

PROBING CIRCUMSTELLAR MOLECULAR GAS IN THE STAR-FORMING REGION BD +40° 4124

SHIYA WANG and LESLIE W. LOONEY, *Astronomy Department, University of Illinois at Urbana-Champaign, Urbana, IL 61801.*

As a well known cluster system that has simultaneous low and high-mass star formation, the BD +40° 4124 region can provide an interesting laboratory for star formation studies. The cluster associated with BD +40° 4124, a Herbig Be star at a distance of 1 kpc, includes two other optically visible young stars, V 1686 Cygni and V1318 Cygni, and several embedded IR sources. We present the BIMA interferometric images of CS $J = 2 - 1$, $^{13}\text{CO } J = 1 - 0$, and C $^{18}\text{O } J = 1 - 0$ to probe the molecular gas distribution and morphology and derive the gas column density and molecular mass. By comparison with near infrared observations, we identify more embedded sources showing ongoing star-forming activities and study the formation mechanism and interaction between the high mass star and low mass companions. Finally, the impact to general star formation will be discussed.