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Evolution of organic compounds in disks: Implications for habitable planets

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A major component of refractory carbon in planet-forming disks is in the form of polycyclic aromatic hydrocarbons, or PAHs. These compounds withstand temperatures up to ˜1000 K in the disk environment. In hotter gas, they break down into volatile compounds including acetylene (C2H2), methane (CH4), CO and CO2 on timescales shorter than dynamical timescales of the disk. In my talk, I will discuss disk chemistry in light of what is known about the physical evolution of disks, with particular emphasis on the implications for the carbon content of habitable worlds.

Keywords: organics, evolution, protoplanetary disk, habitable planet