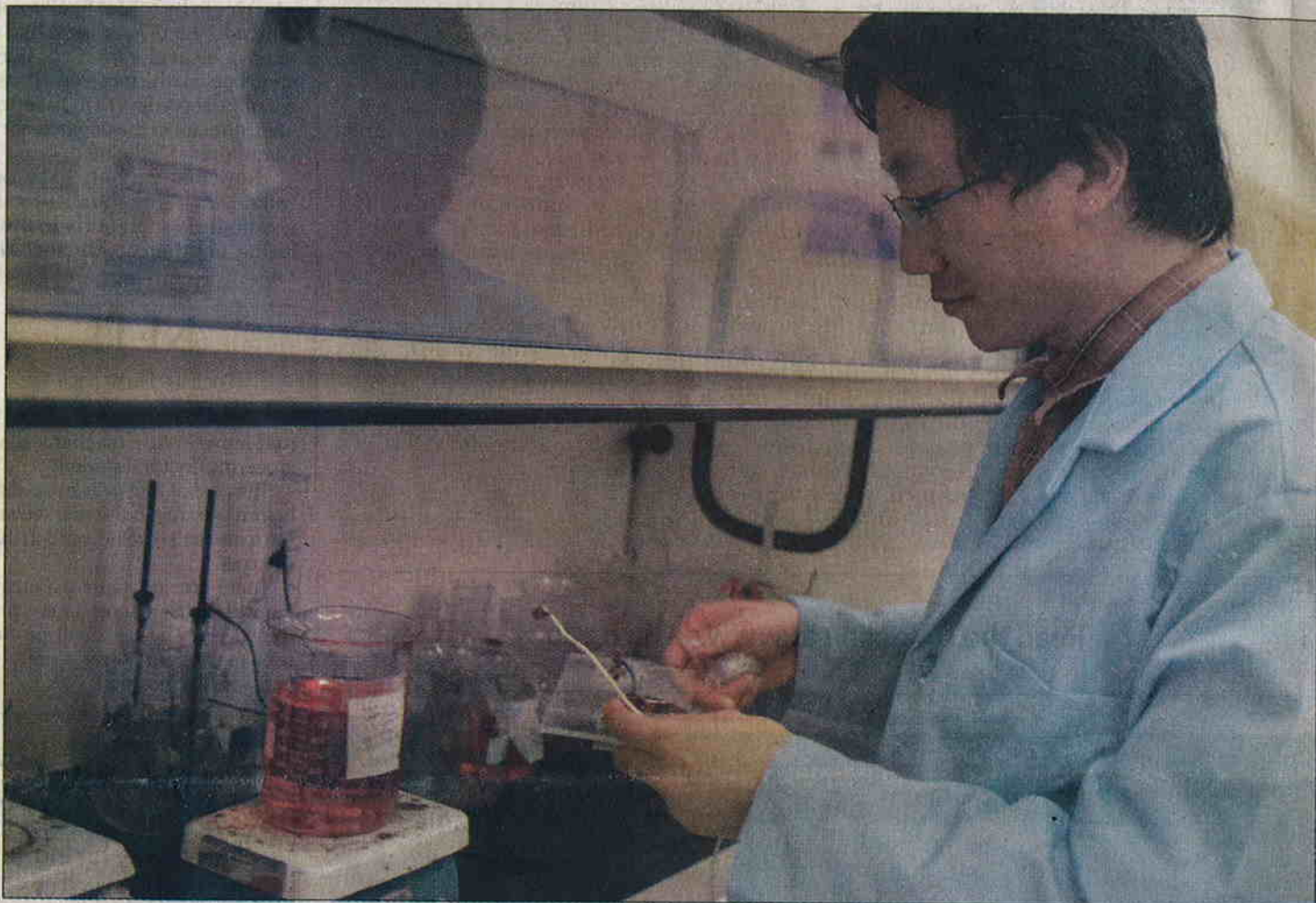


# University aims to improve efficiency of fuel cells



KENDAL MONTGOMERY/THE DAILY ATHENAEUM

WVU's Department of Mechanical and Aerospace Engineering doctoral student Junwei Wu makes a manganese-cobalt plated coating in preparation for fuel cell testing Monday at the College of Engineering and Mineral Resources building.

**By Alex Belfiori**  
Staff Writer

West Virginia University and the Department of Energy's National Energy Technology Laboratory have teamed up to produce a coating to make fuel cells more efficient.

"Fuel cells are supposed to be the next power generation device,"

said Xingbo Liu, a mechanical and aerospace engineering assistant professor at the College of Engineering and Mineral Resources.

After working on the coating for three years, the team developed a manganese-cobalt plated coating. They have already had successful field tests.

"The coating is more conductive and, therefore, improves effi-

ciency, and it is protective against contamination of the cathode by chromium from the base alloy," said Christopher Johnson, a physical scientist and project manager with the NETL.

The manganese-cobalt plated coating interconnects work at 800 degrees Celsius and protects against corrosion, making it more effective than previously investi-

gated coatings.

It is also stable, and the electroplating is relatively inexpensive to produce. The chemicals used in the solution are also less hazardous than typical industrial plating solution.

"The way we're doing the coating is the most cost-effective way,"

# NETL

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said Junwei Wu, a mechanical engineering doctoral student.

The cost of fuel cells must drop before they reach the market, and the team isn't sure how much they will cost.

There are still some expensive parts in them and aren't mass produced yet. The cells will be first used for backup power generators in places like hospitals.

The project is funded by the Department of Energy's Solid State Energy Conversion Alliance program.

They aim to develop solid oxide fuel cells that can operate using coal-based power, and the strides made at WVU could help with those cells.

While the team had trouble with manipulating the manganese and cobalt at first, they were the first group to successfully field test and prove that the manganese-cobalt coating could make fuel cells more

efficient.

There are six team members who are either working on or have worked on the coating.

WVU's Department of Mechanical and Aerospace Engineering Chair Ever Barbero, postdoctoral fellow Ying Lu Liang and doctoral student Junwei Wu are the three members from WVU. Their NETL counterparts are Randall Gemmen, Chris Johnson and Ayyakkannu Manivannan.

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