



# Montecorvino SETI Telescope Array Preliminary Research Proposal



Project: MStar PI: Dr. H. Paul Shuch, Exec. Dir., The SETI League, Inc. (paul@setileague.org)

## Key Design Features of Instrument:

- 25 4.5 meter reflectors in six spiral arms
- Full tracking azimuth and elevation rotation
- Dual Orthogonal Circular Polarizations
- Full 'water-hole' coverage, 1.2 - 1.7 GHz
- Simultaneous radiometry, spectroscopy, and interferometry in real time



The SETI League's Very Small Array (VSA) prototype in Pennsylvania, USA will serve as a test-bed for developing required MStar technologies.

## Experimental Design:

- Site survey for mitigation of electromagnetic interference
- Installation of central dish for validation of basic receiver circuitry
- Meridian transit sun sweep for calibration
- Begin all-sky SETI survey upon completion of first spiral arm

## Collaborators:

Dott. Stelio Montebugnoli,  
SETI Italia, CNR Medicina IT

## Schedule Milestones:

- Year 1: Demonstrate Total Power Radiometry - completion of one Spiral Arm
- Year 2: Mega-channel spectroscopy - completion of three Spiral Arms
- Year 3: Aperture synthesis interferometry with all spiral arms in place

## Applications:

- Meridian transit all-sky SETI survey
- Parasitic Astrophysical Survey
- Targeted SETI in direction of known exoplanets
- Quick-response verification of candidate SETI signals

TRL<sub>in</sub> = 4

Revised: 12 May 2005

Keywords: MStar, Radiometry, Spectroscopy, Interferometry, Phased Array, Radio Telescope, SETI, Italy