Technical Page

Proposal Type:	Short
General Category:	Astronomy
Sub-Category:	Spectroscopy
Observation Category:	Extragalactic
Total Time Requested:	2.75 Hours
Minimum Useful Time:	1.5

Proposal Title: Using the dynamics of the gas north of VIRGOHI 21 to discriminate between the dark galaxy and hyperbolic interaction hypotheses.

ABSTRACT:

The origin of the gas cloud VIRGOHI 21 has been disputed. One theory says that it is rotating within its own massive dark matter halo - that it is a dark galaxy; the other that it is the result of a hyperbolic encounter between NGC 4254 and another (unidentified) galaxy within the Virgo Cluster. Simulations show that the dynamics of the gas in the two models diverge north of VIRGOHI 21, with the dark galaxy theory placing this at a similar velocity to VIRGOHI 21 and the hyperbolic interaction theory giving it a much higher velocity. Unfortunately, current observations from the WSRT and from the ALFALFA team (L-band wide follow-up) do not go far enough north to make this discrimination clearly. I aim to use ALFA to observe this gas to a high level of sensitivity in order to determine its velocity and thus discriminate between the two theories.

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Remote Observing Request

- [X] 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

1360-1460

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

This proposal requires coordination with GPS L3 at 1381 MHz.