



# News from the Society for Astronomical Sciences

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## Invitation to the SAS-2019 Symposium

The SAS Program Committee invites you to participate in the Society for Astronomical Sciences' 38th Annual Symposium. The Symposium is the premier annual conference devoted to small-telescope astronomical research. This year will be a joint meeting with the Center for Backyard Astrophysics (CBA).

The Symposium brings together amateur astronomers who are engaged in scientific research, professional astronomers, educators and students, for in-depth discussions of topics related to small-telescope research. It is an excellent venue for presenting recent results, discussing targets of observational campaigns, describing instrumentation and data reduction/analysis methods, developing collaborations, and sharing expertise and experience. Almost any topic related to astronomical research using modest telescopes is of interest to SAS. You need not be an expert to benefit from participating in the Symposium: one goal of SAS is to provide a mentoring environment where you will learn how you can contribute to astronomical science.

**Dates & Location:** The 2019 SAS Symposium will be held on Thursday-Friday-Saturday, May 30-31-June 1, 2019 at the Ontario Gateway Hotel in Ontario, California. Long-time SAS participants, note: this is a new venue, located at 2200 E. Holt Boulevard, Ontario CA 91761, near the Ontario airport.

**Registration** is \$75 for SAS and CBA members (\$90 for non-members). Go to the SAS website for on-line registration:



New products and ideas in the Sponsor Display room (photo: Bob Stephens)



SAS-2018 attendees (photo: Bob Stephens)

([www.SocAstroSci.org](http://www.SocAstroSci.org)), or you can go directly to:

Symposium Registration:

<https://socaastrosci.z2systems.com/event.jsp?event=12&>

Hotel Lodging Reservations:

Lodging at the Ontario Gateway Hotel can be booked at the SAS rate (\$80 + taxes) at:

<https://reservations.travelclick.com/102971?groupID=2478266>

You can also call the hotel (909.975.5000) or use the hotel website (([www.ontariogatewayhotel.com](http://www.ontariogatewayhotel.com))). The SAS rate code is "1905SASINC".

**Workshops:** Two workshops will be held on Thursday (May 30).

In the morning, Dr. David Boyd will lead a workshop on "**Scientific Analysis of Amateur Spectra**". This workshop will describe how to process the raw images from an amateur spectroscopy to produce a wavelength-calibrated exo-atmospheric spectrum of a star, corrected for instrumental and atmospheric losses. This is normally the minimum level of processing required for spectra to be submitted to an amateur spectroscopic database. We will then explain how this spectrum can be calibrated in absolute flux to enable measurement of quantitative changes in the spectrum of the star over time, including the changing flux in its spectral lines. Finally we will describe how to correct for interstellar extinction and reddening to arrive at the spectral energy distribution originally emitted by the photosphere of the star.

In the afternoon, Dr. Arne Henden will lead a workshop on "**Paths to Precision Photometry**". Calibrating your images with darks and flats, and performing aperture photometry with a commercial software package, can yield some pretty good results. However, how do you know that those results are right? What approach, and what techniques, can you use to achieve even better results? Can you perform good photometry in crowded fields? When do you need to worry about airmass, or clouds, or choice of comparison stars? What are the common pitfalls to avoid?

This workshop will cover many diverse topics, with the intent of challenging you to think about the photometric

process and how you can become a better observer. Specific, real-world examples will be shown, along with a discussion of best practices in each case. Questions before and during the workshop are welcomed, and we'll try to fit as much in as possible. A computer is not necessary, but participants should already understand the basics of aperture photometry.

The Workshops are \$50 each.

**Evening with the Pro's:** We will arrange for two talks by professional astronomers, whose research intersects with small-telescope projects.

This event will be on Thursday evening May 30. It is included in your Symposium registration.

**Technical Presentations:** Friday and Saturday (May 31 – June 1) will be the Technical Sessions, including both presentations and poster papers. Presentations and Posters will span the wide range of topics of interest to the small-telescope research community: solar-system objects, variable-stars, and binary stars; instrumentation for photometry, astrometry and spectroscopy; and related subjects.

**Sponsors:** SAS Sponsors – developers, suppliers, and retailers of astronomical equipment – will be on hand with displays of their featured products.

**Banquet:** Registered participants and their guests are welcome at the closing banquet and lecture, Saturday evening June 1<sup>st</sup> (\$45/ticket).

## Call for Abstracts

Papers are solicited on all aspects of astronomical science that are (or can be) pursued by observations with small telescopes (less than 1-meter aperture), such as

- Investigations of variable stars, eclipsing binary stars, double stars and stellar systems
- Investigations of asteroids and other solar system objects; and exoplanets
- Progress, status, and planning for upcoming events such as the TESS follow-up initiative.
- Instrumentation for photometry, astrometry, spectroscopy, polarimetry, and fast-cadence observations (e.g. occultations)

- Investigations of atmospheric effects, light-propagation and scattering, light pollution monitoring
- Innovative use of astronomy in undergraduate education.

Format: *Papers for Presentation* consist of a 20-minute presentation (including Q&A), and a written paper that is published in the Symposium Proceedings.

*Papers without Presentation* are included in the Proceedings, without oral presentation.

*Poster Papers* are welcomed, and can be included in the Symposium Proceedings book.

**Important Dates:**

Abstract submission is now open.

Abstracts should be sent to:

[program@SocAstroSci.org](mailto:program@SocAstroSci.org).

Indicate whether you propose a Paper with Presentation, Paper without Presentation, or Poster.

Abstracts are due: March 30, 2019

Authors will be notified of acceptance within a week of submittal

Final papers for Proceedings are due: April 26, 2019

Presenters must register for the Symposium!

You may propose more than one paper for presentation, but normally only one Presentation per author will be scheduled. There is no limit to the number of Posters or Papers without Presentation.

You can see the scope and content of presentations from recent Symposia by downloading the Proceedings from the SAS website ([SocAstroSci.org](http://SocAstroSci.org)) and viewing the videos of presentations from recent Symposia. Send your abstract to the Program committee, at [Program@SocAstroSci.org](mailto:Program@SocAstroSci.org).

## Survey Results from the SAS-2018 Symposium

We appreciate all of you who filled in the survey after the 2018 Symposium. We received many excellent comments and suggestions, which we are trying to incorporate into our plans for 2019.

Here are some highlights of what we heard from you:

**Technical Presentation Videos:** Several people told us that they appreciate being able to view (or re-view) the Symposium presentations after they return home. For those who may not know, most of the technical presentations from recent Symposia are recorded, and are freely available for viewing. On the SAS website, hover your mouse over the "PUBLICATIONS" tab, and you'll find a link to "VIDEOS", organized by year. Enjoy!

We store these on YouTube, as "unlisted" videos. That means that they won't show up if you search YouTube. If you want to send one to a friend or colleague, feel free to either point them to the SAS website, or send them the YouTube link.

**Workshop Videos:** We've offered videos of many Workshops on request, for a \$25 price. Even though the topics are of ongoing value, it's been a long time since anyone asked for one. However, several people said on their surveys that they'd pay \$5 for those videos. OK, we hear you – here's the new deal:

Workshop videos will now cost \$5 per workshop. The videos are in WMV format, which should play on any modern Windows machine.

Free sample: The 2017 TESS Workshop (Dr. Jessie Christiansen) is freely available on the SAS website – go to the PUBLICATIONS tab, VIDEOS 2017.

If you would like to view a Workshop video, send an e-mail to [Bob@RKBuchheim.org](mailto:Bob@RKBuchheim.org), and we'll send you the link. For this year, payment will be on the "honor system".

The following Workshop videos are available:

2011:

Robotic Automated Observatories (Tom Smith & Tom Krajci)

Eclipsing Binaries, including modelling with BinaryMaker 3 (Dr. Dirk Terrell)

2012:

Small-telescope Spectroscopy (Dr. John C. Martin)

2013:

Lightning Safety and Hazard Management (Richard Kithill)

Digital Imager Photometry (John Hoot & Bob Buchheim)

2014:

Supernova Discovery and Science (Tim Puckett & Dr. Michael Richmond)

Improving your Signal-to-Noise Ratio (Bob Buchheim)

2015:

Small-Telescope Spectroscopy (Dr. John Bally)

Speckle Interferometry (Russ Genet, Dave Rowe)

2016:

From Image to Spectrum (Dale Mais & John Menke)

2017:

Advanced Asteroid Photometry Projects (Brian Warner & Bob Stephens)

2018:

Time-of-Minimum analysis for Eclipsing Binaries (Dr. Bob Nelson)

**Lunchtime Discussion groups:** People seem to appreciate these sessions, as an opportunity for "loosely-organized free-wheeling discussion", but there were two themes to the comments: (a) improve the selection of discussion topics, and (b) make it more convenient to get lunch.

Here's what we'll try for 2019:

We'll continue the tradition of having a "photometry lunch" on day one, and a "spectroscopy lunch" on day two. We'll devote the first 10 minutes of each lunchtime session to letting the group decide on the topics of interest. We'll also provide a way for attendees to recommend discussion topics before the session starts (maybe as part of Registration, maybe as part of sign-in).

We'll try to arrange a "box lunch" at the hotel so that you can easily pre-order your lunch and bring it into the lunchtime discussion room.

If you have any specific suggestions for improving these sessions, please let the Program Committee know ([Program@SocAstroSci.org](mailto:Program@SocAstroSci.org)).

**On-line meetings:** We received a few requests to organize sessions on very targeted topics; and a few suggestions about having periodic internet-

meetings as a way to keep everyone productive in between the SAS Symposia.

We haven't succeeded in actually doing this yet, but we're going to try in 2019.

## TESS Releases DR4 and DR5 (January 2019)

Dr. Jessie Christiansen has explained to us how the small-telescope research community can assist the TESS mission by doing photometric and spectroscopic observations of TESS candidates.

The TESS mission is currently focused on the southern ecliptic hemisphere. New data is being released on a fairly regular basis, and are available through the MAST portal. Details about the recent release (containing Sector 3 and Sector 4) and description of the ways you can access the data, is at

[http://archive.stsci.edu/archive\\_news/2019/TESS-01-Jan/index.html](http://archive.stsci.edu/archive_news/2019/TESS-01-Jan/index.html)

These are the data mentioned by Dr. Jessie Christiansen at the SAS symposium last year. MAST accounts (free) and logins changed recently so be prepared for a little administrative effort upfront.

Those of you who have been looking forward to aiming your 'scopes toward TESS objects of interest should examine the Sector 4 data. Don't let the "southern hemisphere" designation discourage you: Camera 1 during Sector 4 was aimed at approximately RA $\approx$  02 hr 47min Dec $\approx$  -3 deg. That neighborhood is accessible to many of our northern-hemisphere observers.

Jupyter notebook tutorials that may help you access and manipulate the TESS data products are available at <https://github.com/spacetelescope/notebooks/tree/master/notebooks/MAST/TESS>.

Jupyter is a rich Python notebook, along the lines of a Mathematica notebook, where prose and code can be intermixed. They are an excellent way to get a handle on the data. Jupyter is available under the platform agnostic (Linux, Windows, Mac) Anaconda "conda" Python environment.

## Reminders for SAS Members ...

**Membership Renewal:** Even if you can't attend the annual Symposium, we value your support of the Society for Astronomical Sciences, and your interest in small-telescope science.

As an SAS member, you will receive a bound copy of the Proceedings on request, even if you cannot come to the Symposium.

**Symposium Proceedings:** Published proceedings from all recent Symposia are freely available in PDF format at the PUBLICATIONS tab of the SAS website ([www.SocAstroSci.org](http://www.SocAstroSci.org)).

**Symposium Videos:** If you missed a recent Symposium, you can watch many of the presentation videos on the SAS website at the PUBLICATIONS tab.

**Keeping in Touch:** The SAS Yahoo group ("SocAstroSci") is a good way to keep in touch with the members and participants.

**Kudos, Criticisms, or fresh Ideas?** If you have any questions or ideas for the Symposium, ideas for Workshops or Technical topics that you would like to see, or comments on any other subjects related to the Symposium, please share them with the Program Committee at [program@SocAstroSci.org](mailto:program@SocAstroSci.org).

## For your Calendars:

Here are a few upcoming events that may be of interest to SAS Members and participants:

### Binary Asteroids Workshop

The 5th "Binary Asteroids in the Solar System" Workshop will be held in Fort Collins, near the Colorado State University campus, on 2019 September 3-5.

The first Binary Asteroids in the Solar System Workshop was held in Steamboat Springs, CO, in 2007. The workshop has been held every three years since in Poland, Hawai'i, and the Czech Republic.

The goal of the workshop is to bring together various ideas on the detection, characterization, formation, and implications of binary and multiple objects among the NEO, main-belt, Tro-

jan, Centaur, TNO populations. We hope to include all of the many modes of observation, in all of the dynamical populations, as well as theory and numerical modeling of formation and evolution of these systems. We especially welcome the new topics of rings of small bodies, and heliocentric orbital pairs of asteroids and their implications.

This meeting may be of interest to those SAS members who have a strong background in asteroid photometry, and binary asteroids in particular.

Details are available at

<http://binaryast5.org/>

Registration and abstract submission are now open.

The number of participants is limited to a maximum of 60. Keep that in mind if you tend to procrastinate.

### European Spectroscopy Conference "ASpekt 2019"

Every year, beginners, advanced and professionals in the field of astronomical spectroscopy meet for the annual conference of the VdS-spectroscopy group ASpekt 2019. This year it will be held in Salzburg (Austria), 3-5 May.

All spectroscopically interested astronomers are invited to this conference, especially beginners and young colleagues. A VdS membership is not necessary. With lectures and a poster and equipment session from the participants (registration of lectures with the conference team) we exchange ideas and discuss open questions on spectroscopy. Information on registration and the program will be published online. A permanent exchange for preparation and further activities can be found in the group's forum at <https://forum.vdsastro.de/viewforum.php?f=38>.

The conference is free of charge.

The conference hotel is Hotel Ammerhauser (<https://www.ammerhauser.at>), 8 km away from the observatory, and four times "Austria's best seminar hotel". Please quote the keyword "ASpekt 2019" when making your reservation.

Please register before 1 April 2019 via email to Herbert Pühringer ([pherby\(at\)gmx.de](mailto:pherby(at)gmx.de)) or Rainer Borchmann ([Rainer\(at\)Borchmann.de](mailto:Rainer(at)Borchmann.de)). In addition, please

register independently at the hotel and also pay for your accommodation at the hotel. Registration e-mail should include: Name, full postal address with postcode, city, street, house number, country, e-mail address, day and time of expected arrival and departure (especially if you are not staying completely from Friday evening to Sunday noon), number of persons

Please remember to make the hotel reservation by yourself by the date mentioned!

### InSTAR National Workshop on Citizen Science

This NASA-funded event is being organized by Dr. Paul Harderson. The goal is to bring citizen scientists, educators, and students together to discuss astronomical research projects and educational initiatives.

This workshop will be held in Tucson, on June 22-23, 2019. Details will be available on the InSTAR website soon (<https://www.in4star.org/>).

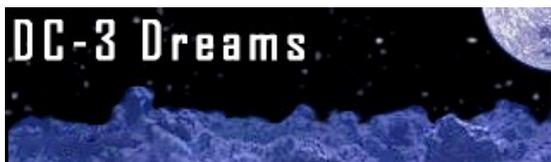
## 2018 Symposium Sponsors

The Society for Astronomical Sciences thanks our Sponsors for their participation and financial support. Without them, our Symposium would not be possible. We encourage you to consider their fine products for your astronomical needs.



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## **SAS Leadership**

### **Corporate Officers:**

Bob Buchheim – President  
Robert Stephens – Treasurer  
Robert Gill – Secretary

### **Newsletter Editor:**

Robert Buchheim

### **Sponsor & Vendor contact:**

SASLiaisons@gmail.com  
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Cindy Foote

### **Registration:**

Lorraine Moon  
Eileen Buchheim  
Allyson Hearst

*All SAS Leaders are volunteers, serving without compensation.*

### **Advisors:**

Dr. Arne Henden  
Dr. Alan W. Harris  
Dr. Dirk Terrell

## **Membership Information**

The Society for Astronomical Sciences welcomes everyone interested in small telescope astronomical research. Our mission is to provide education, foster amateurs' participation in research projects as an aspect of their astronomical hobby, facilitate professional-amateur collaborations, and disseminate new results and methods. The Membership fee is \$25.00 per year.

As a member, you receive:

- Discounted registration fee for the annual Symposium.
- A copy of the published proceedings on request each year, even if you do not attend the Symposium.

Membership application is available at the MEMBERSHIP page of the SAS web site: <http://www.SocAstroSci.org>.

The SAS is a 501(c)(3) non-profit educational organization.

## **SAS Contact Information**

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Rancho Cucamonga, CA 91730

### **On the web:**

[www.SocAstroSci.org](http://www.SocAstroSci.org)

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### **Membership:**

Robert Stephens:  
[rstephens@socastrosci.com](mailto:rstephens@socastrosci.com)

### **Newsletter Submissions:**

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