Candidate Young Stellar Objects in the Serpens Main Cluster
Objectives

• Initial Mass Function

• Characterize disk evolution

• Reconstruct the star forming history
Our Data

• Unbiased sample of candidate young stellar objects (YSOs)
• Over 700 moderate resolution spectra
• Confirm youth, determine effective temperatures and bolometric luminosities and to estimate the ages and masses.
• 20 Echelle (High resolution) spectra ($R=\lambda / \Delta \lambda = 33,000$)
• Estimate accretion rates, set limits on rotational velocity, determine radial velocities (RVs) and infer the average velocity and velocity dispersion of the cluster.
Magellan Telescopes

• Twin 6.5 meter Magellan telescopes

• Baade and Clay

• alt-azimuth design
Magellan Inamori Kyocera Echelle (MIKE)

- double echelle spectrograph
- 3350-5000Å (blue) & 4900-9500Å (red)
- Each side can be used simultaneously with independent exposure times
Lithium
Calcium
Iron
Top: K5
Bottom: F6
Radial Velocity

\[ \frac{v}{c} = \frac{\Delta \lambda}{\lambda_0} \]
Radial Velocity

• Motion of earth around sun
• Motion of Sun around Local Standard of Rest
Our Current Results

<table>
<thead>
<tr>
<th>Number of stars</th>
<th>Velocity km/sec</th>
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<tbody>
<tr>
<td></td>
<td>-30</td>
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- Field Stars
- YSOs
Needs to be done

• Blue spectra reduced and analyzed

• Red spectra checked for emission lines and accretion rates

• Vsini Determined
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