

Bytes and elements

Jerome Delhommelle is a computational chemist. While other scientists may be focused on the results of an experiment, Delhommelle and his group use powerful computers to calculate what actually happens during a chemical process. This work has potential for varied applications in the human body and in the environment.

"We are especially interested in understanding the formation of nanoparticles, which have important applications in medicine since these objects have been used as sensors or as vectors for drug delivery," said Delhommelle, a native of France, who spent much of his childhood growing up in Africa.

Another area of interest for Delhommelle, who started working at UND in 2008 as an assistant professor of chemistry, is the use of computers to design and optimize metal-organic frameworks for gas-storage applications.

"This is extremely important for applications in the area of energy, such as when a non-fossil fuel like hydrogen is stored, or for environmental applications when a gas like carbon dioxide is captured and sequestered," he said.

To this end, Delhommelle has secured external grants from the American Chemical Society-Petroleum Research Fund (ACS-PRF) and from the National Science Foundation's Division of Material Research. Funding from the latter totaled \$425,000.

The seed for the external funding came in the form of a \$5,000 New Faculty Scholar grant that Delhommelle was awarded by the UND Senate Scholarly Activities Committee.

"Thanks to this money, I hired two undergraduate students in my research group," he said. "It also allowed those students to present their work at a national conference."

Delhommelle, who got his Ph.D. from the University of Paris XI-Orsay in 2000, said that his students, including graduate student Aaron Koenig and undergrad Andrew Owen, are an important part of his research group, having made great contributions.

He said his group recently was able to secure a new project thanks to a grant from the ACS-PRF worth \$110,000. That project is scheduled to start next fall.



*-Written by David Dodds, Editor, UND University Relations
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