

The SAN MATEO COUNTY ASTRONOMICAL SOCIETY

December, 2011 592nd General Meeting Notice



EVENT HORIZON

Founded in 1960, the San Mateo County Astronomical Society is a non-profit organization for amateur astronomers. Family memberships are open to the public, and visitors are cordially invited to the Society's meetings, which are held on the first Friday of the month, September through June. Detailed information about our events and membership can be found at www.smcas.com

Membership includes a monthly bulletin, discounted subscriptions to calendars and magazines, monthly star parties, use of our loaner telescopes, tours, field trips and guest speakers, plus an invitation to join our online discussion group. To receive additional information, send a note to SMCAS@live.com or call (650) 862-9602.

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FIRST STARS UNVEILED!!!

(These silent film actors all but disappeared after the advent of talkies.)

Dr. Aparna Venkatesan, Assistant Professor of Astronomy at the University of San Francisco, will discuss the first stars in the universe, which were far different from today's publicity-seeking denizens of the Twittersverse. For one thing, they were so metal-poor they actually wore no bling. For more dirt on these early stars, come to the Science Center on Friday, December 2 at 7:30 pm for meet & greet & pizza, followed by the lecture at 8:00.

See page 7 for directions.



Star light, star bright, first star that I see tonight.

MONTHLY STAR PARTIES

Crestview Park in San Carlos

Saturday 12/17/2011.

Saturday 12/24/2011

(See directions on p. 7)

ANNOUNCEMENTS

SPEAKER: Dr. Aparna Venkatesan
Assistant Professor of Astronomy, University of San Francisco

TOPIC: The First Stars in the Universe

TIME: 7:30 pm December 2nd, 2011

WHERE: [The CSM Planetarium](#)
Bldg 36, Parking Lot 5

Free and open to the public



Dr. Venkatesan graduated from the Department of Astronomy and Astrophysics at the University of Chicago in 2000; and received her bachelor's degree from Cornell University's Astronomy Department in 1993.

Dr. Venkatesan's research interests are primarily in theoretical cosmology, including studies of the first stars and quasars in the universe, the evolution of cosmic star formation and related observational signatures, the physics and chemistry of gas in the early universe, the cosmic microwave background, and dark matter.

She is currently working on the cosmic synthesis of the biogenic elements at early times in the universe (with Dr. Lynn Rothschild, NASA-Ames), and on projects related to helium reionization and its effects on the intergalactic medium with collaborators Prof. Michael Shull (CU-Boulder) and Dr. Andrew Benson (Caltech).

She joined USF's physics department in Fall 2006 to help expand the astronomy and astrophysics program. Through the introduction of new astronomy and astrophysics courses over the last few years, and the upgrading of USF's observing facilities, they now have new two undergraduate minors (astronomy, and astrophysics) starting in Fall 2009.

Before moving to the Bay Area, she held an NSF Astronomy and Astrophysics Postdoctoral Fellowship at the Center for Astrophysics and Space Astronomy at the University of Colorado at Boulder.

From the Prez:

As I arrived on CSM's campus at 2:15 on November 5 to start setup for the "Family Science and Astronomy Festival", I realized that the crowds might be larger than we planned for. The Marie Curie parking lot was absolutely full. After finding a space in a different lot and going into the science building, I found the halls full of families lining up for the science demonstrations and planetarium shows.

Our original plan was to have two planetarium shows and not have the Astronomy Demonstrations start before 4:30PM. This plan was at the request of the other science departments so that astronomy didn't draw all of the visitors away from their demonstrations. Clearly this plan would not work because of the size of the crowd, so I started calling the members scheduled to conduct demonstrations asking them to get in as soon as possible. As it worked out we had the astronomy demonstrations starting early and Darrell ran a total of eight planetarium shows. The Theatre which holds 400 was better than 80% full for the talk by Dr. Filippenko.

There were an estimated 1200 visitors to the event which made it the most successful Astronomy Day type event in years. The success was cheered by the management of CSM. Here are a few excerpts from emails sent by these executives:

Thank you all so much for your work on this wonderful event. I was able to make a visit in the late afternoon and B36 was packed with children and parents. I also attended the talk in the evening, which was fascinating. Thank you all for making this event such a success!
Mike Claire – CSM President

I, too, want to thank everyone for a VERY successful event. I arrived around 1:40 yesterday afternoon and discovered a huge crowd already waiting for the first planetarium show and the other events. Very impressive. There was standing room only for all the events. And there was a very enthusiastic, positive response from those in attendance.
Susan Estes – CSM Vice President of Instruction

On another subject – the membership expires for most members on 12/31/2011. The only exception is that member who joined since July 1, 2011 will have their membership automatically extended to 12/31/2012. You can renew your membership by sending a check to the address on page 7 of this newsletter, making a credit card payment on our website (http://www.smcas.com/membership/renewing_member/) or by handing cash or a check to Marion Weiler or me at a SMCAS event. Renewal is \$30 (\$25 for senior or student).

Finally, send me an email if you would like a club discount on magazine subscriptions. Currently, discount subscriptions are available for Astronomy, Sky and Telescope and StarDate.

Ed Pieret, President
(650)862-9602

San Mateo County Astronomical Society
SMCAS@live.com



Re-thinking an Alien World: The Strange Case of 55 Cancri e

Forty light years from Earth, a rocky world named “55 Cancri e” circles perilously close to a stellar inferno. Completing one orbit in only 18 hours, the alien planet is 26 times closer to its parent star than Mercury is to the Sun. If Earth were in the same position, the soil beneath our feet would heat up to about 3200 F. Researchers have long thought that 55 Cancri e must be a wasteland of parched rock.

Now they’re thinking again. New observations by NASA's Spitzer Space Telescope suggest that 55 Cancri e may be wetter and weirder than anyone imagined.

Spitzer recently measured the extraordinarily small amount of light 55 Cancri e blocks when it crosses in front of its star. These transits occur every 18 hours, giving researchers repeated opportunities to gather the data they need to estimate the width, volume and density of the planet.

According to the new observations, 55 Cancri e has a mass 7.8 times and a radius just over twice that of Earth. Those properties place 55 Cancri e in the “super-Earth” class of exoplanets, a few dozen of which have been found. Only a handful of known super-Earths, however, cross the face of their stars as viewed from our vantage point in the cosmos, so 55 Cancri e is better understood than most.

When 55 Cancri e was discovered in 2004, initial estimates of its size and mass were consistent with a dense planet of solid rock. Spitzer data suggest otherwise: About a fifth of the planet’s mass must be made of light elements and compounds—including water. Given the intense heat and high pressure these materials likely experience, researchers think the compounds likely exist in a “supercritical” fluid state.

A supercritical fluid is a high-pressure, high-temperature state of matter best described as a liquid-like gas, and a marvelous solvent. Water becomes supercritical in some steam turbines—and it tends to dissolve the tips of the turbine blades. Supercritical carbon dioxide is used to remove caffeine from coffee beans, and sometimes to dry-clean clothes. Liquid-fueled rocket propellant is also supercritical when it emerges from the tail of a spaceship.

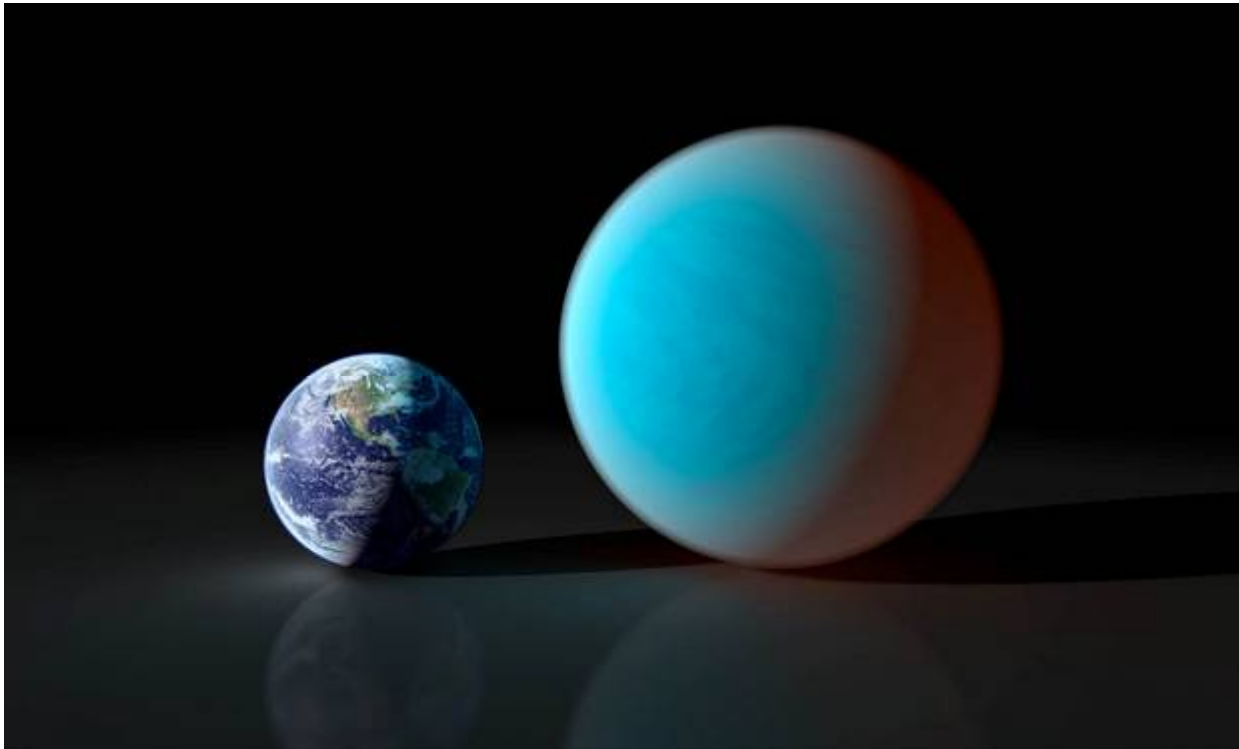
On 55 Cancri e, this stuff may be literally oozing—or is it steaming? —out of the rocks. With supercritical solvents rising from the planet’s surface, a star of terrifying proportions filling much of the daytime sky, and whole years rushing past in a matter of hours, 55 Cancri e teaches a valuable lesson: Just because a planet is similar in size to Earth does not mean the planet is like Earth.

It’s something to *re*-think about.

Get a kid thinking about extrasolar planets by pointing him or her to “Lucy’s Planet Hunt,” a story in rhyme about a girl who wanted nothing more than to look for Earth-like planets when she grew up. Go to <http://spaceplace.nasa.gov/story-lucy>.

The original research reported in this story has been accepted for publication in *Astronomy and Astrophysics*. The lead author is Brice-Olivier Demory, a post-doctoral associate in Professor Sara Seager’s group at MIT.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Artist's rendering compares the size Earth with the rocky "super-Earth" 55 Cancri e. Its year is only about 18 hours long!

General Meeting Notes – November 4, 2011

About 40 attended the General Meeting in the College of San Mateo Planetarium, preceded by a social half-hour fueled by pizza and coffee. President Ed Pieret made a few announcements about upcoming events (Star Parties and Jazz Under the Stars) and the recent star parties given at requests by public libraries in several local municipalities. We have several more requests from public schools and municipalities later in November.

The featured presentation, *Planetary Exploration Rebooted*, was given by Dr. Terry Fong, Director, Intelligent Robotics Group, NASA Ames Research Center, Moffett Field. Dr. Fong briefly reviewed historic and ongoing robotic explorations of Mars, asteroids, and the Moon. Then he discussed ongoing research on robot capabilities to supplement and otherwise support human space research. He also described significant increased capabilities in planetary and Moon mapping data. For example, NASA's *Planetary Content* project makes NASA's vast stores of planetary data more accessible and useful through Web-enabled tools; in collaboration with Google, Planetary Content has produced *Mars in Google Earth* and *Moon in Google Earth*. Lastly, Dr. Fong described NASA's *Participatory Exploration* program, wherein people can express on-line preferences for favored kinds of future NASA space research. More information about the Intelligent Robotics Group can be obtained by typing irg.arc.nasa.gov in *Google*, *Yahoo*, or similar search engine.

December 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2 First Quarter  SMCAS Meeting	3
4	5	6	7	8	9 The Sky Tonight Planetarium Show	10 Full Moon  Total Lunar Eclipse
11	12	13	14	15	16	17 Last Quarter  Crestview Star Party
18	19	20	21	22 Winter Solstice	23	24 New Moon  Crestview Star Party
25 Christmas Day	26	27	28	29	30	31

2011 - PST

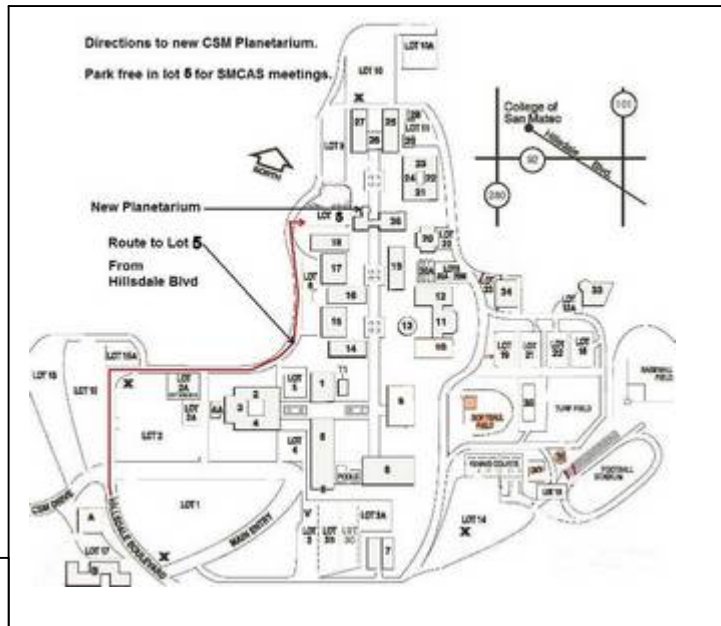
		<u>Dec 17 Rise</u>	<u>Dec 17 Set</u>	<u>Dec 24 Rise</u>	<u>Dec 24 Set</u>
Sun	Solstice on 21	7:17 AM	4:53 PM	7:21 AM	4:56 PM
Moon		-11:24 PM	11:44 AM	7:14 AM	5:15 PM
Mercury	Before sunrise	5:35 AM	3:42 PM	5:38 AM	3:33 PM
Venus	In the evening	9:31 AM	7:09 PM	9:33 AM	7:24 PM
Mars	Late at night	11:08 PM	12:04 PM	10:52 PM	11:43 AM
Jupiter	Much of the night	1:44 PM	2:57 AM	1:16 PM	2:29 AM
8 PM, East on left		g i J e c		c g i J e	
Red Spot transit		9:12 PM		9:59 PM	
Saturn	In the wee hours	2:33 AM	1:46 PM	2:09 AM	1:20 PM
	Much of the night	12:27 PM	12:32 AM	11:59 AM	12:04 AM
Uranus	In the evening	11:05 AM	9:50 PM	10:37 AM	9:24 PM
Neptune	Mostly in the sun's glare	7:53 AM	5:53 PM	7:27 AM	5:27 PM

Note: Occasionally, the moon does not rise or does not set on a particular date. I am implementing a shorthand notation of "-" for the previous day and "+" for the following day. This month, there is no moonrise on December 17. It rises a bit before midnight on the previous day, 11:24 PM on the 16th. I've shown that as -11:24 PM on the 17th. Better suggestions about this (or anything else) are always welcome.



Directions to Planetarium

After coming off HW92 at Hillsdale Blvd towards CSM, proceed up hill through the second and third sets of traffic lights until you come to the first stop sign, where you enter the campus, and continue straight. After the third stop sign, turn into the first parking lot on the right. This is now called Lot 5. The planetarium is directly ahead of you. Enter the building (36) through the door facing the parking lot.



Directions to Crestview Park

Crestview Park

Come out and bring the kids for a mind-expanding look at the universe!

Bring your binoculars, telescopes, star guides, and lounge chairs for some informal star gazing at Crestview Park. Dress warmly and wear a hat. Visitors should park on the street or arrive before dark so that headlights don't affect the observers' dark adaptation. Bring small flashlights only, with the lens covered with red cellophane or red balloon. Please don't touch a telescope without permission. And parents, please watch your children.

Take Hwy 101 or El Camino to Brittan Avenue in San Carlos, and turn west (right from El Camino). From El Camino, follow Brittan about 2.3 miles to the intersection with Crestview Drive.

From Alameda, go about 1.4 miles to Crestview. Turn right on Crestview. A small sign saying "Crestview Park" is a half-block ahead on the right. Look to the left for the park entry road, a small street between houses #998 and #1000. If after dark, please park on Crestview near the park entrance and walk in the short distance, to avoid safety issues and disturbing the telescope setup and viewing.

From Highway 280 to Edgewood Road. Go east (toward Bay) about 0.8 miles. Left on Crestview Dr. Go 0.5 miles uphill to the intersection with Brittan Avenue. Go one short block to the park entrance on the left.

Note: The park is residential, and adjacent to homes and backyards. Before inviting noisy groups, please call Ed Pieret or Leroy Amen.

For more information, call:
 Leroy Amen: 573-0935
 Leroy's cell: 504-5196
 Ed Pieret: 595-3691

Membership Application

To join the San Mateo County Astronomical Society or to renew your membership please send dues by check payable to "SMCAS" to the address below. Dues are \$35 for a new member, \$30 for Renewing members and \$25 for students and seniors.

SMCAS, at PO Box 974, Station A, San Mateo, CA 94403

Check one: () New member () Membership renewal () Address or info change

NOTE TO EXISTING MEMBERS: do not fill in address etc. unless it's changed!

Name(s) _____

Address/City/Zip: _____

Phone(s) _____ Email _____

Meetings of the San Mateo County Astronomical Society are held the **first Friday of the month (except in July and August)** in the Planetarium at the College of San Mateo, located at 1700 West Hillsdale Blvd. in San Mateo. Exit Hwy. 92 at West Hillsdale Blvd. and, proceed uphill through the second and third sets of traffic lights until you come to the first stop sign, where you enter the campus, and continue straight. After the third stop sign, turn into the first parking lot on the right. This is Lot 7. The planetarium is directly ahead of you. Enter the building (36) through the door facing the parking lot.

Officers: President: Edmund Pieret; **Vice-President:** Chanan Greenberg; **Secretary:** John Fiske; **Treasurer:** Marion Weiler

Board Members-At-Large: Bob Franklin, Ken Lum, Mike Ryan, Murad Hamidouche.

Membership: open position **Newsletter:** Dave Wolf, Ron Cardinale, Darryl Stanford, John Garis, Bob Fies.

Program: Marion Weiler, **Publicity:** open position; **Reporter:** open position

Event Horizon Editor: Dave Wolf **NOTE:** We welcome articles and photos submitted by the 15th of the month prior to publication.

Contacts:

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