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First Color Images From UM-Dearborn Observatory

University of Michigan-Dearborn astronomers gathered color images of planetary nebulae earlier this fall, the first color images collected through the campus's new observatory and telescope.

"Color imaging is important not only because we can make pretty pictures, but the color of an object can tell us something about the physical processes taking place in the object," said Carrie Swift, assistant professor of astronomy.
"Planetary nebulae form during the later stages of stellar evolution, and are comprised of the gases that once made up the stellar atmosphere. In the center of the nebula the hot core of the star remains, pumping energy into the surrounding gas, which causes the gas to glow."

The top photo is an image of the Ring Nebula, a planetary nebula found in the constellation Lyra.

"The different colored bands reflect the energy of the gas in those regions; the inner green band is hotter than the outer red band," Swift said. "The central star in the Ring Nebula is very dim, and hard to see in this image."

The bottom photo is an image of the Dumbbell Nebula, a planetary nebula found in the constellation Vulpecula, a small constellation near Cygnus.

"In this image you can clearly see the blue, hot central star, and in the upper left, the red leading edge of the expanding gas," Swift said. "Like most planetary nebulae, the Dumbbell Nebula has a region of emitting an eerie green light, which is emitted by doubly ionized oxygen. The oxygen was formed by the star in the violent later stages of its lifetime, and now glows in the star's dying light."

These images were made by student Rebecca Wilczak, assisted by Swift and research assistant Eric Rasmussen, using the campus's 0.4-meter (15.75-inch) telescope, an ST-402 CCD camera and RGB color filters. They are posted at the observatory's site at astronomy.umd.umich.edu/images.html.

The UM-Dearborn observatory, which opened earlier this year, will be hosting a free, public open house to celebrate the beginning of the "International Year of Astronomy" from 6 p.m. to 8 p.m. Jan 1. The open house will include tours of the observatory and include opportunities for observation, weather allowing.