

## A Determination of Binary Frequencies in Young Embedded Clusters

Joanna Levine

I propose to determine the frequency of binary stars in a variety of young embedded clusters. This study of binary fractions in young stellar clusters will have important implications for a number of problems concerning the required conditions for star formation. These include determining whether (a) binary formation is a function of environment and (b) most field stars form in clusters. In addition, binary systems may affect the formation of planetary systems. Relevant observations of the cluster NGC 2024 have already been obtained in collaboration with Drs. Elizabeth Lada and Richard Elston and we have developed the necessary tools for data reduction and analysis. I will look at infrared excess of the stars in our sample to determine whether circumstellar or circumbinary disks are present. Ultimately, I will estimate whether planets are able to form around binary systems and place constraints on the conditions necessary for planet formation.