

Hydrogen fuel cells become faster and greener with new catalyst

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Hydrogen fuel cells powered by methanol are a promising option for reducing the nation's nearly 200 billion-gallon-per-year gasoline habit. But, making the technology a reality requires catalysts that speed up the chemical reactions while working under everyday conditions.

Scientists at Pacific Northwest National Laboratory and the University of Idaho have developed a highly efficient catalyst of multi-walled carbon nanotubes decorated with tiny particles of a platinum and ruthenium composite. Preparation is a key factor in determining the activity of a catalyst.

The researchers selected a process using supercritical carbon dioxide, which has the properties of a gas and a liquid. The supercritical fluid technology may result in products and processes that are cleaner, less expensive and of higher quality than those produced using conventional solvents.

The technology also is easily manipulated to allow a fine degree of control and is easily separated from the catalyst. Moreover, it is nontoxic, which could improve worker safety and reduce environmental impacts.

PNNL scientist Yuehe Lin will discuss "Pt and Pt-Ru/Carbon Nanotube Nanocomposites Synthesized in Supercritical Fluid as Electrocatalysts for Low-Temperature Fuel Cells" at NSTI Nanotechnology Conference, May 7-11, Boston.

Source: PNNL

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