MAIN ROADS IN THE FORMATION OF CARBON STRUCTURES

Enrique E. Pasqualini[1] and Marisol Lopez[1]
[1] Nanoestructuras. CAC.
Comision Nacional de Energia Atomica.
Av. Libertador 8250
Buenos Aires, CF 1429
Argentina

Different reaction pathways are analized for the formation of carbon structures. These pathways take in account the more stable structures for different number of carbon atoms and possible reactions between them.

It is shown that linear chains evolve to form fundamentally carbon rings. Reactions between these rings or carbon chains produce arm chair polycyclic structures. Polycyclic structures can be transformed into fullerenes, condensate as agregates or react between them to form fullerenes.

Energy values of all these structures obtained using density functional theory are shown. Preferential pathways will depend on environmental conditions. Experiments of high temperature carbon vapors in the presence of buffer gases and interstellar conditions are analyzed.