

# Chemical models of YSOs

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**Abstract.** The distribution and composition of the dust and gas surrounding Young Stellar Objects (YSOs) is of continuing interest. Fortunately, rapid advances in observational capabilities have led to data of high spatial and spectral resolution, as well as the opportunity to observe in previously unavailable windows using satellites. Such high quality data has motivated enhancements in theoretical models. Key to these models is the chemical evolution of the gas. Since the chemical evolution depends upon temperature, density, and time, the state and history of the source is encoded in the spatial distribution of the chemical abundances.

It is possible, using both parametric and detailed physical-chemical modeling to constrain many source properties, and identify potential reactions of further laboratory interest. Using specific examples, I will discuss some successes toward constraining the source properties, as well as challenges posed by current problems. Finally, I will discuss the potential effect of infall dynamics and recent laboratory measurements of temperature programmed desorption of ices from grains on inferring source properties.

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