New graphene-based catalysts for the energy industry

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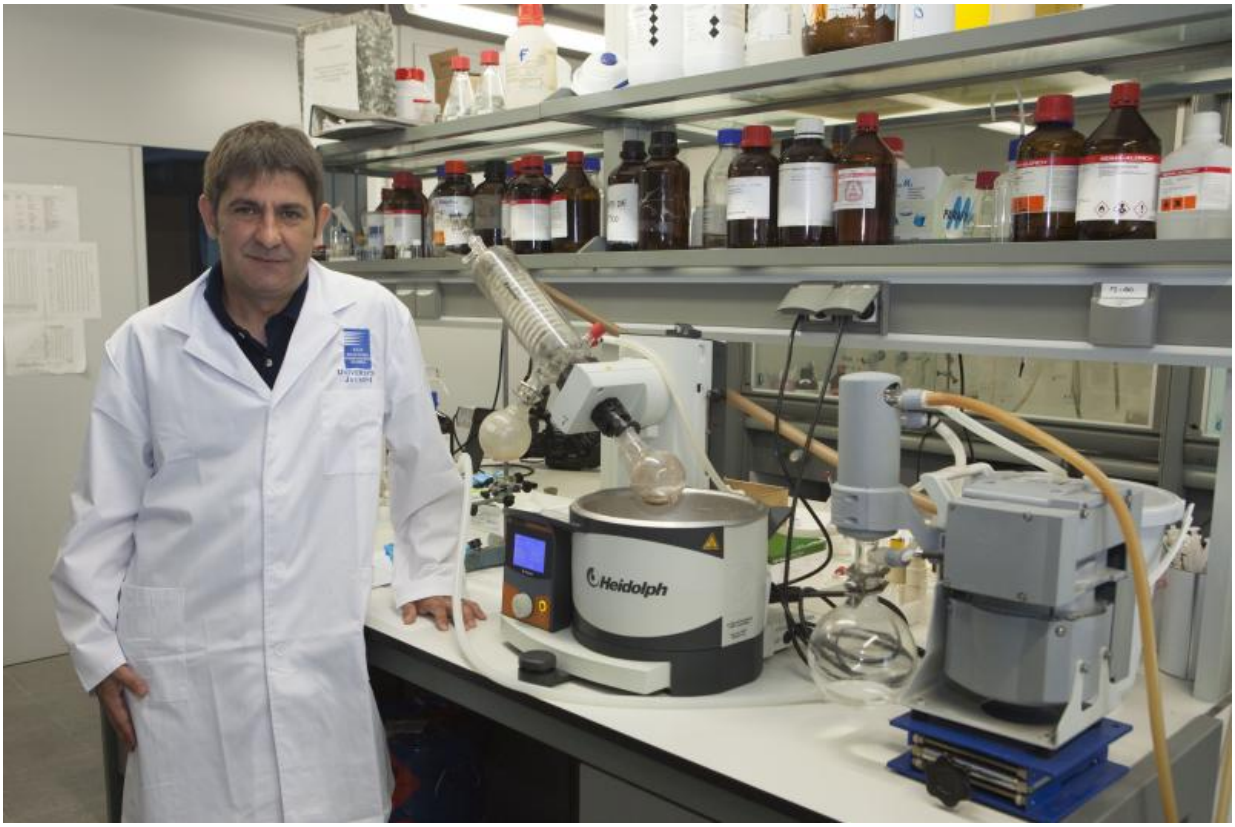

Credit: Àlex Pérez

Researchers at the Universitat Jaume I in Spain have developed materials based on graphene that can catalyse reactions for the conversion and storage of energy. The technology patented by the UJI combines

graphene and organometallic compounds in a single material without altering the most interesting properties of graphene, such as its electrical conductivity.

The technology, developed by the Group of Organometallic Chemistry and Homogeneous Catalysis (QOMCAT) of the UJI, is of great interest to the energy industry and is part of the so-called "hydrogen economy." An alternative energetic model in which energy is stored as hydrogen. In this regard, the materials patented by the UJI allow catalysing reactions for obtaining hydrogen from alcohols and may also serve as storage systems of this gas.

It is a novel technology using graphene for the first time as a support of organometallic compounds. These hybrid materials have catalytic properties and are modular and recyclable. Thus, the catalyst developed at the UJI can be recycled ten times without suffering a loss of activity, a very attractive property from the industrial viewpoint.

The new material is also obtained from a novel system of obtaining hybrid materials in a single step. An easy and affordable system that allows that all the technology that is currently based on graphene can be easily converted using these new materials. Thus, the patented materials can be used both in the development of catalysts as well as storage batteries or other energy types.

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