Hubble Space Telescope

Cycle 16 AR Proposal

Dynamically-Driven Star Formation in M51

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Scientific Category: ISM IN EXTERNAL GALAXIES

Scientific Keywords: H II REGIONS, MOLECULAR CLOUDS, SPIRAL GALAXIES, STAR FORMATION

Total Budget Amount: $59,000

Abstract

We propose to investigate gas dynamical environments around star forming regions in the ground-design spiral galaxy M51. The archival HST/ACS Halpha image will reveal the location and properties (e.g. size, luminosity) of HII regions. The CARMA key project observes molecular gas over the entire M51 disk, overlaying the gas density and velocity structures on the HII image. CARMA has sufficient spatial and velocity resolutions for revealing dynamical environments (e.g. shocks, shears) around individual star forming regions. We will correlate the HII region properties with their dynamical environments. The comparison of CARMA and HST image will reveal the previously unseen connection between galactic gas dynamics and the trigger of star formation.

Investigators:

	Investigator	Institution	Country
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Number of investigators: 2

Dataset Summary:

Instrument	No. of Datasets	Retrieval Method	Retrieval Plan
ACS	38	FTP	Planning to use the calibrated images provided by the Hubble Heritage Team