WHAT MOLECULES ARE PRODUCED IN DENSE PDR'S?

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Photon-dominated regions (PDR's) are surface layers of interstellar molecular clouds exposed to intense fluxes of far-ultraviolet photons. PDR models treat the radiative transfer from the outer regions to the inner and denser ones, and in particular take into account the self- and cross-shielding due to H_2 and CO. We have used our PDR code to study the formation of molecules in dense PDR's and ascertain how the external radiation field determines the distribution of peak abundances of several molecules along the line of sight, such as long carbon-chains and other molecules that are used to trace high density gas. These results can provide us with useful information about how inhomogeneities in molecular clouds affect the distribution of the observed molecular species.