’s unparalleled sensitivity and the same observing setup that identified the first repeating FRB. Even in the event of a non-detection, the proposed pilot survey can give statistical limits on the number of FRBs per galaxy.

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Remote Observing Request

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

Instrument Setup

ALFA

Atmospheric Observation Instruments:

Special Equipment or setup: none

RFI Considerations

Frequency Ranges Planned

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.