Title photograph: NGC 1850, the double cluster; Credit: NASA, ESA, and Martino Romaniello (European Southern Observatory, Germany)

# Contents




***Our cover:*** *Reflector Deep Sky Object columnist James Dire contributed this mosaic image of the June 5th Transit of Venus. It was taken from the KEASA (Kauai Educational Association for Science & Astronomy) Observatory at Barking Sands, Kauai, Hawaii. Jim used a Canon 30D camera connected to a Bushnell 4000 Schmidt-Cassegrain telescope (4-inch f/10). The exposure was 1/60 second and was processed using Adobe Photoshop CS5. Jim is Vice Chancellor for Academic Affairs, Kauau'i Community College, University of Hawaii.*

To our contributors: The copy and photo deadline for the December 2012 issue is October 15. Please send your stories and photos to magazine Editor, Andy Oliver (*editor@astroleague.org*), by then.

The Astronomical League invites your comments regarding the magazine. How can we improve it and make it a more valuable source for you, our members? Please respond to Andy Oliver at the email address above.


**Reflector**

**The Astronomical League Magazine**

Vol. 64, No. 3 • ISSN: 0034-2963 • September 2012

A FEDERATION OF ASTRONOMICAL SOCIETIES
A NON-PROFIT ORGANIZATION
To promote the science of astronomy
- By fostering astronomical education,
- By providing incentives for astronomical, observation and research, and
- By assisting communication among amateur astronomical societies.

*Astronomical League National Office:*
9201 Ward Parkway, Suite 100, Kansas City, MO 64114

DEEP SKY OBJECTS

EIGHTH OF A SERIES

# A STRIKING EDGE-ON SPIRAL GALAXY IN ANDROMEDA

By Dr. James Dire, Kauai Educational Association for Science & Astronomy

**The Great Andromeda Galaxy,** known as M31, has to be the best galaxy visible in our nighttime skies, other than the Milky Way, of course. It spans 3 degrees, the length of six full moons side-by-side. M31 is visible without optical aid and is a splendid sight in binoculars and small rich-field telescopes. In larger telescopes, its spiral structure becomes apparent. I often wonder why it wasn't entry 1 in Charles Messier's famous catalog. M31 is usually the first galaxy spied by beginning astronomers in their first telescopes and is a favorite object at public star parties.

But there is another fascinating spiral galaxy in Andromeda, known as NGC891, worthy of inspection in 8-inch or larger telescopes. NGC891 is located half-way between the cool double star Almach (Gamma Andromedae) and the open star cluster M34. So star-hopping to its location is pretty easy. The bright orange star in the lower left corner of the accompanying image shines at magnitude 6.7 and is located 22 arc-minutes from the center of NGC891. This star is easily seen in any finder scope. So for any eyepiece field spanning half a degree of sky, if this star is at the center, NGC891 should be near the edge of the field.

NGC 891 is a superb example of an exactly edge-on spiral galaxy. Although it only shines at magnitude 10, all of its light is concentrated on a disk that is 12.9 arc-minutes long and barely over 1 arc minute wide. Therefore, it is easier to see than a face-on 10th magnitude galaxy.

My accompanying image of NGC891 is a 30-miunte exposure taken with a 4-inch apochromatic refractor with an SBIG ST-200XCM CCD camera. Notice the dark equatorial band spanning the entire length of the galaxy. This should be visible in larger telescopes from dark observing sites. Averted vision might bring out the dark lane better than direct viewing. The dark lane is not really dark, but a magnitude fainter than the surrounding galaxy due to dust located in the plane of the galaxy blocking some of the light from beyond.

Our galaxy has similar clouds of dust and dark nebulae that account for the Great Rift seen along the Milky Way between Cygnus and Sagittarius. Long, ultra-wide-field exposures of the Milky Way tend to resemble images of NGC891.

In the image of NGC891, there appear to be numerous stars imbedded within the confines of the galaxy. All of these stars are foreground objects located in the Milky Way Galaxy, as we cannot resolve individual stars in NGC891. The brightest of these foreground stars is located just north of the galactic core about one-third of the way between the center of the galaxy and the edge (see the accompanying image). This 12th magnitude star should be visible in an 8-inch or larger telescope and can be used as a measure to determine how much of the galactic disk is visible in the eyepiece. For larger telescopes, the 13th magnitude star located at the south edge of the disk can be used for the same purpose.

NGC891 is the fourth brightest galaxy in the constellation Andromeda following M31 and it's two satellite elliptical galaxies, M32 and NGC205. The galaxy is located 27 million light years away. Its size and total luminosity are very similar to our home galaxy. Because we see it edge-on, we don't know if it's a normal spiral galaxy or a barred spiral galaxy like the Milky Way Galaxy.