



# AU AstroNews

## The Newsletter of the Astronomical Unit

April 2017

Sponsored by the Santa Barbara Museum of Natural History



The Four Wisemen.... Photo credit: T. Totton.

### THE APRIL GENERAL MEETING

Our speaker for the meeting will be Sean Kelly. Sean grew up in Santa Barbara and graduated from Santa Barbara High and then went on to study physics at UCSB. After receiving a masters degree from NYU, Sean was invited to continue doing research at Brooklyn, where he spent seven years teaching physics and doing research in experimental condensed matter physics at Brooklyn College, CUNY (1995-2002). He taught high school physics and chemistry at private schools in New York and in Santa Barbara before finally landing at Santa Barbara City College where he taught as an adjunct for the SBCC astronomy lab in fall 2009. He worked as an adjunct in physics and astronomy from 2009-2015 and began "the best job of his life" in fall 2015 as a tenure track astronomy professor. His talk this evening is titled: "Space Elevator and the physics behind other such structures in space."

### OUTREACH SUMMARY

Since the last newsletter, AU volunteers Peter Angeloff, Leila Carvalho & Charles Jones, Tim Crawford, Joe Doyle, John Edkins, Mike Farris, Art Harris, Baron Ron Herron, Jürgen Hilmer, Sean Kelly, Ken Kihlstrom, Chris Larson, Adrian Lopez, Pat & Chuck McPartlin, Martin Meza, Bonnie & Bruce Murdock, Max Neufeldt, Edgar Ocampo, Erin O'Connor, Javier Rivera, David Salvia, Tom Totton, Andrew Tuma, Maureen & Tom Whittemore, Pat & Jerry Wilson, and the Young family showed cool stuff in the sky to **1537** people.

### APRIL OUTREACH EVENTS

Here's what's scheduled so far for April. Remember, events are subject to change, so for the latest updates, contact Chuck at 964-8201 or [macpuzl@west.net](mailto:macpuzl@west.net).

The Telescope Workshop meets on Tuesday evenings at 7:30 PM at the Broder Building at SBMNH. Contact Tim Crawford at [tcrawf3@cox.net](mailto:tcrawf3@cox.net) for information. Listen to the AU on the radio at KZSB 1290 AM at 9 AM on the second and fourth Monday of each month.

### SATURDAY, APRIL 1, SETUP 7 PM

Telescopes for a star party at Los Flores Ranch Park, in Santa Maria at 6245 Dominion Road. Setup entrance (with signs) will be up Dominion a bit northeast of the main entrance.

### TUESDAY, APRIL 4, SETUP 7 PM

Telescope Tuesday at the Camino Real Marketplace in Goleta, in the plaza by the theater.

### FRIDAY, APRIL 7, 7 PM

Monthly AU meeting in Farrand Hall at SBMNH. Start with a short planetarium show, then hear a talk about Space Elevators by SBCC professor and AU member Sean Kelly.

### SATURDAY, APRIL 8, 5 PM

AU planning meeting in the classroom outside Javier's office at SBMNH. Come help your club to plan our activities for the year.

### SATURDAY, APRIL 8, 7 PM TO 10 PM

Monthly Public Star Party at the Santa Barbara Museum of Natural History. We set up along the path to Palmer Observatory.

### TUESDAY, APRIL 11, SETUP 5 PM

Telescopes for Science Night (6 PM to 8 PM) at Mountain View School, 5465 Queen Ann Lane in Noleta. We set up on the blacktop out back. Food for volunteers.

FRIDAY, APRIL 21, 7:30 PM

Monthly Public Telescope Night at the Westmont observatory, next to the baseball field. Look through the big Keck Telescope.

SATURDAY, APRIL 22, SETUP 7:30 PM

Telescopes for UCSB students at the Manzanita Residence Hall. We set up in their courtyard. Contact Chuck if you can come, so he can arrange for a parking permit.

THURSDAY, APRIL 27, SETUP 5 PM

Telescopes for Science Night (6 PM to 8 PM) at Aliso School, 4545 Carpinteria Avenue in Carpinteria. Pizza for volunteers.

SATURDAY APRIL 29, SETUP 9 AM

Celebrate International Astronomy Day all day at Camino Real Marketplace. From 10 AM to 3 PM we'll be set up with solar telescopes and astronomy activities. Then we'll break for dinner, and return for a star party from 7 PM to 10 PM.

**From the President...**

Fellow SBAU members:

In the last newsletter I posed the question: *When a star condenses from the primordial dust cloud how is it that the angular momentum does not spin up the protosun until it flies apart?*

The answer is two-fold.

First: a solar system starts with a lump of gas and dust with a lot of random internal particle motion, which through internal collisions ends up with a single or dominant clump angular momentum. This clump collapses along the poles to a disk leaving behind a spherical Oort cloud. Outer portions of the disk will become the Kuiper belt. The rest accretes into planets and some, but not all collapses into the protosun. The whole disk does not really collapse into the protosun, but enough does that spinning up the protosun is still a problem that needs attention.

Second: it has been hypothesized that the rotating disk collides with itself to use up angular momentum as heat by forming density waves. Density waves may be more familiar by the name spiral arms. These density waves may also play a part in planet formation. As reported in "Physics Today" for December 2016, the "Search and

Discovery" article by Ashley G. Smart reports the first direct observation of spiral arms in a circumstellar disk around Elias 2-27. The observation was made at a wavelength of 1.3-mm using ALMA.

*Next Month I'll discuss a quick and dirty way to decide how many flotation points are needed to support a mirror of a given diameter and thickness.*

Jerry Wilson

NEW FROM OCULAR INDUSTRIES!

Tired of using a mere light bucket? Move up to a whole pool of light gathering power!

Always wanted a backyard observatory, but the family insisted on a swimming pool instead? Now you can turn your backyard pool into a light-gathering surface! In collaboration with Jacuzzi, Ocular Industries of Noleta has developed the **Advanced Pool Ripple Integrating Lens** system.

This revolutionary new technology uses precisely placed nozzles to produce a series of standing waves in your pool that act together to form a giant Fresnel lens, turning your pool's upper surface into a gigantic light collector. If you've got a closed tube telescope, like a refractor or SCT, simply place it at the bottom of your pool, where the resulting cone of light will enter its aperture, effectively turning your modest scope into a short focal ratio light mega-bucket.\*

You may find that your pool water's transparency leaves something to be desired, especially if you use Santa Barbara water, with its high mineral content. For a small extra fee, Ocular Industries will fill your pool with **Fresnel Ocular Optical Liquid**, fully guaranteed to give you a better view of distant faint fuzzies!

Tired of holding your breath? Ocular Industries now carries scuba gear, too!

\* Minimum pool depth for the system is 10 feet.

## RULES FOR THE GUN CLUB SITE

The Winchester Canyon Gun Club graciously allows us to use their Shotgun Range facility at the end of West Camino Cielo for occasional dark sky events like our Messier Marathon. Because of their location and operating restrictions, and to keep trespassing damage to their property to a minimum, they have asked us to follow certain rules when using the area. There is a recent report from them that they have found discarded alcohol containers on the premises after use by some astronomers, so I thought we could use a recap of the conditions of use.

WCGC members are allowed to use the range for shooting until sundown. If the range is in use, please do not interfere with their activities. If you arrive while WCGC members are present, they may demand to see your WCGC membership card, and deny entry to you if you are not a Gun Club member. Except when someone is actively entering or leaving the range, the pipe gate at the entrance is to be left closed, although it may be left fake-locked, with the padlock in the pin, but without the hasp closed.

No alcohol is allowed on the range. If you generate any trash, it is your responsibility to pack it home with you, since WCGC has limited trash capacity and must pay extra to have it hauled away.

Please do not drive on to the concrete shooting pads and paths, as it will damage the structure.

If you are the last person leaving the facility, your responsibility is to leave the gate locked, and the combination on the padlock turned to 0000.

Thank you for following the rules, so we do not risk losing this privilege.

### BACARA THANK YOU

Bacara Resort and Spa has recently donated \$2000 to the club. If you're out there enjoying their hospitality, be sure to thank them!

#### **AU Information Box**

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**AU AstroNews**, the monthly publication of the **Astronomical Unit (AU)**, is mailed to the AU membership. For publishing consideration for the next month, submit astronomical items by the 20th of the current month!

#### **AU annual membership rates:**

**Single = \$20 Family = \$25**

#### **AU mailing address:**

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**On the Web:** <http://www.sbau.org/>

**April 2017**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 LOS FLORES RANCH PARK 7PM
2	3	4 CAMINO REAL MARKETPLACE 7PM	5	6	7 AU GENERAL MEETING 7PM	8 PLANNING MEETING 5PM STAR PARTY 7-10PM SBMNH
9	10 TECH TALK KZSB (AM 1290) 9-10AM	11 MOUNTAIN VIEW SCHOOL 5PM	12	13	14	15
16	17	18	19	20	21 WESTMONT COLLEGE 7:30PM	22 UCSB MANZANITA RESIDENCE HALL 7:30PM
23	24 TECH TALK KZSB (AM 1290) 9-10AM	25	26	27 ALISO SCHOOL CARPINTERIA 5PM	28	29 INTERNATIONAL ASTRONOMY DAY 9AM-10PM
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