



The Refractor

The Bulletin of the Eastbay Astronomical Society
 Founded in 1924 at Chabot Observatory, Oakland, California

Volume 86
 Number 12

September 2010

August EAS Lecture Meeting

Title: **How To Build A Planet**

Speaker: **Meredith Hughes, University of California, Berkeley**

When: Saturday, September 25, 7:30pm
 Location: Physics Lab, 2nd Floor, Dellums Building, Chabot Space & Science Center

The discovery of extrasolar planetary systems has overturned entrenched ideas about how our own planetary system formed. Around other stars we find exotic planets like nothing we see around our Sun: hot Jupiters, super-Earths, and massive planets at Kuiper Belt distances and beyond. Where do they come from, and can we devise a story of planet formation that can account for the wide diversity of systems we see around our own star and others?

This talk will introduce you to some of the ways we learn about planet formation, starting with evidence from observations with the naked eye and small telescopes and proceeding to the latest in high-resolution optical, infrared, and radio telescope observations of the disks of gas and dust around young stars. These circumstellar disks determine the initial conditions for planet formation, and can provide signposts for the presence of otherwise undetectable planets: observations of circumstellar disks have predicted two of the three directly imaged planetary systems that have been detected so far! We will explore the main theo-



ries and open questions about how planets form in the disks around young stars, and attempt to place our solar system in context: are we normal?

Meredith Hughes is a postdoctoral researcher at UC Berkeley, studying planet formation primarily through short-wavelength radio observations of circumstellar disks. She recently completed her PhD in astronomy at Harvard University, following undergraduate work in physics and astronomy at Yale University. Originally from Rhode Island, in her spare time she enjoys choral singing and running, hiking, biking, and swimming through the great outdoors.



See Solar Prominences at Chabot!

Spectacular live video of the sun in H-alpha on the giant plasma screen in Rachel's Dome, every sunny Weekend.

Quiescent solar prominence photos by Jim Ferreira

DINNER WITH THE SPEAKER
 5:30, Sat, Sep.25
Hunan Yuan
 4100 Redwood Rd.
 (next to Safeway)
 No need to confirm,
 Just show up!

Inside this issue:

-CalStar 10	page 2
-New EAS Event Coordinator	page 2
-CSSC NASA Award	page 3
-Membership Renewal Form	page 4

EAS Loaner Scope Program has telescopes available for rental by EAS members. Scopes include 60mm and 80mm refractors, a C-90, two 10 inch Dobsonians, and ; 4 and 8 inch Schmidt-Cassegrains. Scope rental is \$15 a month, with a \$50 deposit. For information, contact Ray Wong at (510) 796-5748 or qm7@yahoo.com

EAS Membership Renewal Time

That time of year is upon us once more. Included in this newsletter is a snail-mail membership renewal form. A quicker and easier way to renew is visit the EAS membership renewal page on-line at:

<http://www.eastbayastro.org/index/application.htm>

Annual dues: \$24 regular membership \$10 students



WANTED: PHOTOS OF OLD CHABOT

Do you have photographs of the Mountain Boulevard Chabot Observatory? If you do, pick out the best of the best and send a scanned image to the Newsletter editor. A new image will be posted in the newsletter each month.

FUTURE CONJUNCTIONS—2010

Sep 25 EAS General Meeting, Chabot, Physics Lab, 7:30pm
 9 Board Meeting, Chabot, Soda Board Rm, 7:30pm
 12 EAS MOVN
 Oct 23 EAS General Meeting, Chabot, Physics Lab, 7:30pm
 14 Board Meeting, Chabot, Soda Board Rm, 7:30pm
 17 EAS MOVN
 Nov 20 EAS General Meeting, Chabot, Physics Lab, 7:30pm
 11 Board Meeting, Chabot, Soda Board Rm, 7:30pm
 14 EAS MOVN

For questions or if you are uncertain about the weather, call (925)926-0853 before 6pm, or check Chabot's weather page at <http://www.chabotspace.org/forms/weather.aspx>

CalStar 10 October 7th, 8th and 9th



CalStar is hosted by the San Francisco bay area on-line observing network, *The Astronomy Connection*, www.observers.org, and, sponsored by the Astronomical Association of Northern California and the San Jose Astronomical Association. The dark sky observing site at Lake San Antonio is centrally located midway between the Los Angeles basin and the San Francisco bay area. For more information on the star party festivities and registration visit:

<http://www.observers.org/CalStar/>

New Assistant EAS Meeting Event Coordinator

As many of you know, **Dave Rodrigues** (alias **The AstroWizard**) has long been a wizard acquiring speakers for our monthly EAS meetings, however, of late, Dave has had his hands full - some assistance seemed in order. Fast forward to **Gene Weber** - long time CSSC supporter and telescope deck volunteer, and EAS member. Gene has kindly agreed to take on some of the Dave's duties hunting down, capturing and dragging back...er, locating and inviting interesting folks for our monthly lecture meetings. Along with the UC post-grads' that have so kindly given monthly talks on a wide range of astronomy subjects, Gene looks to bring in speakers from other sources including regional colleges, universities and research facilities, bay area museums and science centers, and, local amateurs astronomers. Gene is also looking for input on the kind of astronomy and science subjects EAS members are interested in hearing talks on, and possible sources for interesting, knowledgeable speakers. Should you have suggestions for Gene you can contact him at:

925-963-1165 or by E-mail at gene.weber@gmail.com

Chabot Space & Science Center Invites EAS Members to Volunteer with Us!

- Share your knowledge of and passion for astronomy with thousands of CSSC visitors
- Experience the unique opportunity to operate Chabot's historical telescopes
- Share your own telescope at Chabot*
- Inspire young astronomers and future scientists by assisting students in our astronomy education programs

Explore these opportunities at our next Volunteer Orientation!

For upcoming orientation dates, or for more information, please contact us at: volunteers@chabotspace.org or, call our Volunteer Manager Megan Gray at (510) 336-7414

*EAS members who are only interested in sharing their own telescope at Chabot are required to attend a Chabot volunteer orientation and complete a self-guided training worksheet entitled "Getting to know Chabot." After completion, you may join us on deck and share your own telescope any Friday or Saturday night!

**Full Chabot Volunteers must make the regular volunteer commitment and pursue official placement through the Volunteer Manager.

Chabot Space & Science Center Receives NASA Awards for Student Galaxy Explorer Programs

The National Aeronautics and Space Administration (NASA) has awarded Chabot Space & Science Center two important grants, the Peer to Peer Planetarium, and Champions Mars Academy, to support science learning.

The **Peer to Peer Planetarium (P2P)** project was awarded \$392,967 for a project that incorporates innovative approaches for development and delivery of instructional materials and experiences that capture the interest of learners and actively involve them in relevant, NASA STEM-themed content applications. The project is expected to leverage NASA's unique contributions in science, technology, engineering, and mathematics (STEM) to inspire young people to consider the importance of developing a possible interest in NASA-related careers, and/or to enhance students' academic experiences and/or to improve educators' abilities to engage and stimulate their students.

P2P is a hands-on, informal learning project for grade 9-12 students enrolled in Chabot's Galaxy Explorers (GE) youth development program. In P2P students learn STEM content through NASA online resources and data, engage in STEM career development instruction and activities, and then study and learn to utilize the NASA data and imagery to create science and astronomy themed planetarium shows for a portable planetarium dome. They will then present these shows to over 15,000 of their peers at underserved Bay Area schools.

The P2P project will be incorporated into the already highly successful GE curriculum. Students will attend enrichment classes to learn astronomy and science content using NASA data. They will learn how to assess, compile, and translate this data into presentation format that is accessible to the students they will be teaching as they bring their final projects into Bay Area Schools. They will then attend a two week summer program during which they will learn the technological aspects of creating planetarium shows using

NASA data, and gain hands-on experience by presenting preliminary test presentations to visitors to Chabot. They will then submit proposals for their final projects, create the projects over the next several months, and spend the next year conducting outreach sessions at Bay Area schools, presenting their P2P planetarium shows to students in grades 4-12.

Champions Mars Academy was awarded \$49,847 through NASA's K-12 Summer of Innovation Capacity Building grant program. This grant was awarded to select organizations that have promising existing middle school programs with high impact potential to



inspire interest in STEM learning. The award will pay for the program and intensive evaluation in the summer of 2010 for the purpose of future building capacity in the program and establishing eligibility for further NASA funding.

The Champions Mars Academy is a month long immersive summer camp experience for middle school students enrolled in the Champions of Science program. Champions of Science has two primary goals: to interest, build and retain students' academic knowledge and excitement in STEM (Science, Technology, Engineering and Math) subjects and potential careers at a critical time in adolescent development; and to create a pipeline to Chabot's high school community service and internship program, the Galaxy Explorers.

The exposure to astronomy during middle school will benefit students by giving them a competitive advantage in preparation for high school, where it is part of the Education Standards. In addition, the content will prepare the students with a working vocabulary to use as they matriculate into the academic rigor of the Galaxy Explorer program.

EASTBAY ASTRONOMICAL SOCIETY MEMBERSHIP APPLICATION FORM

New Renewal (Just print this page, fill it out, and mail it in!)

NAME: (please print) _____

ADDRESS: _____

CITY, STATE, ZIP _____

DAY PHONE: (____) _____

EVE PHONE: (____) _____

EMAIL ADDRESS: (please print very legibly!) _____

MEMBERSHIP CATEGORIES:

Regular \$24 Family \$36 Contributing \$40

Sustaining \$60 or more \$ _____ Student \$10 (digital newsletter only)

Optional discounted 12-month magazine subscriptions:

Note: Discounted magazine subscriptions are now handled directly with the publishers. You will need to be entered into our database as a current member before you can claim such discounts.

To take advantage of your discount, log into your EAS Night Sky Network account (new members should wait up to two weeks for their email invitation), click on "Links", and then select "New and Renewal subscriptions." From there you can choose the magazine of your choice.

Optional, tax deductible donation(s) to any of the projects of the Eastbay Astronomical Society:
Burns Library \$ _____ Betty Neall Youth Award Fund \$ _____ General \$ _____ Other: _____ \$ _____

EAS Lapel Pin \$3.00 +\$1.00 per pin for shipping and handling. # of pins _____

Total Amount for # of pins \$ _____

(Tip: If you buy them at a club meeting or event, you can avoid the S&H fee.)

Total Enclosed: \$ _____

Please mail this form and your check or money order payable to:

Eastbay Astronomical Society

PO Box 18635

Oakland, CA 94619-0635

For more information, please contact club Treasurer Richard Ozer at (510) 406-1914, rozer@pacbell.net, or write him at the address, above.

By default, (if you have an email address) you will be notified by email that the digital (.pdf) version of the club newsletter is ready to download off the club website. If you prefer to get the B&W hard copy, please check the box below:

I prefer the hard copy mailed to the address entered above.

And,

Are you interested in volunteering your time/equipment for public stargazing at Chabot?

Are you interested in doing other volunteer work for Chabot and/or the Eastbay Astronomical Society?

THANK YOU FOR JOINING US!



Eastbay Astronomical Society

At Chabot Space & Science Center
10000 Skyline Boulevard • Oakland, CA 94619

September 2010
RETURN SERVICE REQUESTED

Eastbay Astronomical Society

President: Barry Leska leska@comcast.net

Treas: Richard Ozer (510) 532-5477 rozer@pacbell.net

Secretary: Linda Lazzaretti (510) 633-2488

Articles and photos for *The Refractor* are encouraged. Deadline for the October 2010 issue is October 10, 2010. Items may be submitted by snail-mail or E-mail to: Editor - Jim Ferreira, 753 Oriole Avenue, Livermore CA 94551 bakerst@comcast.net (925) 449-0107

Vice President: Ray Wong (510) 796-5748 qm7@yahoo.com

Membership Reg: Bruce Skelly EastbayAstro@gmail.com

Events Coord: Dave Rodrigues (510) 483-9191



FUTURE CONJUNCTIONS

- | | | |
|------|----|--|
| Sept | 25 | General Meeting, Chabot, Physics Lab, 7:30pm |
| | 9 | Board Meeting, Chabot, Soda Room, 7:30pm |
| | 12 | EAS MOVN*, 7pm-10pm, Wightman Plaza |
| Oct | 23 | General Meeting, Chabot, Physics Lab, 7:30pm |
| | 14 | Board Meeting, Chabot, Soda Room, 7:30pm |
| | 17 | EAS MOVN*, 7pm-10pm, Wightman Plaza |
| Nov | 20 | General Meeting, Chabot, Physics Lab, 7:30pm |
| | 11 | Board Meeting, Chabot, Soda Room, 7:30pm |
| | 14 | EAS MOVN*, 7pm-10pm, Wightman Plaza |

Join the Eastbay Astronomical Society

- Regular, \$24/year
- Family, \$36/year
- Contributing, \$40/year
- Student, \$15/year (digital news-letter, only)
- Sustaining, \$60/year or more

Contact: Gerald McKeegan, EAS Treasurer
Tele: (925) 926-0853 Email: geraldSPACE@earthlink.net
Mail: 1760 1st Ave, Walnut Creek, CA 94597-2561

Sign up online at <http://www.eastbayastro.org/>