



# News from the Society for Astronomical Sciences

Vol. 12 No.2 (April, 2014)

## Invitation to the SAS 2014 Symposium

### New dates, a new location and a triple-conjunction joint meeting

The SAS 2014 Symposium will be a joint meeting with the American Association of Variable Star Observers (AAVSO) and the Center for Backyard Astrophysics (CBA). Gathering these three organizations together will be a wonderful chance for the small-telescope research community to share results and network with each other.

The annual SAS Symposium offers:

- An opportunity for non-professional researchers to present their projects and results, and learn from other backyard scientists.
- The privilege of receiving research advice from professional astronomers.
- Continuing education on methods, results, and opportunities for program collaboration in small-telescope astronomical research.
- Venue for informal networking among the small-telescope research community, both amateur and professional.
- In-depth discussions with vendors and developers of the best in astronomical products

The 2014 Symposium will be held on June 12-13-14 (that is Thursday-Friday-Saturday). Mark your calendars! The summary schedule plan is:

June 12th (Thursday): Educational workshops and classes.

June 13th (Friday): Technical paper presentations and "Evening with the Pros".

June 14th (Saturday): Technical paper presentations, banquet, and keynote address.

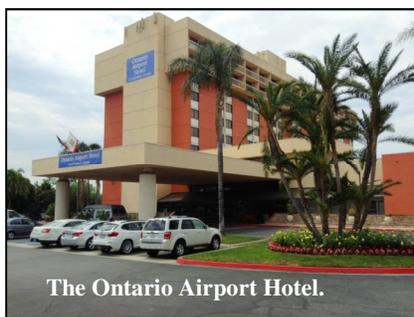
The AAVSO membership meeting will be on Thursday evening.

To register, go to the SAS website: [www.SocAstroSci.org](http://www.SocAstroSci.org)) and click on the "SYMPOSIUM" tab. Note that SAS, AAVSO, and CBA members are all eligible for the discounted registration fee.

A detailed agenda appears later in this Newsletter.

### SAS 2014 Location: Ontario Airport Hotel 700 North Haven Avenue, Ontario, CA 91764

The SAS 2014 Symposium is being held at the Ontario (CA) Airport Hotel.



This hotel will be more convenient for most of our attendees. Ontario CA is a shorter drive from most southern California cities than Big Bear. For SAS attendees who travel from outside southern California, the hotel is about 5 miles from the Ontario CA airport. A free hotel shuttle is available if you don't want to rent a car. The Ontario airport is served by most major US airlines, with flights to most major US cities.

## SAS 2014 "Friday Evening with the Pros"

We are trying something new at this year's Symposium: an "Evening with the Pros".

We'll have two extended talks from Dr. Linda French and Dr. Lance Benner. Dr. French does extensive work on Jupiter Trojan asteroids with the help of amateurs. Dr. Benner will share the latest results of radar observations on asteroids. These often rely on and are supplemented by astrometry and photometry from amateurs.

## SAS 2014 Workshops & Short Classes

In keeping with our long tradition, we will include educational workshops on topics of current interest on the first day of the 2014 Symposium (Thursday June 12<sup>th</sup>). But ... we're going to try something different, in response to suggestions that members made on your survey responses: we'll have one half-day workshop in the morning session, and three "short classes" in the afternoon session.

The morning session will feature a 3-hour workshop on **Finding and Studying Supernovae with Small Telescopes**, presented by Tim Puckett and Michael Richmond. This workshop will describe how small telescopes can be used to find supernovae, then measure them and produce results worthy of publication in the technical literature. We will walk through the entire process, step-by-step, illustrating each step in depth with real events and images.

- choosing a search strategy
- identifying new stars in your search images
- measuring the light curve of a supernova

- basic photometric calibration
- publishing the results

Attendees may join in working through several examples if you bring the following equipment:

- a computer
- software which can display FITS images
- software which can perform basic arithmetic operations on FITS images (+, -, \*, /)
- software which can measure the position and brightness of point sources

Tim Puckett is well-known as the force behind the Puckett Supernova search team, one of the most successful amateur supernova searches.

Michael Richmond spent two years searching for supernovae in starburst galaxies for his dissertation project, and then wrote software to run the Sloan Digital Sky Survey. He currently uses small telescopes to study supernovae and variable stars.

A \$50 registration fee is required for the morning Supernova workshop. There is no registration fee for the afternoon short classes. (Consider this a "special introductory price", not a promise that future classes will always be free!) Please register for the short classes that interest you when you fill in your Symposium registration, so that we can provide adequate meeting space for each class.

The one-hour short classes in the afternoon session are:

**Hands-on Spectrum Processing** will be presented by Tom Field. For good reason, spectroscopy is currently a "hot topic" in the amateur astronomy world. Spectroscopy can add a new depth and dimension to our observing activities. And, it's surprisingly inexpensive and straight-forward – it doesn't require a lot of equipment or complicated processing steps.

In this hands-on workshop, we'll show you how easy it is to collect and process spectroscopic data. You'll install a trial version of spectrum processing software on your laptop and process a variety of data, including classifying a supernovae, detecting the glowing ring of a Be star, and detecting the cosmological red-shift of a quasar and observing spectrum of Nova Del 2013.

Regardless of your budget, observing site, hardware or software equipment

or skill, you'll discover how easy it is to get exciting, scientific results. What you learn in this workshop will allow you to process spectra on your own as well as understand some of the issues and necessary procedures to collect useful scientific data from spectra.

Tom Field, of Field Tested Systems, is a Contributing Editor at Sky & Telescope Magazine. His article on spectroscopy appeared in the August 2011 issue. He's the author of the RSpec software which received their "Hot Product" award. Tom is a popular speaker who has spoken at many different venues, including NEAF, the NEAF Imaging Conference, the Advanced Imaging Conference, PATS, the Winter Star Party, the Advanced Imaging Conference, SCAE, and others. Tom has taught dozens of technical workshops over the years. His workshops are carefully designed to be an exciting and valuable experience, bringing you up to speed in this relatively new discipline to amateur community.

**Finding and Using Photometry Transforms** will be discussed by Dr. Arne Henden. Suppose that you've followed all of the guidelines for differential photometry and adjusted your apertures to get the highest signal/noise. Yet when you submit your variable-star data to the AAVSO, your points lie 0.1mag above another observer. Are you correct and the other observer wrong? How come both of you are reporting photometric errors of 0.01mag, yet neither lies within the uncertainty of the other? The cause is likely to be a systematic difference between the spectral response of your system and that of the other observer. To strictly compare the two results will require "transformation" of your instrumental results onto some standard system so that measures from multiple observers can be intercompared. This transformation process is the heart of this short workshop. We'll go through the reasoning for transformation, how you calculate and apply your own transformation coefficients, and software that is available to help you perform this important step in photometry.

Dr. Henden is the Director of the AAVSO, and has been interested in photometry for several decades. He is the co-author of *Astronomical Photometry*, and runs the AAVSO CCD School every summer.

Bob Buchheim will discuss **Improving Signal-to-Noise Ratio**. All scientific measurements are subject to a range of uncertainties. When the photometrist asks "how bright is it?" the answer will be something like "it's  $13.4 \pm 0.1$  magnitude". When the astrometrist asks "what is the separation between two objects", the answer will be "it's  $0.3 \pm 0.05$  arc-sec", and so on. In a great many situations the size of the uncertainty is closely related to the Signal-to-Noise ratio. This class will discuss the meaning of "signal" and "noise"; sources of noise; the relationship between SNR and measurement accuracy in photometry, astrometry, and spectroscopy projects; and some approaches to improving your measurement accuracy. The goal is to give you a way of thinking about measurement accuracy, rather than a set of equations to use. (But there probably will be a few equations).

Bob is a Board member of SAS and operator of Altimira Observatory. He once spent his days working through interminable calculations of signal, noise, and measurement accuracy for a variety of military guidance and targeting systems. The pursuit of astronomical accuracy is more peaceful, but it faces many of the same challenges.

## Submission of Papers for 2014 Proceedings

Presenters of Technical Papers at the upcoming SAS 2014 Symposium are expected to provide publication-ready papers for the Proceedings. The deadline for submitting your papers is April 26, 2014.

If your proposed abstract was accepted for presentation, you should have received an email with a link where you will upload your final paper. If you've lost that email, please contact the Program Committee at [program@SocAstrosci.org](mailto:program@SocAstrosci.org) (We don't broadcast the link lest we get unsolicited submissions from the spam-bots).

Final papers are to be submitted via upload onto the on-line submission system. (Yes, you do need to use the password that is provided in a graphic on the website – when we tried eliminating the password last year, we received a terrifying number of spam submissions).



The format requirements and MS Word template are available on the SAS website ([www.SocAstroSci.org](http://www.SocAstroSci.org)).

Presenters are encouraged to review "Emily's Rules" for making technical presentations. You can view the video of her presentation to the 2013 SAS Symposium on our website.

## Triennial Election of SAS Directors

SAS is a non-profit public benefit corporation incorporated in California, which is managed by a Board of Directors. The Directors are elected for 3-year terms by the membership. The current Directors' terms of office will end in June, 2014. Accordingly, the 2014 Symposium will include a brief business meeting to elect 5 Directors to hold office for the next three years.

The following candidates will be presented to the Membership for approval as Directors, to serve from June 2014 through June, 2017:

Robert Stephens  
Robert Gill  
Jerry Foote  
Dale Mais  
Robert Buchheim

Under SAS Bylaws, members may nominate additional candidates at the meeting. If no alternate candidates are nominated, then those listed above may be approved by voice vote.

## Publication of Student Projects and Research Papers

Recent SAS Symposia have included student groups who described their projects on asteroid lightcurves; stellar spectroscopy; double-star astrometry; and sky-glow evaluations. In keeping with the SAS mission of encouraging small-telescope astronomical research, we applaud these efforts.

SAS will now offer a forum ensuring that similar work will be part of the astronomical literature, and that students can include a publication citation in their resumes, even if they are not able to attend the Symposium.

We will be pleased to receive student-research paper submissions for the SAS Newsletter. The papers will be considered as "pre-prints", so that they are made available promptly. They will be formally published as "papers without presentation" in the next SAS Proceedings volume.

Please encourage your students to submit appropriate papers by e-mail to a Newsletter Editor.

## Newly named Asteroid 367732 Mikesimonsen:

Mike Simonsen reports: "Yesterday [2014-02-20] I received the surprise of my life when I was told the International Astronomical Union had named an asteroid Mikesimonsen."

The asteroid was discovered 2005 May 4 by Jim Bedient at Faulkes Telescope. It has an orbital period of about 3.5 years. The name was recommended by the discoverer.

Mike is scheduled to be at the SAS-2014 Symposium, so you can congratulate him in person while you're there.

## Reminders ...

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.

You can renew your membership on the SAS website ([SocAstroSci.org](http://SocAstroSci.org)), by going to the MEMBERSHIP/REGISTRATION tab.

Symposium Proceedings: Published proceedings from the 2013 Symposium are 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 still watch the presentations. Videos of most of the technical presentations have been posted on the SAS website at the PUBLICATIONS tab.

Contact Information: If you haven't been receiving e-mail messages about the Newsletter or the SAS Symposium, perhaps it's because you've changed your e-mail address without telling us. You can update your contact information on the MEMBERSHIP/REGISTRATION tab of the SAS website. SAS never sells or shares your name or contact information without your explicit permission.

## Workshop Videos

If you would like DVDs of Workshops from recent SAS Symposia, send a note to Bob Buchheim at [Bob@RKBuchheim.org](mailto:Bob@RKBuchheim.org). The following workshop videos are available:

*Digital Imaging Photometry* (2013)

*Lightning Safety and Hazard Management* (2013)

*Small-Telescope Spectroscopy* (2012)

*Robotic and Remote Observatories* (2011)

*Eclipsing Binary Stars* (2011)

All of these were 3-hour workshops. If you were registered for the workshop when it was held, the DVD cost is \$5. Otherwise, the cost is \$55.

<b>2014 SAS/AAVSO/CBA Joint Meeting Schedule</b>		
<b>Tue-Wed, June 10-11</b>	<b>AAVSO Board Meeting</b> (closed to the public)	09:00
<b>Thursday, June 12</b>	<b>Workshops &amp; AAVSO Membership Meeting</b>	
Tim Puckett, Michael Richmond	Supernovae Discovery and Science	09:00
	<i>Lunch Break</i>	12:00
Tom Field	Hands-on Spectrum Processing	13:30
Robert Buchheim	Improving Signal-to-Noise	14:30
Arne Henden	Finding and Using Photometry Transforms	15:30
AAVSO HQ Staff	AAVSO Membership Meeting	19:00
<b>Friday, June 13</b>	<b>Technical Paper Sessions</b>	
	<i>Coffee &amp; Registration</i>	08:00
	Welcome	08:15
Joe Patterson	The CBA: Basements, Backyards, and Binaries	08:30
John Martin	A Crowd Sourced Light Curve for SN 2014G	09:00
Josh Hamsch	Intensive Remote Observations of Novae	09:20
Wayne Green	Impact of Observing Parameters on 17 Nights with Nova Del 2013	09:40
Joe Patterson	Recovering From the Classical-Nova Disaster	10:00
	<i>Coffee Break</i>	10:20
James Vail	Pushing the Envelope: CCD Flat Fielding	10:40
Eric Dose	Toward Millimagnitude Photometric Calibration	11:00
Maurice Clark	Mining your Data	11:20
Eric Craine	A Strategy for Urban Observatory Site Preservation: An Arizona Example	11:40
	<i>Lunch</i>	12:00
Joseph Carro	CCD Astrometry of Double Stars	13:40
Rick Wasson	Measuring Double Stars with the Video Drift Method	14:00
Russell Genet	Kitt Peak Speckle Interferometry of Close Binary Stars	14:20
Jeffrey Hopkins	A Photometry and Spectroscopy Project for Small Observatories	14:40
	<i>Coffee</i>	15:00
Nicholas Dunckle	Simplified Color Photometry using APASS Data	15:20
Tom Calderwood	Detecting Observer Offsets in Sparse Photometry	15:40
Stephen Walters	Software Based SuperNova Recognition	16:00
	<b>Sponsor Infomercials</b>	16:20
	<b>"Evening with the Pros"</b>	
Lance Benner	Radar Observations of Near-Earth Asteroids	19:30
Linda French	Photometry of Jupiter Trojans	20:15
<b>Saturday, June 14</b>	<b>Technical Paper Sessions &amp; Banquet</b>	
	<i>Coffee</i>	08:00
John Menke	Spectro-Polarimetry: Another New Frontier	08:40
Tom Field	A Survey of Current Spectroscopic Tools, Capabilities and Activities	09:00
Douglas Welch	Surveying for Historical Supernova Light Echoes in the Milky Way Field	09:20
Mike Simonsen	The Z CamPaign: Year Five	09:40
Douglas Walker	A Search for Extreme Horizontal Branch Stars in the General Population	10:00
	<i>Coffee</i>	10:20
Arto Oksanen	How to Discover gamma-ray Burst Optical Transients?	10:40
Geoffrey Clayton	How Many R Coronae Borealis Stars Are There Really?	11:00
David Boyd	The Asynchronous Polar V1432 Aquilae and its Path Back to Synchronism	11:20
Enrique deMiguel	Photometry on Two New WZ Sge-type Stars	11:40
	<i>Group Photo &amp; Lunch</i>	12:00
Brian Cudnik	Ground-based Efforts Supporting a Space-based Experiment: Recent Results	14:00
Michael Gerhardt	Diurnal Parallax Distance Determination of Asteroids from a Single Station	14:20
Gary Vander Haagen	Differential Compensation of High Temporal Resolution Flare Search Data	14:40
Mahfuz Krueng	The Strange Case of GSC 05206-1013	15:00
Donald Collins	Modern V Photometry of b Persei	15:20
	<i>Good Night, and Good Luck</i>	15:40
	<i>Banquet</i>	17:30
Arne Henden	Keynote lecture	19:00

## **SAS Leadership**

### **Corporate Officers:**

Lee Snyder – President  
Robert Stephens – Treasurer  
Robert Gill – Secretary

### **Newsletter Editors:**

Dale Mais  
Robert Buchheim

### **Program Committee:**

Brian Warner  
Jerry Foote  
program@SocAstroSci.org

### **Registration:**

Margaret Miller  
Cindy Foote

*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 each year, even if you do not attend the Symposium.

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

The SAS is a 501(c)(3) non-profit educational organization. Your Membership dues and donations may be tax deductible.

## **SAS Contact Information**

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