

## Technical Page

Proposal Type: Regular  
 General Category: Astronomy  
 Sub-Category: Spectroscopy  
 Observation Category: Extragalactic  
 Total Time Requested: 20 hr Hours

**Proposal Title:** PKS1004+13: The Rosetta Stone for BAL Quasars?

**ABSTRACT:**

It is now recognized that the material producing broad absorption lines (BAL) in some quasars is in fact present in essentially all such objects, only orientation restricting the observed occurrences to 15%. However, where the BAL phenomenon fits into the unified scheme for active galactic nuclei is not presently clear. While most BAL quasars are radio quiet, the first nearby radio-loud BAL quasar, PKS 1004+13, has recently been discovered. In the radio, this contains a significant core, and jets defining the axis of its central engine. We propose making deep HI observations of this quasar to search for HI absorption in either its outer dusty torus or the host galaxy. We would also look for HI emission associated with the galaxy. We propose to simultaneously search for OH megamaser emission from the quasar dust torus, and for absorption in the halo of the nearby dwarf spheroidal galaxy, Leo 1.

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### Instrument Setup

L-wide

### Atmospheric Optical Instruments:

**Special Equipment or setup:** none

### RFI Considerations

### Frequency Ranges Planned

1133 - 1180 MHz  
 1337 - 1349 MHz  
 1416 - 1422 MHz

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