MODELING THE AFTER-EFFECTS OF SHOCKS TOWARD L1157

ANDREW M BURKHARDT, *Department of Astronomy, The University of Virginia, Charlottesville, VA, USA*; BRETT A. McGUIRE, *NAASC, National Radio Astronomy Observatory, Charlottesville, VA, USA*; NIKLAUS M DOLLHOPF, *Department of Astronomy, The University of Virginia, Charlottesville, VA, USA*; ERIC HERBST, *Department of Chemistry, The University of Virginia, Charlottesville, VA, USA*.

Shocks have been found to be ubiquitous throughout the interstellar medium and in star forming regions. How these phenomena affect the chemistry, especially the interplay between gas-phase and grain-surface processes, in these regions has yet to be fully understood. In the prototypical shocked-outflow of L1157, we can study the effects that recent shocks ($\sim 10^3$-10^4 years ago) can have on previously cold, quiescent gas, where many of the complex molecules are thought to be locked within grains. Toward a single shock event, C2, a significant chemical differentiation is observed between the previously shocked gas along the eastern wall and the newly shocked gas along the western wall. In addition, substantial enhancement of HNCO towards the younger shock, C1, may imply high-temperature O-chemistry is important soon after the passage of a shock. Here, we utilize the gas-grain chemical network model NAUTILUS in order to investigate the prominence of these effects.