Angular Momentum of Galaxies in the ALFALFA Survey

By: Daniel Kodroff
Faculty Adviser: Professor G. Lyle Hoffman

Background:

The ALFALFA survey exploits the Arecibo L-band Feed Array which combines sky array of feed horns allowing for radio signal detection from 7 points on the sky simultaneously. ALFALFA uses overlapping drifts, so each pixel combines info from all 7 beams.

Motivation:

The ALFALFA survey is an on-going blind extragalactic HI survey that has detected more than 30,000 extragalactic HI line sources out to z~0.06. Using ALFALFA survey and optical data (i.e Sloan Digital Sky Survey and NASA extragalactic database) we are looking for correlations between angular momentum vectors between local neighbors and within galaxy groups. I have worked to determine the direction of the rotation of galaxies. Previous research found marginally significant correlations using HI to determine the angular momentum of galaxies. Our hope was to expand the dataset and resolve the ambiguity in directions and determine whether the correlations previously found are significant or not.