New procedure to obtain fullerenes and related molecules by a controlled dehydrogenation process

CSIC has developed a new procedure to obtain fullerenes and related molecules by a simple dehydrogenation process is presented. This protocol permits to synthetise fullerenes and heterofullerenes of different sizes, nanotubes, graphene and other molecules in a highly controlled process. A patent license agreement and collaboration for further development are sought.

Technology Description

This technology involves the cycling of polycyclic aromatic hydrocarbon precursors by the catalytic action of a surface. The molecular precursor dehydrogenates and closes into itself to form a closed molecule. This methodology can be also applied to hetero-fullerenes nanotubes, graphene and other molecules.

The fullerenes production can be made on nanoparticles or sheets of catalytic material, and the fullerenes stucked on can be released for further uses. This sheets can also be used as electronic molecular devices, for example electron donors, molecular transistors, photovoltaic cells ...

Main features and advantages

- Control of the process
- Possibility of growing fullerenes of different sizes
- Formation of new heterofullerenes, no synthetised up to now by other methods
- High purity of the produced molecules.

Patent Status
Patent granted

For further information please contact
Marisa Carrascoso Arranz
Material Sciences Area
Deputy Vice-Presidency for Knowledge Transfer (VATC)
Spanish National Research Council (CSIC)
Tel.: + 34 – 91 568 15 33
Fax: +34 – 91 568 15 21 / 15 51
E-mail: macarrascoso@orgc.csic.es