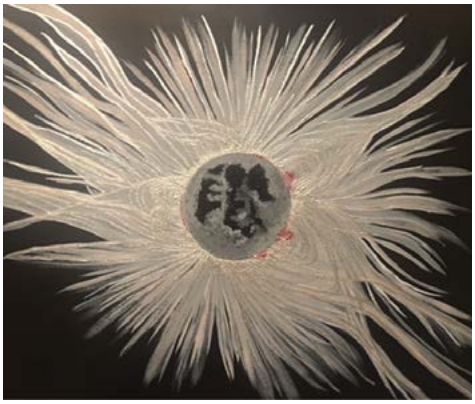
Published by the Astronomical League
Vol. 76, No. 3 JUNE 2024

Reflector

LEAGUE OFFICER NOMINATIONS

(ALMOST) ALL THE MESSIER OBJECTS PHOTOGRAPHED IN ONE VERY BUSY EVENING

HALTON ARP'S PECULIAR GALAXIES



and tactile resources, so my immediate response was to make eclipse resources for the students. These are a model of the Sun's internal structure and atmosphere, smaller panels of the eclipse stages with log sheets to note time and temperature, a panel on the three types of eclipses, a 3- by 4-foot U.S. map of the two eclipses (2017 and 2024) and phases represented, and a panel of the *Space.com* image. As I painted the canvas, I wondered if the plasma between the radiant lines is an ionized electromagnetic field. So, to best replicate those, I twisted tule fabric for the field lines, raised metallic paint for the flares, silver pipe cleaners for the coronal loops, tule pieces between the field lines, a pearl beaded tule ring around the circular black glitter foam to delineate the Alfvén surface, and red gemstones for Baily's beads.

I conducted research to create notes for the teachers, which led me to Benjamin Boe and colleagues' 2020 paper from the *Astrophysical Journal.* The paper included images depicting the Sun's coronal magnetic field topology using RHT, rolling Hough transform field line tracing method. They processed the images with a Gaussian high-pass filter and enhanced the edges. I went down the rabbit hole and discovered other great papers – see the reference list below. At the penning of this article, the eclipse is yet to happen, and the students have not encountered the panels.

Although I will be at totality in Broken Bow, Oklahoma, my heart will be with the students who get to touch the eclipse and conduct science at the same time. I was promised videos and photos of their encounters and will happily share in the future.

Full STEAM ahead with a sunny disposition,

—Peggy Walker

References

Boe, B., et al. 2020. *ApJ* 895, 123. DOI: 10.3847/1538-4357/ab8ae6.

National Solar Observatory. "Magnetic Conductivity Through the Non-Eruptive Solar Atmosphere." *nso.edu/telescopes/dkist/csp/non-eruptive-magnetic-connectivity.*

Yang, Z., et al. 2020. *Science* 369, 694. DOI: 10.1126/science.abb4462.

Deep-Sky Objects

A NICE GALAXY IN BERENICE'S HAIR

Coma Berenices is a faint constellation between Boötes and Leo. While Boötes hosts the bright star Arcturus and Leo contains the bright star Regulus, Coma Berenices has no bright stars. However, it contains a plethora of galaxies. The Virgo Cluster lies on the south edge of Coma Berenices, spanning both sides of the border with Virgo. The Coma Galaxy Cluster resides on the northeast side of Coma Berenices.

Just southwest of the Coma Cluster is an interesting galaxy, NGC 4725, which can be found 5.3 degrees southwest of the star Beta Comae Berenices and 9 degrees north-northwest of Alpha Comae Berenices. The galaxy is magnitude 9.2 and measures approximately 9.8 by 7.0 arcminutes in size. The galaxy is midway between edge-on and face-on. NGC 4725 lies 40 million light-years away. William Herschel discovered NGC 4727 on April 6, 1785. The star-like core and elongated shape of the galaxy are easily visible in an 8-inch telescope.

NGC 4725 is a peculiar intermediate spiral galaxy. Intermediate galaxies are in-between normal and barred spiral galaxies. NGC 4725 has a weak bar feature and a ring-like structure outside the barred region. The galaxy appears to have a single spiral arm that wraps more than halfway around the ring. The ring and spiral arm contain regions of new star formation. NGC 4725 is an active Type 2 Seyfert galaxy, and astronomers suspect it has a massive black hole in its core.

My image of NGC 4725 was taken with a Stellarvue 70 mm f/6 triplet refractor employing a 0.8× focal reducer/field flattener. The camera was an SBIG STF-8300C and the exposure was 80 minutes. In the image, slightly to the right of NGC 4725, is the smaller galaxy NGC 4712, a 13th-magnitude spiral galaxy. Approximately twice as far away, to the upper right of NGC 4725, lies NGC 4747, a 12th-magnitude barred spiral galaxy. Although NGC 4712 appears closer to NGC 4725 than NGC 4747 from our vantage point, NGC 4747 is actually much closer to NGC 4725 in three-dimensional space. NGC 4747 and NGC 4725 appear to be interacting galaxies. This interaction may explain the asymmetries in the ring and spiral arm of NGC 4725.

Below and to the right of NGC 4725 is the brightest star in the image star in the image, LW Comae Berenices. This star varies in brightness from magnitude 6.31 to 6.41 over a 15.8-day cycle. The faintest stars in the image are magnitude 16. There are scores of additional galaxies in the image; all but the three mentioned above appear as faint star-like dots. Those dots that are not galaxies are foreground stars residing in our home galaxy.

Clear spring nights allow the year's best viewing of uncountable distant galaxies in Coma Berenices and neighboring constellations. NGC 4725 is an easy find. After seeing it, take time to ponder the strangeness of this unique celestial island.

—Dr. James R. Dire

References

"NGC 4725." Spitzer Space Telescope, *www.spitzer.caltech.edu/image/sig05-011-ngc-4725.*

Wevers, B. M. H. R., et al. (1984). *A&A* 140, 125.