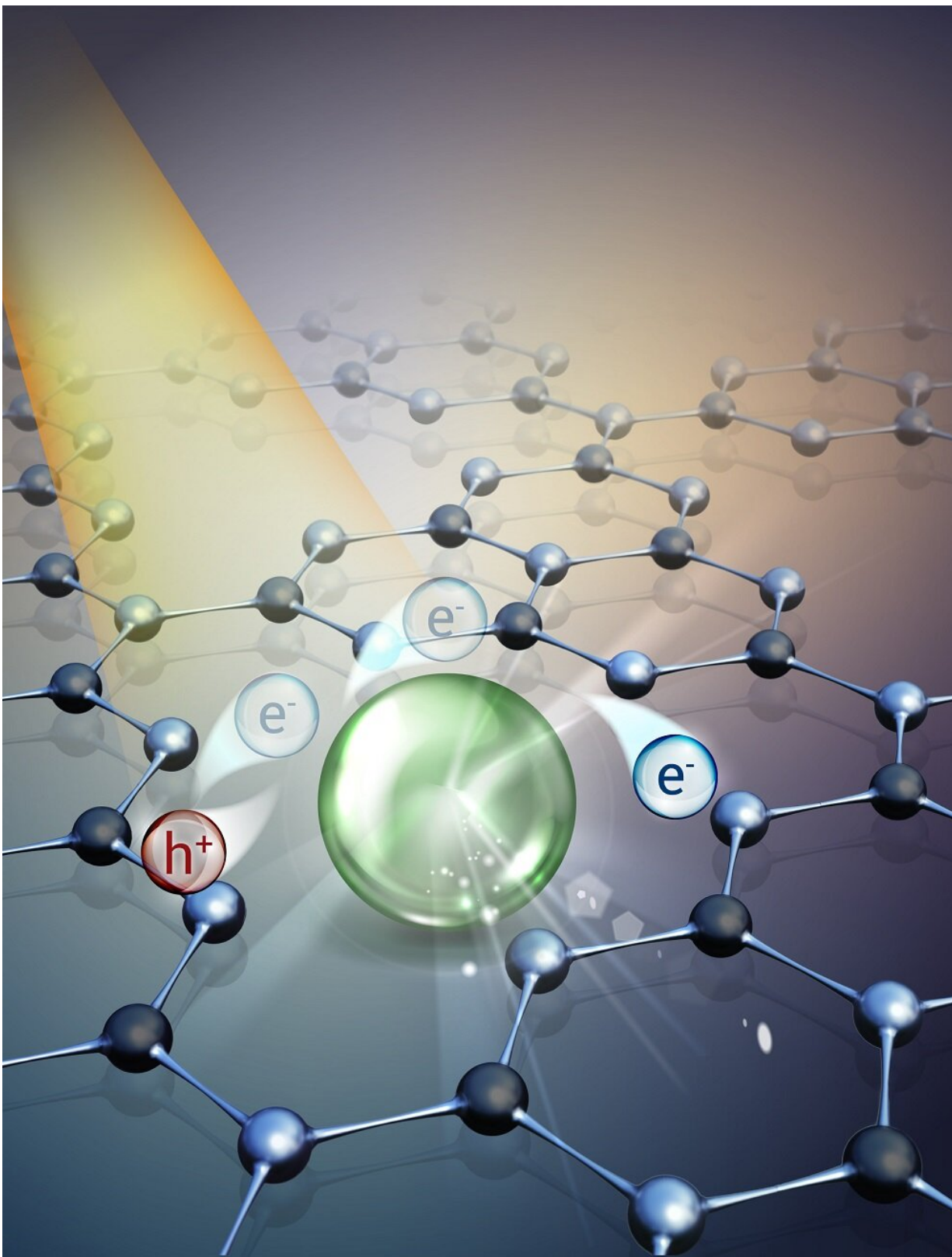


Sustainability: New catalyst makes chemical processes more efficient and less harmful to the environment

July 7 2023



Credit: Politecnico di Milano

A new discovery by the Politecnico di Milano opens up new perspectives in the field of sustainable chemical synthesis, promoting innovative solutions that allow chemicals to be created in a more efficient and environmentally friendly way. The research was published in the journal *Nature Synthesis*.

Using the innovative technique of dispersing isolated atoms on carbon nitride supports, the team developed a [catalyst](#) that is more active and selective in esterification reactions. This is an important reaction in which [carboxylic acids](#) and bromides are combined to form products used in the manufacture of medicines, food additives and polymers.

The revolutionary feature of this new catalyst is that it reduces the use of rare metals, a significant step towards conserving critical resources and making processes more sustainable. In addition, the catalyst can be activated by sunlight, eliminating the need for energy-intensive methods. This discovery holds [enormous potential](#) in reducing dependence on finite resources and lowering the environmental impact of catalytic processes.

Professor Gianvito Vilé, Associate Professor of Chemical Engineering at the "Giulio Natta" Department of Chemistry, Materials and Chemical Engineering, coordinated the project, while Mark Bajada, a Marie Skłodowska-Curie Postdoctoral Fellow at the Politecnico di Milano, is the first author of the paper. The study was conducted in close collaboration with researchers from the University of Milan Bicocca and the University of Turin.

More information: Mark A. Bajada et al, Light-driven C–O coupling of carboxylic acids and alkyl halides over a Ni single-atom catalyst, *Nature Synthesis* (2023). [DOI: 10.1038/s44160-023-00341-3](https://doi.org/10.1038/s44160-023-00341-3)

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