

Astrophysics

SMALL SCALE STRUCTURE IN THE INTERSTELLAR MEDIUM TRACED BY FORMALDEHYDE ABSORPTION, [E. D. Araya*](#), Physics Department, Western Illinois University, Macomb, IL 61455, ed-araya@wiu.edu

Interstellar molecular clouds are the birthplace of new stars and planetary systems, thus investigating the structure and properties of the molecular phase of the interstellar medium is important to fully understand the formation and evolution of stars and galaxies. To study the small scale structure in galactic molecular clouds, we conducted observations of formaldehyde molecules detected in absorption toward background quasars. The observations were carried out with the Very Large Array (VLA) in New Mexico. Using the new data and archive observations, we have been able to study substructure in the molecular clouds based on line profile variability over a time-scale of almost two decades. We found changes in the line profiles indicative of sub-structure within the molecular clouds. Our results are consistent with molecular material distributed in filaments or cores, characterized by size-scales smaller than $\sim 40,000$ AU (0.2 pc) and greater than ~ 50 AU. Evidence of sub-structure at even smaller scales will be discussed.