The Observer

SAN BERNARDINO VALLEY AMATEUR ASTRONOMERS
Member of The Astronomical League
http://sbvaa.org/

Volume #58, Issue 3 **Since 1958** **March, 2016**

Meeting:

March 19, 2016

Location:

First Christian Church
2102 E. Foothill Dr.
San Bernardino, CA

7:00 p.m.

Pre-meeting Dinner,
5:00 to 6:30 p.m.,

Pepper Steak Restaurant
26589 Highland Ave.
Highland, CA

After the meeting telescopes will be set up for viewing and members will be available to answer questions. Bring your telescope to observe with us.

No telescope is too humble, and beginners are always made welcome!

Program
From Spy Glass to Achromat:
How a tactical toy became a tool of science

The spyglass, a wildly popular invention that had all of Europe abuzz, was primarily used to spy on wayward spouses and foreign armies. As a tool of science, the new optical toy needed many more developments, with some fascinating people to make it all happen. Martin Carey will present a PowerPoint with many images, to bring the lively history of early telescopes.

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Calendar of Upcoming Events

Mar. 5, Messier Marathon, GMARS site

Apr. 2, Outreach, Whitewater

Apr. 9, Star Party, Johnson Valley

May 7, Star Party, Johnson Valley

May 26-29, RTMC, Camp Oaks, Big Bear

Jun. 3-5, **Grandview**, dark and starry!

Other star parties, outreaches and events for 2016, TBD

2016 Outreaches Scheduled (*so far*)

March 15—Alice Birney School in Colton

March 17—Dominguez School in San Bernardino

April 2---Whitewater Preserve in Whitewater

April 12----Mentone School in Mentone

April 14---Redlands "E" Academy in Redlands

April 20---Lincoln School in Colton

April 30---Pioneertown

May 7-----Wildlands Conservancy in Oak Glen

May 12----Dunlap School in Yucaipa

August 10—Hermosa School in Alta Loma

Club Meeting Dates, 2016

March 19

April 23

May 21

June 18

July 16

August 20, (Ann. BBQ)

September 17

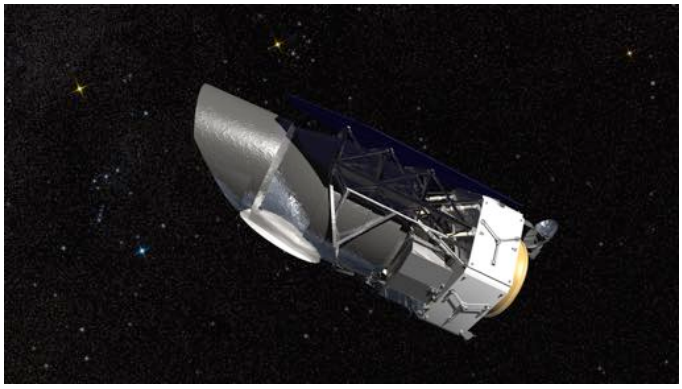
October 15

November 12

December (Ann. holiday pizza TBD)

NASA Introduces WFIRST
JPL, Feb.. 16, 2016

After years of preparatory studies, NASA is formally starting an astrophysics mission designed to help unlock the secrets of the universe -- the Wide Field Infrared Survey Telescope (WFIRST). With a view 100 times bigger than that of NASA's Hubble Space Telescope, WFIRST will aid researchers in their efforts to unravel the secrets of dark energy and dark matter, and explore the evolution of the cosmos. It also will discover new worlds outside our solar system and advance the search for worlds that could be suitable for life.



It will carry a Wide Field Instrument for surveys, and a Coronagraph Instrument designed to block the glare of individual stars and reveal the faint light of planets orbiting around them. By blocking the light of the host star, the Coronagraph Instrument will enable detailed measurements of the chemical makeup of planetary atmospheres. Comparing these data across many worlds will allow scientists to better understand the origin and physics of these atmospheres, and search for chemical signs of environments suitable for life.

The telescope's sensitivity and wide view will enable a large-scale search for exoplanets by monitoring the brightness of millions of stars in the crowded central region of our galaxy. The survey will net thousands of new exoplanets similar in size and distance from their star as those in our own solar system, complementing the work started by NASA's Kepler mission and the upcoming work of the Transiting Exoplanet Survey Satellite.

Employing multiple techniques, astronomers also will use WFIRST to track how dark energy and dark matter have affected the evolution of our universe. Dark energy is a mysterious, negative pressure that has been speeding up the expansion of the universe. Dark matter is invisible material that makes up most of the matter in our universe.

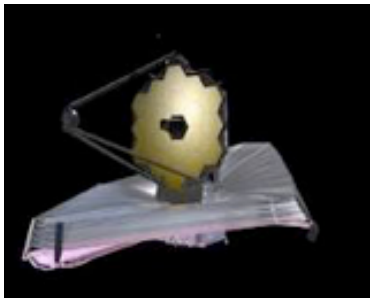
WFIRST is slated to launch in the mid-2020s. The observatory will begin operations after travelling to a gravitational balance point known as Earth-sun L2, which is located about one million miles from Earth in a direction directly opposite the sun.

(For the full story, go to jpl.nasa.gov.)

James Webb Launch Target, October, 2018
JWST.NASA

As design work proceeds apace on the WFIRST, the JWST is still on target for the Fall of 2018. It will utilize several major innovations which will be refined and carried over to future missions. Those innovations are:

Lightweight optics
Deployable sunshield
Folding, segmented mirror
Improved detectors
Cryogenic actuators and mirror control
Micro shutters



(For more info visit jwst.nasa.gov.)

Brilliant star clusters in the cosmic twins that make up the constellation Gemini take center stage in this photo by an avid astrophotographer.

The image was taken by stargazer Ron Brecher from Guelph, Ontario in January 2012 and recently shared it with Space.com. Spread across a patch of night sky nearly the size of the full moon, M35 shines in this image. To it's lower left is NGC 2158, another similar star cluster that lies much further away, at 11,000 light-years away.

"I love open clusters, though I more often shoot extended objects like galaxies and nebulae. They're particularly good for shooting on nights that might not be suitable for nebulous faint objects," Brecher wrote in an email to Space.com.

Both clusters are seen in Gemini constellation. M35, is part of a set of astronomical objects first identified in 1771 by French astronomer Charles Messier. It stands near the "feet" of the twins in the Gemini constellation and astronomers estimate that the cluster is well more than 100 million years old. NGC 2158 is four times further than M35, over 10 times older, and much more compact. Its bright blue stars have self-destructed, and is dominated by older and yellower stars.

Brecher used a SBIG STL-11000M camera, Baader RGB filters, 10″ ASA astrograph at f/3.6, MI-250 mount.