RIT professor participates in project aimed at universe’s origins

By: Diana Louise Carter  February 15, 2019

The bad news in space this week is the little rover that could has officially pooped out on Mars.

The good news is NASA announced it has set aside $242 million for a new project that could explain the universe, such as how it was created. And a professor at Rochester Institute of Technology is one researcher who are behind the project.

Michael Zemcov, an assistant professor at RIT, will take on the job of designing ways to translate data from the SPHEREx mission. SPHEREx stands for Spectro-Photometer for the History of the Universe, Epoch of Reionization, and Ices Explorer.

All that is to describe the building of a telescope that will launch in 2021 and will determine the expansion of the universe, gaining insights into how galaxies were formed, and answering questions about key molecules in the formation of galaxies.

"We're basically mapping the entire sky," Zemcov said, using the infrared light spectrum.

"SPHEREx picks up where our eyes leave off. ... It's a pretty complete view of the sky but it can do anything like that — so comprehensive." This big picture will help with many existing theories about the formation of the universe.

"If you have a good enough map of where everything is, you can figure out what's going on out there," Zemcov said.

The SPHEREx telescope is designed to transmit data for two years, but rover and other projects are any example, well-built space projects may continue to function and prove useful after their original expiration date.

"I'm very excited by the opportunity to help explain if and how inflation happened, and to understand it," said Zemcov. "There are hundreds of models for inflation right now and they all describe different parts of it right now.

Zemcov came to RIT from CalTech, where he worked with the primary investigator of SPHEREx, James Read. Zemcov said the telescope for this project would be dwarfed by the giant James Webb Space Telescope still being tested before it can be launched. The Webb telescope will provide great detail, he noted, with lenses less than 8 inches across, will provide less detail and a more comprehensive picture.

"As soon as we get ball rolling, we will start in with the team to build data analysis. The big show is in space," Zemcov said. "The problem is, it's a fire hose of data. We have to be ready for that by the time we start the project." NASA administrator Jim Bridenstine said, "I'm really excited about this new mission. Not only does it fit with United States' powerful fleet of space-based missions dedicated to uncovering the mysteries of the universe."