

# Charlottesville Astronomical Society

"Promoting the Enjoyment of Observing and Learning for All"

## *Astro-OP Educator-NEWS*

2014:04:23



### ***CAS Astro-OP E-News ...created especially for Educators!***

Dear Educator,

As we slowly continue with this year's transition from winter to spring the end of the school year rapidly approaches. This will be the last issue of Astro-OP E-News for the 2013-2014 school year, as we too will take a summer hiatus and return in September 2014.

While, our first year for the CAS' Astro-OP effort was filled with many satisfying activities and events, it was also a learning experience. We learned that children of all ages, from 4 to 94 throughout the greater Charlottesville community, are curious and want to know about our planet Earth and the solar system, our galaxy, and our universe that perhaps could be but one of many in a postulated multiverse.

And as you are aware, astronomy and physics knowledge continues to accumulate at an ever accelerating rate. Each week brings forth new knowledge and insights that have spurred a resurgence of

interest in mathematics and the sciences as evidenced by the proliferation of STEM (Science, Technology, Engineering, and Mathematics) type programs throughout the world.

Yes we live in exciting times and with approximately 100 active, full-time members, CAS takes pride in being responsive to the community's increasing thirst for astronomy and physics knowledge. Over the past 12 months we've reached out and touched over 7,500 people through CAS sponsored or supported activities, events, and presentations, for example:

- CAS support of UVA's McCormick Observatory Public Nights on the 1st and 3rd Fridays of each month. In addition, CAS hosts community group nights (e.g. Boy Scouts, Cub Scouts, Girl Scouts, school student groups, seniors, etc.) on the 2nd and 4th Fridays; and Heidi's nights (on months with 5th Fridays in memory of the late Heidi Winter,

CAS member and NRAO Executive Administrator.)

- In March of this year CAS sponsored the Physics and Astronomy category at the Virginia Piedmont Regional Science Fair held at UVA's John Paul Jones Arena. There were over 350 student entries and CAS presented a total of four awards, one each in the Senior and Junior Physics and Astronomy category and two special Senior and Junior Astronomy awards.
- Approximately once every three months, whenever weather permits, CAS hosts public star parties at the Ivy Creek Nature Center. Throughout the year, CAS hosts star parties at numerous central Virginia dark-sky locations through-out the year.
- CAS supports and participates in UVA's Fan Mountain Observatory Public Open House each year in April and October, a ticketed event with attendance of 400-500 people.

- CAS supported Charlottesville's KidVention event this past winter with two telescopes set up for solar observation; the event was attended by over 1,000 people.
- During the past year, CAS' educational Astro-OP effort directed at public and private educational facilities, institutions, students, and teachers (in six counties surrounding Charlottesville's Albemarle county) reached out to over 1,500 people. CAS helped establish three after-school, astronomy clubs (serving approximately 100 students) and a member support network for three elementary schools, two middle schools, two high schools, and a community college.
- CAS members are active in the greater Charlottesville area community supporting and promoting astronomy education, enjoyment, and observing for the general public, community organizations, and schools throughout the year.

If you are interested in learning how CAS Astro-OP can benefit your students, school, or community organization contact/email us at: <http://cvilleastro.com/> or [fred.repich@gmail.com](mailto:fred.repich@gmail.com)

*Best Regards,*

*Fritz (Fred) Repich,  
CAS Astro-OP Director, E-News  
Editor*

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## In This Issue

We present the CAS Calendar listing upcoming astronomy activities, events, and functions for the next several months; upcoming guest speakers and their topics for the CAS Monthly Meetings; information and registration details for the third "5<sup>th</sup> Friday Heidi's Night" on May 30<sup>th</sup>.

## Support our Supporters!

CAS is very grateful for the support of the following organizations and asks that you in turn support them ~ "quid pro quo", given an opportunity to return their favor. For their support in providing astronomy handouts (goodies) that we distribute to student and the general public audiences at CAS outreach activities and events, our thanks go to the following organizations:

### Astronomy Magazine

<http://www.astronomy.com/>

### Celestron

<http://www.celestron.com/>

### NASA's Space Place, JPL, California Institute of Technology, Pasadena, CA

<http://spaceplace.nasa.gov/>

### Sky & Telescope Magazine

<http://media.skyandtelescope.com/documents/astronomymagazine-subscription-aw.html/>

## Calendar

**Fri, Apr 25, 2014 8– 11:30 PM**  
UVA Fan Mountain Observatory, Public Open House



*UVA's Fan Mt. Observatory*

The University of Virginia's Astronomy Department will be hosting its Spring Open House at Fan Mountain Observatory on Friday, April 25 from dusk (about 8 pm) until about 11:30 pm. CAS members share their telescopes, binoculars and astronomical knowledge with the public. Public attendees must request free tickets by sending a self-addressed stamped envelope to the University of Virginia Astronomy Department. Tickets typically run out about a month before the event so public attendees need to get their request in early.

### Fri, May 2, 8– 10 PM

#### Ivy Creek Nature Area

This Star Party event at the Ivy Creek Nature Area barn is open to the public on Friday, May 2, 2014 from 8 pm until 10 pm. Jupiter, Mars and Saturn will all be



*Ivy Creek Nature Area Barn*

up for observing as well as many deep sky nebulae, galaxies and star clusters. CAS members share their telescopes, binoculars, and astronomy knowledge along with their green laser pointers to show everyone around the night sky. This event cancels if cloudy or rainy.

**Sat, May 10<sup>th</sup> and Sat, Oct 4, 2014**

**Astronomy Day** occurs twice each year and provides for interaction between the general public and astronomy enthusiasts, groups and professionals. CAS will conduct an **Astronomy Day Open House, Public Night event at UVA's McCormick Observatory with member presentations, light saber shows, and night sky observations using the 26" Clark refractor and member scopes located throughout the observatory grounds.** Sunset occurs at approximately 8 PM on May 10<sup>th</sup> and around 6:35 PM on October 4<sup>th</sup>. If you plan to attend, check the CAS website for details.

**Fri, May 30, 8 – 10:30 PM**

**Heidi's Night - Educational Activities and Observing**  
CAS will conduct its third 5<sup>th</sup> Friday Heidi's Night Activity for students in grades 4 through 12 and their parents / grandparents on Friday, May 30<sup>th</sup> from 8-10:30 pm at the McCormick Observatory on the grounds of the University of Virginia.

The event honors the memory CAS member Heidi Winter, former executive secretary to the Director of the National Radio Astronomy Observatory, who passed away in 2012. Attendees will have the opportunity to participate in several activities during the evening, such as:



*CAS Vice-President, Rich Drumm providing observational guidance at Heidi's Night*

- *A laser tour of the night sky*
- *Viewing the night sky through member telescopes, a homebuilt 4" telescope, or a UVA telescope*
- *A classroom presentation/activity*
- *Viewing the night sky through the historic 26" Clark refractor*

Participants should dress appropriately as several of the activities will take place under the night sky. In case of inclement weather, the evening may be shortened and limited to indoor activities. For more information or to register, please contact CAS President, Steve Layman: [slayman2528@comcast.net](mailto:slayman2528@comcast.net)

### **Monthly Meetings**

On the first Wednesday evening of each month, from 6:45 PM to approximately 8:30 PM, CAS conducts its monthly meeting for members and guests at the McCormick Observatory on the UVA campus. After the meeting, weather permitting, CAS generally opens the dome to allow member and guest observations of the night sky with the 26"-inch Clark refractor telescope. Plan on visiting with us as a guest.

**Wed, May 7, 2014**

*Due to increased interest in Professor Bogard's presentation, the meeting may be held at McCormick Observatory or at NRAO Headquarters, 520 Edgemont Road, Charlottesville, VA – down the hill from the McCormick Observatory. Check the CAS website, for the location before the May 7<sup>th</sup> meeting date.*



**JMU Professor Dr. Paul Bogard discusses his book "The End of Night"**

In his book, *The End of Night*, Dr. Paul Bogard restores our awareness of the spectacularly primal, wildly dark night sky and how it has influenced the human experience across everything from science to art.

From Las Vegas' Luxor Beam—the brightest single spot on this planet—to nights so starlit the sky looks like snow, Bogard blends a personal narrative, natural history, science, and history to shed light on the importance of darkness—what we've lost, what we still have, and what we might regain—and the simple ways we can reduce the brightness of our nights tonight.



**Sun, June 1, 2014**

*The June meeting for the Charlottesville Astronomical Society will be conducted starting at 2 PM on Sunday, June 1, 2014 at the John C. Wells Planetarium on the campus of James Madison University in Harrisonburg, Virginia.*

Dr. Shanil Virani, Director of JMU's John C. Wells Planetarium, a \$2 million, state-of-the-art and one-of-its-kind in the world hybrid facility, hosts both an Evans & Sutherland Digistar 5 digital projection system and a Goto Chronos opto-mechanical star projector to provide superior and realistic night sky views for visitors.



***Dr. Shanil Virani, Director John C. Wells Planetarium and JMU Professor***

## ***Astro-OP Activities***

The CAS Astronomy-Outreach Program (Astro-OP) promotes and supports astronomy activities, events, and clubs at schools, libraries, and community organizations throughout Albemarle and the counties surrounding greater Charlottesville and for groups visiting UVA's McCormick Observatory. If you, your students, school, or organization is interested in learning more about CAS educational outreach or our Astro-OP efforts, contact us at: <http://cvilleastro.com/> or email: [fred.repich@gmail.com](mailto:fred.repich@gmail.com)

## ***PVCC Family Starry Night***

CAS supported PVCC's Family Starry Night conducted on the main campus in Charlottesville on Friday, March 21<sup>st</sup>. The weather cooperated and CAS members Ed Preston, Wes Eppely, Rich Drumm, Larry Saunders, Mike Hegedus, and Bill Phillips shared their telescopes and night sky knowledge with the public. UVA Professor Dr. Edward M. Murphy, NRAO Assistant Scientist, Dr. Brian Kent, CAS Member Ed Preston, and John Stoke of NRAO gave presentations. The event, attended by approximately 300 people, was conceived, planned, and organized, by PVCC student and CAS Member Arman Mottaghi. A collage of photos, depicting activities occurring throughout the event is presented on the following page of this newsletter.

## ***UVA's "U-Scouts"***

On Saturday, April 12<sup>th</sup> CAS members Rich Drumm and Fritz Repich provided support for the UVA "University-Scouts" (U-Scouts) BSA Merit Badge Counselling event. Over 360 scouts from Virginia and several other states converged at the Buford Middle School, Charlottesville, VA to participate.



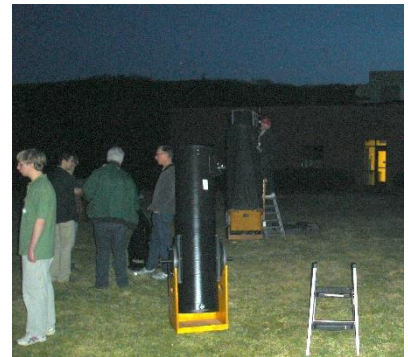
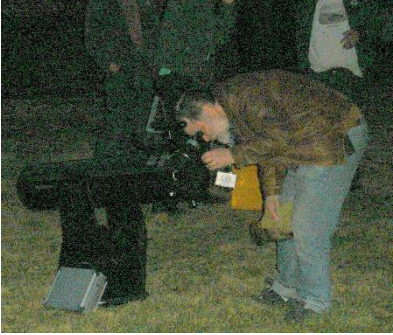
## ***U-Scouts Morning Assembly of Scouts***

Dr. Ed Murphy, UVA Asst. Professor of Astronomy and a member of the UVA U-Scout Crew, counseled two groups of ten scouts to verify their qualifications for merit badges in Astronomy and Space Exploration. Rich and Fritz assisted Dr. Murphy throughout the day.



***Dr. Edward M. Murphy Addressing BSA Space Exploration Merit Badge Candidates***





***Photographs of Various Activities from PVCC's Family Starry Night Event***



SALLY RIDE  
SCIENCE

## Equip Your Entire School for Success in STEM

Use Year-End Funds for 2014-15 (and Beyond) STEM Programs

Make 2014-15 your school's year for student success in STEM, and use year-end funds to make it happen.

Sally Ride Science, founded by America's first woman in space, offers a site license that helps your students become--and stay--engaged in STEM fields and careers.

[Visit our website to learn more... and get a free Parent Guide for STEM careers.](#)

Your site license includes:

- Dozens of multi-media rich eBooks for students and educators (two complete series: *Cool Careers in Science* and *Key Concepts* series, aligned to Common Core and other state standards).
  - Filled with thousands of multimedia resources
  - Audio support for every page (ideal for language learners students and academic vocabulary)
  - Teachers can share highlights and notes with students
  - Works on tablets, computers, and any browser enabled device
- Professional development for all educators (teachers, administrators, and counselors) via the Sally Ride Online Academy (can be used to earn graduate credit)
- Engaging Teacher Activity Guides that provide classroom plans and state standard-aligned exercises for students

**You can also get a complete set of Sally Ride Science print books for FREE.**

[Learn more here.](#) You'll also find a link to a free download, "Science Can Take Them Places," a parent guide that shows how to keep kids engaged with STEM topics and excited about STEM careers.

Sally Ride Science

[www.sallyridescience.com](http://www.sallyridescience.com)

[800-561-5161](tel:800-561-5161)

## ***Astronomy Links***

### **Telescope Basics:**

[http://www.chuckhawks.com/telescope\\_basics.htm](http://www.chuckhawks.com/telescope_basics.htm)

<http://www.telescopes.com/telescopes/telescopes101article.cfm>

### **Weather and Observing Conditions**

<http://weatherspark.com/>

<http://cleardarksky.com/c/CharvilVAkey.html>

<http://www.skyandtelescope.com/letsgo/whatsuptonight>

<http://www.eyesonthesky.com/>

<http://www.learnwhatsup.com/astro/index1.shtml>

<http://www.heavens-above.com/>

### **Organizations**

<http://www.aavso.org/>

<http://webari.com/oldscope/>

<http://www.astrosociety.org/edu/nsn/nsn.html>

<http://cvilleastro.com/>

<http://www.planetary.org/>

<http://www.astronomy2009.org/>

<http://www.astroleague.org/>

Charlottesville Astronomical Society: <http://cvilleastro.com/>

Citizen Science Alliance: <http://www.citizensciencealliance.org/>

Clear Sky Chart Home Page: <http://cleardarksky.com/csk/>

Heavens Above: <http://www.heavens-above.com/>

Kansas Comosphere and Space Center: <http://www.cosmo.org/>

Kitt Peak National Observatory: <http://www.noao.edu/kpno/>

Lowell Observatory: <http://www.lowell.edu/>

Lunar and Planetary Institute: <http://www.lpi.usra.edu/>

Mount Graham International Observatory: <http://mgpc3.as.arizona.edu/>

## Best FREE Astronomy Software

<http://www.techsupportalert.com/best-free-astronomy-software.htm>

## Purchasing used telescopes

<http://www.telescopebluebook.com/>

<http://www.cloudynights.com/>

<http://www.astromart.com/>

## AIAA Foundation Classroom Grant Program:

<http://www.aiaa.org/Secondary.aspx?id=4184&terms=grants%20to%20schools>

## NASA Educator Links

<http://www.nasawavelength.org/>

<http://www.nasa.gov/offices/education/about/sequestration-NASA-education-guidance.html#.Umg6wvkqg8w>

<http://www.nasa.gov/audience/foreducators/#.Umg57Pkqg8w>

NASA Science – Citizen Science: <http://science.nasa.gov/citizen-scientists/>

Planetary Science Institute: <http://www.psi.edu/>

Star Size Comparison Video: <http://www.youtube.com/watch?v=HEeh1BH34Q>

The Exploratorium (A 21<sup>st</sup> – Century Learning Laboratory): <http://www.exploratorium.edu/>

UA Lunar and Planetary Sciences: <http://www.lpl.arizona.edu/>

US Naval Observatory: <http://www.usno.navy.mil/USNO/astronomical-applications>

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***Astronomy Resources*** - compiled by Steve Layman, CAS President

**Handbook for Astronomy Educators – A Course Planning Guide**

Flick, Ventre, Boothe, Rutherford  
Astronomical League  
Science Service Building  
1719 N. Street NW  
Washington, DC 20030  
Published by the Astronomical League

**A+ Projects in Astronomy**

Winning Experiments for Science Fairs AND Extra Credit  
Janice Van Cleave  
John Wiley and Son Publisher  
Isbn: 0-471-32820-0

**Practical Astronomy – A User Friendly Handbook**

H. Robert Mills  
Albion Publishing  
Isbn: 1-898563-00-4

**Eight Easy Observing Projects for Amateur Astronomers**

David Cortner and Nancy Hendrickson  
Kalmbach Books  
Isbn: 0-913135-25-5

**Out of this World Astronomy – 50 Amazing Activities and Projects**

Joe Rhatigan and Rain Newcomb  
Lark Books  
Isbn: 1-57990-675-3

**Astronomy for All Ages – Discovering the Universe through Activities for Children and Adults**

Philip Harrington and Edward Pascuzzi  
Globe Pequot Press  
Isbn: 0-7627-0809-3

**Cosmos in the Classroom – Published most recently in 2010**

A Hands on Symposium on Teaching Introductory Astronomy  
Published by the Astronomical Society of the Pacific  
[www.astrosociety.org](http://www.astrosociety.org)