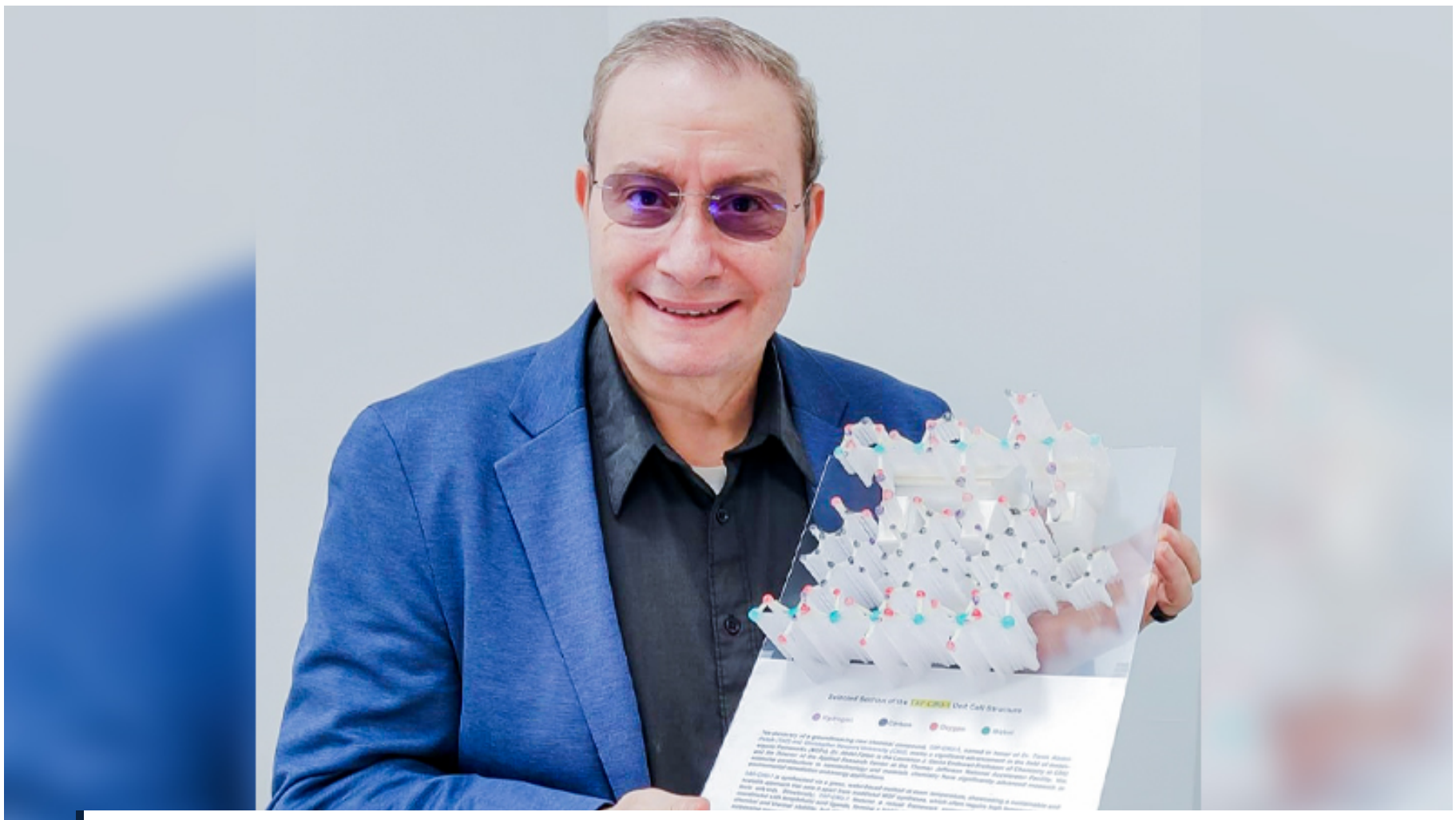

A First: New CNU Chemical Compound

Professor's discovery showcases University's scientific potential.

by Kelli Caplan | June 3, 2025

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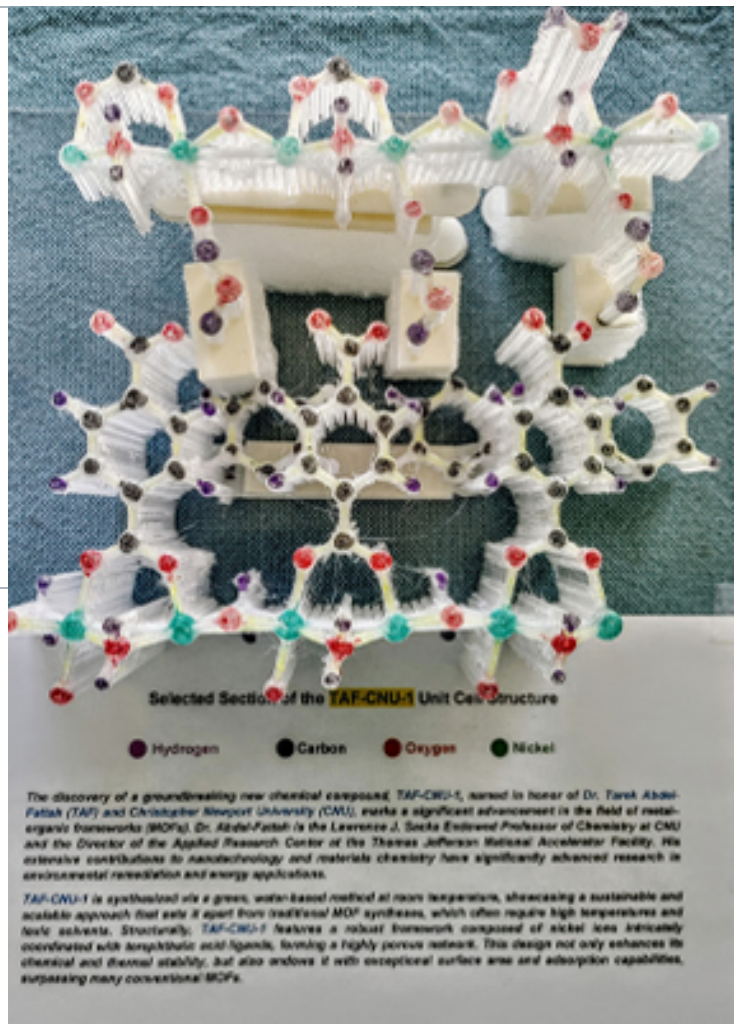
Christopher Newport University has reached new heights in the chemistry world, as a professor has created a groundbreaking compound that will forever be linked to the University.

The novel chemical creation has been labeled TAF-CNU-I, in what appears to be the first time CNU's name has been attached to a viable scientific compound. The discovery of TAF-CNU-I, which is expected to have a positive scientific impact, catapults CNU to chemistry's upper research echelon.

> "Having CNU's name on this compound is a big deal. It means our University is part of scientific history," said Dr. Tarek Abdel-Fattah, the Chemistry professor who is the architect behind the creation and naming of the compound. "It shows that cutting-edge research isn't limited to big name schools; innovation is happening right here at CNU, and this discovery puts our students, faculty and community on the global science map."



The TAF part of the compound's name stands for Abdel-Fattah's initials. He worked on forming the highly-specialized compound in a Forbes Hall lab and reproduced it with student Erik Biehler '20. It took more than five years to produce and characterize.

The nano-scale compound not only carries CNU's name, it is also distinctive in the fact that it is not harmful to the environment. Instead of using toxic chemicals and lots of heat to produce, it is constructed using only water and room temperature conditions.

"We wanted to create a material that's both powerful and planet-friendly," Abdel-Fattah said. "It is designed to be sustainable from the start. What makes TAF-CNU-I particularly novel is its eco-friendly synthesis aligned with green chemistry principles, offering a low cost, energy efficient, and benign route to metal-organic framework (MOF) production."

So, what exactly does this compound do?

"Imagine a sponge that can soak up harmful chemicals from polluted water. TAF-CNU-I works like that, but on a microscopic level," Abdel-Fattah said. "For example, it could be used in water filters to remove toxic metals or pollutants, helping provide clean, safe drinking water in communities affected by industrial waste."

There are many applications for the compound, he said. TAF-CNU-I's "robust 3D framework composed of nickel ions" offers a very porous network making it useful in many different ways, he added.

"By merging structural innovation with sustainable synthesis, TAF-CNU-I represents a next generation MOF with transformative potential across multiple scientific and industrial domains," he said.

TAF-CNU-I not only has great potential for large-scale production, it can be used in environmental remediation, energy storage, catalysis, sensors, and other advanced technologies, Abdel-Fattah said. It can be utilized in labs and commercially, he said.

The compound was recently featured in the Journal of Applied Crystallography.

The hope, Abdel-Fattah said, is that by bearing CNU's name, the compound will bring attention and esteem to the University and its academic progress. There is no doubt, he said, that it will boost CNU's reputation in the scientific world.

"It's the best I can do for CNU," he said. "Everyone will see it."