

## NSF taps Zhu as among nation's most promising researchers

One of the nation's most promising research engineers applies his expertise to a concept that is more than 150 years old.

John Zhu's new twist on the concept of fuel cells has garnered him a National Science Foundation award as one of the most promising academic leaders of the 21<sup>st</sup> century.

The assistant professor of Mechanical Engineering has been awarded a Faculty Early Career Development grant of more than \$400,000 to integrate research and education through his work with fuel cells, devices that create electricity from a chemical reaction between hydrogen and oxygen.

Zhu says the time has come for fuel cell research to take center stage in the hunt for efficient, environmentally friendly sources of energy.

"Researchers have produced extremely efficient fuel cells, but the cost must come down before it's feasible to use them in common applications," says Zhu. "Our work at Tennessee Tech is focused on finding less expensive materials to produce the same efficiency."

The NSF award will support Zhu's research for the next five years as he works to perfect a concept Sir William Robert Grove, "the father of the fuel cell," introduced in 1839. Only in the past few decades have researchers aggressively looked for ways to bring fuel cells into common use.

Fuel cells produce no harmful emissions and eliminate dependence on fossil fuels because they work by directly transforming hydrogen and oxygen into electrical energy to run everything from vehicles to power plants.



John Zhu

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John Zhu worked on his doctoral research with [Dr. Peter Liaw](#), University of Tennessee, with funding from the [Advanced Research Materials Program](#). Zhu is now Assistant Professor of Mechanical Engineering at [Tennessee Technological University](#), Cookeville, Tennessee.