



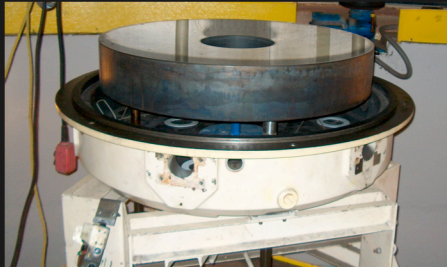
# Welcome to Ritter Observatory

## The One-Meter Telescope

### Primary mirror

- ★ Measures 1.06 meter or 41 inches in diameter
- ★ Weighs 1000 pounds
- ★ Is removed about every 4 years for chemical cleaning and surface re-aluminization
- ★ Along with the secondary mirror, is made of zero-expansion glass ceramic material, "Cervit," which improves the thermal stability of the telescope and increases observation time.

The primary mirror removed from the telescope and awaiting transport:



When Ritter Observatory was opened in 1967, the telescope was the thirteenth largest in the United States. Today it remains the largest telescope of its kind in the Midwest. The observatory is named after the late George Ritter, who donated \$400,000 for its construction. He was a former law director for the city of Toledo. The one-meter telescope was designed and constructed by Warner & Swasey Company of Cleveland, Ohio. Owens-Illinois designed and donated the mirrors, which were the first in the world to utilize Cervit.

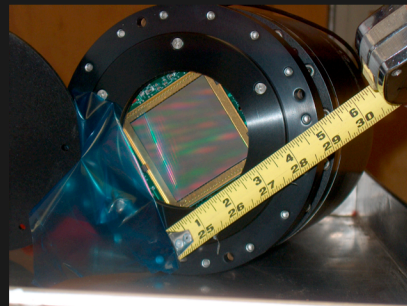
The telescope is used on almost every clear night by a team of professors and students. They are assisted by a half-time technician and by other staff of the Department of Physics and Astronomy.



### Accessory equipment

- ★ Two 6-inch refracting finder telescopes
- ★ Echelle and low-dispersion spectrographs connected to the Cassegrain focus of the telescope via optical fiber cables
- ★ Two refrigerated CCD cameras

The new (as of 2007) Spectral Instruments Series 600 CCD camera, now mounted on the échelle spectrograph:



## Research

Ever since its founding, Ritter Observatory has been dedicated to the study of the spectra of stars.

This research is best suited for Ritter because of:

1. The telescope's modest light-gathering power
2. Its year-round availability to our researchers
3. Its location. Stellar spectroscopy is more forgiving of clouds and light pollution than other types of astronomical research.

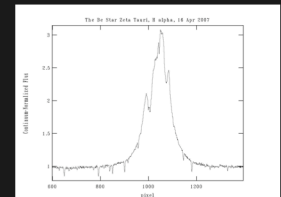
### Major research areas

- ★ Hot stars with equatorial disks, technically known as Be stars. The red hydrogen line, H alpha, emanates from the disk, and its variations reveal the disk's structure.
- ★ Mass loss in hot, luminous stars. Variations in H alpha reveal the wind's structure.



A portion of the spectrum of the Be star Zeta Tauri taken with the new camera. H alpha is the bright feature near the bottom.

Artist's concept of a Be star



From 2004 through 2008, Ritter received operating support from the National Science Foundation's Program for Research and Education with Small Telescopes.