New Molecular Species Discovered by ISO in the Interstellar and Circumstellar Media

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I will present briefly the new molecular species discovered by ISO. One of the most impressive results of ISO, from a spectroscopic point of view, is the richness of spectral features in the proto-planetary nebula CRL618. Among these features we have identified C_4H_2 and C_6H_2. These species are also present in CRL2688, another proto-planetary nebula, but are very weak in the AGB C-rich star IRC+10216. These data, together with millimeter and submillimeter observations of CRL618, suggest an important change in the chemistry of proto-planetary C-rich stars.

Although these molecular species could result from the de-absorption of the grain mantles, the detection of OI, H_2O and OH in CRL618 (Herpin & Cernicharo, ApJ Letters, February issue) suggest that gas-phase reactions are playing an important role in changing the molecular abundances and the composition of the envelope. The long carbon chains detected with ISO and the small hydrocarbons detected in the radio domain suggest that in the proto-planetary phase the physical conditions prevaling in the envelope could permit the formation of large complex molecules.

In addition I will present our results concerning SgrB2 which show the presence of large amounts of triatomic carbon, C_3, and NH.