

CHEMICAL COMPLEXITY IN THE SHOCKED OUTFLOW L1157-B REVEALED BY CARMA

NIKLAUS M DOLLHOPE, *Department of Astronomy, The University of Virginia, Charlottesville, VA, USA*; BRETT A. McGUIRE, *NAASC, National Radio Astronomy Observatory, Charlottesville, VA, USA*; BRANDON CARROLL, *Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, CA, USA*; ANTHONY REMIJAN, *ALMA, National Radio Astronomy Observatory, Charlottesville, VA, USA*.

We present results from a targeted chemical search toward the prototypical shocked outflow L1157. L1157-B0, -B1, and -B2 are shocked regions within the outflow from the Class 0 low-mass protostar L1157-mm. We have mapped a variety of molecular tracers in the region with typical spatial resolutions of $\sim 3''$ using CARMA, and find differences in the chemical makeups between shocked regions within the same precursor outflow material. We present observations of CH_3OH , HCO^+ , HCN , and the first maps of HNCO in the source. We will examine the utility of HNCO as a sensitive tracer of the shocks in this source, and finally, we will discuss what insights we can gain into the chemical evolution, and evolutionary time scales, that have given rise to the differentiation we see between the shocks.