



## Professor's Research Goes With the Flow

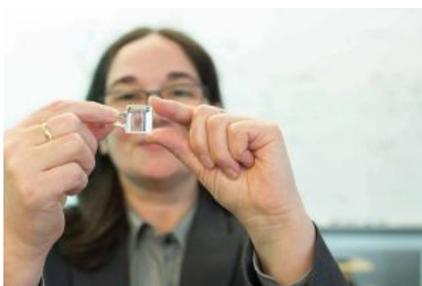
By Erin Perkins | January 16, 2020 | [Academics](#), [All News](#), [College of Charleston Magazine](#) |



When **Ana Oprisan** isn't investigating critical and supercritical fluid properties on the [International Space Station \(ISS\)](#), she's on campus leading undergraduate research in the [Department of Physics and Astronomy](#).

With the help of the most recent microgravity experimental data from a mini-laboratory aboard the ISS, Oprisan's students have co-authored peer-reviewed papers; presented at international, national, regional and local conferences; and received research awards from the [South Carolina Academy of Science](#), [Phi Kappa Phi](#), [Sigma Xi](#), and the College's [School of Sciences and Mathematics](#) and Department of Physics and Astronomy.

In non-Ph.D. terms, Oprisan and her students study the evolution of microscopic patterns in critical fluids during the transition from vapor to liquid. Supercritical fluids occur when distinct liquid and gas phases do not exist. At the supercritical state, these fluids can flow through solids like a gas and dissolve materials like a liquid.



This research is important because supercritical fluids are used in the food industry for processes like the decaffeination of coffee or flavor extraction from plants. These fluids are also leading the way for nonpollutant solvents in the green

## NEWS BRIEFS

### Campus Updates Related to COVID-19

June 26, 2020

College of Charleston President Andrew T. Hsu sent the following message to the campus community on Friday, June 26, 2020, regarding updates to the College's response to COVID-19.

### Board of Trustees to Hold Meeting

June 23, 2020

The College of Charleston Board of Trustees will hold a meeting on Thursday, June 25, 2020.

### Director of Piano Studies Featured in Live Virtual Concert

June 23, 2020

The College of Charleston's Director of Piano Studies Paul Sánchez will be performing with collaborative partner Will Liverman in a live virtual concert on Friday, June 26, 2020.

## PHOTOS OF THE WEEK



## COLLEGE OF CHARLESTON MAGAZINE

Oprisan holds a sample cell unit in her research lab. (Photos by Kate Thornton)

chemistry movement. Space exploration relies on hydrogen and oxygen stored in supercritical state.

“I study the properties of fluids, such as viscosity [how easy they flow], thermal conductivity, diffusion and compressibility,” says Oprisan. “These properties are very important for the practical design of future devices both in green chemistry and space exploration.”

She and her students are currently studying the diffusion of gold, silver and iron oxide nanocolloids for their potential applications in medicine as transporters of drugs through the bloodstream. This can be used to target specific points in the body, which could be useful in cancer research.

Basically, Oprisan and her students are looking to save the planet and its inhabitants, while also helping to pave the way for future space exploration, one nanoparticle at a time.

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**College of Charleston**  
**Division of University Communications**  
66 George Street  
Charleston, SC 29424 USA  
843.805.5507 [news@cofc.edu](mailto:news@cofc.edu)

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