The Observer

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

Volume #61, Issue 8 **Since 1958** **August, 2019**

Meeting:

August 10, 2019

Location:

Veterans' Freedom Park 21950 Pico St. Grand Terrace, CA

4:30 to 8:00 p.m.

There won't be time for evening viewing but, if you have some solar equipment you might try for a bit of late afternoon "sun fun."

Program
Annual Club BBQ

It's On!

As in years past, we don't have a regular club meeting in August, instead we have a social get-together. **On Saturday, August 10, we'll meet at Veterans' Freedom Park (**formerly known as Pio Pico Park) **in Grand Terrace.**

Set up will begin about 4:30 pm or so and eating will commence after 5:00 pm. Our reservation ends at 8:00 p.m.

Bring any kind of food you like, and everyone usually shares what they have. If you can't bring food, we always need napkins, plasticware, paper plates and beverages too.

And there will be a raffle. — all sorts of "goodies" provided by Chris.

It's a nice opportunity to simply chat and hang out with your fellow members.

SBVAA Officers

President: Jamie "Rue" Countryman
jamie.countryman63@gmail.com

Treasurer: Fidel Hernandez 909-864-0615

Secretary - Educational Outreach: Chris Clarke
909-754-3894 Home

Star Party Coordinator: Tom Lawson
tlawson777@charter.net

SBVAA Webmaster: Gerald Rezes
geraldrezes@verizon.net

Newsletter Editor: Jim Sommer
k75jim@aol.com

Assoc. Editor: Megan Huynh
megan.huynh@gmail.com

Calendar of Upcoming Events

Aug. 7, Outreach, San Bernardino County Museum

Aug. 10, Club BBQ

Aug. 22 - 25, Grandview

Sept. 5, Outreach, Leland Norton School, San Bernardino

Sept. 7, Club Meeting

Sept. 18, Outreach, Dominguez School, San Bernardino

Sept. 28, Outreach, Oak Glen

Oct. 12, Club Meeting

Please note that there are several date changes in the above Calendar of Upcoming Events.

Be sure to update your own calendars.

Jupiter’s Wild And Crazy Atmosphere

This stunning compilation image of Jupiter's stormy northern hemisphere was captured by NASA's Juno spacecraft as it performed a close pass of the gas giant planet. Some bright-white clouds can be seen popping up to high altitudes on the right side of Jupiter's disk. (The Juno team frequently refers to clouds like these as "pop-up" clouds in image captions.). Juno took the four images used to produce this color-enhanced view on May 29, 2019, between 12:52 a.m. PDT (3:52 a.m. EDT) and 1:03 a.m. PDT (4:03 a.m. EDT), as the spacecraft performed its 20th science pass of Jupiter. At the time the images were taken, the spacecraft was between 11,600 miles 18,600 kilometers) and 5,400 miles (8,600 kilometers) above Jupiter's cloud tops, above a north(ern latitude spanning from about 59 to 34 degrees.

Citizen scientist Kevin M. Gill created this image using data from the spacecraft's JunoCam imager. JunoCam's raw images are available for the public to peruse and process into image products at https://missionjuno.swri.edu/junocam/processing.

Have You Heard of Chameleon Theory

This isn't a surrealist joke but rather the implication of recent simulations that aim to explain the inner workings of dark energy, a mysterious force that is driving apart everything in the universe. The findings, published July 8 in the journal Nature Astronomy, lend support to a model of dark energy known as Chameleon Theory

Most researchers subscribe to the idea that dark energy is what's known as the cosmological constant, a type of energy pent up in the vacuum of space itself. The problem is that leading physics theories predict that the value of the vacuum's energy should be 120 orders of magnitude higher than what cosmologists observe from actual measurements of dark energy in the universe. So physicists have sought out alternate explanations, including Chameleon Theory. The theory proposes a new force, atop the four already known, mediated by a particle called the chameleon particle, according to an explainer in Sky and Telescope magazine. The chameleon force would act like dark energy, driving apart galaxies in the cosmos. But having an unexpected fifth force comes with its own dilemma — how come our instruments have never before seen such a particle?

The theory suggests that chameleon particles, like their reptilian namesakes, can blend into their surroundings to evade detection. Rather than changing color, these particles change mass.

In high-density environments, such as that near Earth, they have a high mass and are therefore difficult to detect. This is why we don't see the effects of chameleon particles on our solar system, but rather only on extremely large cosmological scales, where, overall, matter is sparse, according to the theory.

In order to test Chameleon Theory, researchers have run powerful computer simulations, spinning virtual dark matter — an as-yet-unknown substance vastly outweighing visible matter in the universe — with the four known forces plus chameleon particles to create celestial structures like our solar system, according to a statement.

But until now, processing-power limitations have meant that the models could not include ordinary, visible matter, like protons and electrons. Scientists used supercomputers to finally include the ordinary particles alongside everything else and produce galaxy-scale structures.

"The simulations show that realistic galaxies, like our own Milky Way, can form despite the complicated behavior of gravity in [Chameleon Theory]," The team hopes further modeling will reveal ways to distinguished the theory from other hypotheses about dark energy, he added.

(For more info, go to livescience.com)

shutterstock.com • 719708074