Abstract Submitted
for the SES13 Meeting of
The American Physical Society

A Multi-wavelength Analysis of Cold Evolving Interstellar Clouds[1] MARY SPRAGGS, STEVEN GIBSON, Western Kentucky University — Since galaxies are essential parts of the universe's structure, it is important to understand their inner workings, including star formation and related processes in the interstellar medium (ISM). The ISM is made up of atomic and molecular gas, mostly hydrogen, with a small amount of other elements and solid dust particles. Interstellar gas is found with a wide range of temperatures and densities, but only the coldest, densest clouds can undergo gravitational collapse to form new stars. The manner in which such clouds condense out of warmer, more tenuous material is not understood but may follow a phase transition from atomic to molecular hydrogen. We have assembled a large data set of atomic and molecular spectral line image cubes and infrared dust maps to track this phase transition and any corresponding changes in gas temperature, density, and related properties in different parts of our own Galaxy. We will present an overview of our technique and preliminary results from the analysis.

[1]We acknowledge support for this work from the NASA Space Grant Consortium, the National Science Foundation, and Western Kentucky University.

Mary Spraggs
Western Kentucky University

Date submitted: 19 Sep 2013 Electronic form version 1.4