

Title: Molecular Gas, Star Formation and Spiral Arms: Insights from PAWS

Author: Annie Hughes, Max Planck Institute for Astronomy, Germany (hughes@mpia.de)

Co-authors: Eva Schinnerer, Max Planck Institute for Astronomy, Germany
Clare Dobbs, University of Exeter, United Kingdom
Gaelle Dumas, Institut de Radioastronomie Millimétrique, France
Sharon Meidt, Max Planck Institute for Astronomy, Germany
Santiago Garcia-Burillo, Observatorio Astronómico Nacional, Spain
Carsten Kramer, Institut de Radioastronomie Millimétrique, Spain
Adam Leroy, National Radio Astronomy Observatory, USA
Jerome Pety, Institut de Radioastronomie Millimétrique, France
Karl Schuster, Institut de Radioastronomie Millimétrique, France
Todd Thompson, Ohio State University, USA

Understanding the processes that regulate the formation of stars within galaxies is a major theme in current astrophysical research. Surveys of the molecular gas in external galaxies with cloud-scale resolution are especially valuable to this effort since they characterize the initial conditions for star formation across different galactic environments. By combining high resolution CO data from our recent PdBI Arcsecond Whirlpool Survey (PAWS) with ancillary data across the electromagnetic spectrum, we have investigated the connections between molecular gas, dust and star formation within the iconic grand-design spiral galaxy M51. I will present highlights from these studies.