

## Faculty Profile

# Astrochemist Robin Pulliam

## *Finding joy in the new world of Brevard College*

By Zach Dickerson  
Campus News Editor

Robin Pulliam has been hired by Brevard College for her first full-time teaching position as Assistant Professor of Chemistry and Physical Science.

Pulliam is an astrochemist which means she studies the abundance and reactions of molecules in the universe and their interaction with radiation. It also involves trying to make connections with the chemistry out there compared with what we are seeing in our solar system.

“What I did for grad school at the University of Arizona,” Pulliam said, “I studied heavy metal formation around stars. These stars are very massive and some of them form heavy metals such as Iron, Titanium and Zinc.”

“They are around these massive old stars, the stars are pushing a lot of that material around them,” Pulliam said, “and what happens is that material that is pushed out forms molecules. Those molecules then rotate and when they rotate they send radio signals to Earth in very small powers and we take radio telescopes and we were able to detect those signals around stars.”

Pulliam focused on the signals from stars in graduate school, but for her postdoctoral she focused on molecular clouds, where stars first form.

“It’s really complex and they start thinking about amino acids and things like that that start forming,” Pulliam said. “With the amino acids forming they start thinking about the start of life, so how are molecules forming in these clouds and we’re able to see these signals and then how then are these molecules collapsing

to form stars, and then you start thinking about how this whole cycle of the cloud collapsing and the chemicals forming in the stars and then they’re coming back out with the stars pushing them out and then getting recycled around and then you follow this whole process.”

Pulliam’s work with these topics did not stop after she finished school. She then worked with a startup company called BrightSpec, which is an innovative life science tools company with a range of instruments that tap the power of molecular rotational resonance (MRR) spectroscopy.

“We took that technology I used and I went to a startup company after my postdoc,” Pulliam said. “The technology that we used in grad school and postdoc was very expensive, but because the technology is becoming cheaper and cheaper as we go along, it’s now becoming cheap enough that we can put it into an instrument and we were trying to take that instrument and sell it to the commercial market for society to use.”

Pulliam’s interest in studying astrochemistry came from her love of knowledge and wanting to study multiple fields at the same time.

“I went into undergrad thinking I was going to do Biology,” Pulliam said, “because I didn’t really know what science I wanted to go into so I started with that, and I immediately got interested in Chemistry and Physics. Also going into undergrad, one of my life long goals was to become an astronaut and that just came from a love of Astronomy and having telescopes and looking through them at the Moon and stuff when I was younger.”

Pulliam quickly realized that she did not like the different fields of study just by themselves, but she did like them as an interdisciplinary approach where she could learn them all.

“I like where you can take Environmental and Chemistry and put it together and study Environmental Science,” Pulliam said. “Or take Biology and Astronomy and do Astrobiology, which I did some of in graduate school by looking at the biological implications of these molecules.”

She wanted to find something that would incorporate as much Chemistry, Physics, Astronomy and Biology as possible and she found that in Astrochemistry.

Pulliam’s husband also worked at BrightSpec and they both knew that they wanted to teach. She found Brevard through something called the two-body problem, which relates to the difficulty of both spouses finding jobs at the same university or within reasonable commuting distance from each other.

“So what happened was he found a job first in Asheville,” Pulliam said, “we came down here from Charlottesville, Virginia and I took a year off to stay with our family and then I started looking. Brevard was very close, it was a small college which I was looking for, I don’t want to teach at a Research I institution because I came from a small university and I know the impact that teaching at a small university can have because that’s how I ended up with my undergrad professors helping me out.”

“I was also looking for something that had an interdisciplinary approach, which this school does,” Pulliam said, “and it was very convenient that Brevard College is associated with PARI. So I applied the first day the position was open.”

Pulliam’s semester has gotten off to a great start for the first half. “I’m very happy with it, I love it here, the students are great, the faculty members are all great and it’s a very welcoming and open community and I love it.”

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