

Sonoma Skies

Newsletter of the Sonoma County Astronomical Society
A nonprofit scientific and educational organization



www.sonomaskies.org

April 2007

Volume XXX No. 4

A Star from a Spark:

Meet Melissa

Those of you present at the last meeting were fortunate to hear a program entitled "Extreme Astronomy." It was well-presented and generated a lot of interest and good questions. But unlike our other previous honored guests, our presenter that evening was a bright, fresh-faced 19-year-old woman. A past Striking Sparks winner, meet Melissa Downey; a local girl who makes good.

For those of you who don't know Melissa, I thought you might like to know what can happen when a Striking Sparks winner develops into a star (is that a Nova?) Melissa came into our little astronomical clan initially by winning a Sparks telescope. Thanks to an email "interview" Len Nelson did with her, she remembers winning in her own words:



"I was in fifth grade when I entered the contest, and so was ten when I wrote my essay. By the time I won my telescope, though, my birthday had come and gone and I was eleven when I received it. It's funny, initially I wasn't all that thrilled about entering a telescope contest because I wasn't sure I wanted the responsibility of caring for such a valuable and sensitive instrument. But my teacher at the time knew that science was something that I found fascinating, and knew that I'd always been interested in astronomy, so she pushed me into entering. I did, and didn't expect to win. When the day SCAS was supposed to call came and I heard nothing I figured I hadn't won. I shrugged it off, but around 8 I got a call saying I'd won. I distinctly remember hopping up and down the length of our house shrieking 'I won! I won a telescope!'"

"I remember finding the Ring Nebula, and various bright globular clusters. I distinctly remember seeing Saturn and its rings. I could also pick out two or three of Saturn's moons. One thing about me, though, is at eleven I had something of a short attention span. If I looked and looked for an object in the sky and didn't find it after about thirty minutes, I got frustrated. So I would sometimes point my telescope at the Milky Way at random and move my telescope

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Observing Deep Sky Objects from Australia

SCAS April 11 Meeting, Proctor Terrace School

Since retiring from the San Francisco State University's Department of Mathematics and Computer Science in 2000, Dr. Robert Douglas has traveled to Australia five times. In fact, he has just returned from his fifth trip and will show many southern hemisphere images and tell of his adventures and experiences of viewing from "Down Under," the fantastic deep sky objects not observable from the continental United States, the people he has met and the bonds he has formed with amateur astronomers from around the world. He says, "Four of my favorite five objects in the sky are essentially not observable from California."

Bob grew up in Seattle. Ever since grade school he has been interested in astronomy and space travel. In the early morning hours he would stick his head out of his bedroom window (which faced east) to see the "new" constellations coming up. When he was 13 or 14 his father bought him a 2.4 inch f/15 Unitron refractor.

Bob was an undergraduate, and graduate student at the University of Washington in Seattle, receiving his BS, MS and Ph.D in Mathematics. After a year as a Research Associate at the University



of North Carolina at Chapel Hill, he joined the faculty of the Mathematics Department at San Francisco State University. About 15 years later, the computer science program in the Mathematics Dept. became a separate Department of Computer Science, into which he transferred.

He carried an 8" SC with him on his first trip to Australia in 2001 where he made many friends and had access to larger telescopes. On his second trip in 2002 he traveled with these new friends, a third of the way across Australia to view the December 4th Total Solar Eclipse. His third trip lasted almost two months, during which

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Young Astronomers See page 6

Sonoma County Astronomical Society (SCAS)

Membership Information

Meetings: 7:30 PM on the second Wednesday of each month, in the Multipurpose Room of Proctor Terrace Elementary School, 1711 Bryden Lane at Fourth Street, Santa Rosa, unless otherwise announced in this publication. The public is invited.

Dues: \$25, renewable June 1 of each year. New members joining between December 1 and May 31 pay partial-year dues of \$12.50.

Star Parties: See the Events section for dates and times.

Rental Telescope: Members are eligible to borrow the club's 80mm refractor with tripod. Contact any Board member listed below.

Egroup URL: Connect with other members about going observing, observing reports and chat about astronomy and news items from AANC and *Sky & Telescope*. Hosted by Robert Leyland at r.leyland@verizon.net. Any SCAS member is welcome to join. Visit <http://groups.yahoo.com/group/scas> and click the "Join" button, or send an email to scas-subscribe@yahogroups.com

Discount Subscriptions: For *Sky & Telescope*, new subscribers may send a check for \$32.95 payable to "SCAS", with your complete mailing address, directly to: Larry McCune, 544 Thyme Place, San Rafael, CA 94903. For renewals, send him your check with the completed renewal card and return envelope. Discount subscriptions to *Astronomy* Magazine occur annually in October. Check *Sonoma Skies* for details.

Library: SCAS Librarian Joan Thornton hosts a library of astronomy books that may be checked out by members at SCAS meetings, to be returned at the next meeting. Videotaped lectures on astronomy may be rented for \$3 per month.

Sonoma Skies is the monthly newsletter of the Sonoma County Astronomical Society (SCAS). Subscription is included as part of membership. Articles and member announcements are welcome and are published on a first come, first served basis, space permitting, and may be edited. **The deadline for submissions is 10 days prior to the end of each month.** Mail to: Editor, SCAS, P.O. Box 183, Santa Rosa, CA 95402, or email publications@sonomaskies.org

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Visit us on the web at:
www.sonomaskies.org

LET'S HEAR IT FOR HERB LARSEN!

What would *Sonoma Skies* be like without the monthly contributions of Herb Larsen? You may not have met him, but you know who he is—he draws the great cartoons we are privileged to publish right here on Page 3. We get comments all the time from folks far and near, asking who does our cartoons.

Herb is a long time member of SCAS. When he moved to the Sacramento area many years ago, he chose to continue contributing to *Sonoma Skies*, and we surely are grateful. If you'd like to contact him, his email is hlarsenii@yahoo.com.

Astronomy Day April 21

It's that time of year again, when those of us who haven't gotten out the ol' telescope for a while to pull it out of the closet or garage, dust it off, align the optics and take it out somewhere where we can invite our neighbors, friends, total strangers and the general public to take a look through a telescope.

Astronomy Day is Saturday, April 21. Lynn Anderson will be setting up his Pronto on the corner of Healdsburg Ave. and North Street in Healdsburg. Len Nelson will be setting up a telescope in Petaluma at McDowell school. SCAS members and SPARKS winners are invited to join Lynn or Len at either of these locations. It is also an RFO Public Night.

As of this writing, it is unknown whether any other SCAS members will be setting up telescopes for public viewing in any other communities. Of course, you don't need to organize a street corner star party to participate in Astronomy Day. You could just set up a telescope out in front of your own house and invite your neighbors and passers-by to take a view. If anyone is considering a street corner star party, please inform John Whitehouse jmw@sonic.net prior to April 10, so it can be announced at the SCAS general meeting on April 11. SCAS and RFO information sheets will be available at the general meeting.

Easy targets on April 21 will be a 4-day old crescent moon, Venus and Saturn.

Now we just need clear skies....

Observing from Down Under *(from Page 1)*

he rented a cabin near the Sliding Springs Observatory, viewing every night and while the moon was full, he drove over 3000 miles to hike in the subtropical rain forest near Brisbane, and visit a Great Barrier Reef coral island.

His main astronomical interest is in deep sky visual observing, which he has done for many years. Up until 2004 he mainly used his 12" LX200 Meade. Since then he has used an 18" GoTo Starmaster. He occasionally comes to Lake Sonoma. You may have met him there.

Join us to learn about viewing the Southern skies. As Bob says, "For a combination of dark skies, amateur astronomers who welcome foreign visitors, and the best latitude from the earth at which to observe the blockbuster objects in the night sky, Australia is the place to go." He'll even tell us who to contact if we'd like to do some observing there.

April Observing Notes

- 4/2 Full Moon at 10:15 AM, 16 hours before perigee. Smallest diameter full moon of 2007.
- 4/9 Juno opposition, mag. 9.7, in Virgo
- 4/10 Last Quarter Moon at 11:04 AM
- 4/17 New Moon occurs at 4:36 AM. Large tides. New Moon 6 hours after perigee.
- 4/19 Moon near Venus, Aldebaran, M45 in WNW after sunset. Venus south (left) of crescent moon, and Aldebaran further south. M45 below moon and slightly north (right).
- 4/22 Lyrid meteors peak 3PM.
- 4/23 First Quarter Moon at 11:36 PM
- 4/25 Moon very near Saturn 2 AM
- 4/26 Occultation of Regulus 2:45 AM. Regulus disappears behind dark limb, Alt/Az: 11°/277°
- 4/30 Moon near Spica 9:30 PM

Observing Treats

The following highlights were gleaned from Guy Ottewell's wonderful 2007 Astronomical Calendar:

Venus appears ever higher and more conspicuous in the western evening sky, the interval between sunset and Venus-set increasing to more than 3½ hours. As evening twilight fades, the magnitude -4.1 planet's April hike through Taurus is easy and fascinating to watch. Venus is a little more than 2½° south of the Pleiades April 11. It glides onward between the Pleiades and Hyades to come no closer than about 7½° from Aldebaran on April 19.

Saturn glows at magnitude -0.4, very high in the SSW at dusk. Its retrograde motion (movement westward relative to the stars) halts on April 19, with Saturn almost 12° west of Regulus. That puts it in extreme western Leo, only about ½° from the border with Cancer. Saturn's rings have been tilted a little more than 15° from edgewise for a few months, but now start closing dramatically and won't become nearly this open again for about 7 years.

Jupiter starts rising the end of the evening in April. The magnitude -2.3 beacon halts its direct motion about 11° from Antares and starts retrograding on April 6. When this westward motion relative to the stars ends almost exactly 4 months later, Jupiter will have pulled to within about 5° of the star. Jupiter is still best (because highest) for telescopic views at or a little before dawn. Its apparent diameter swells past 40" this month.

The **Lyrid meteor shower** peaks around April 22, when the nearly first quarter Moon sets in the middle of the night, leaving pre-dawn hours dark for viewing.

COMING TO SCAS IN MAY

Dr. Adrienne Cool of San Francisco State,
speaking on globular clusters.

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by
Herb
Larsen



*Him? Well, he fell asleep
while counting galaxies in the
constellation Aries.*

SOCIAL AMENITIES

Thanks to John Jaffray for providing coffee and refreshments at the March meeting.

You can sign up to provide refreshments at a meeting, too. It's easy! Just contact any Board member and choose a month.

WELCOME NEW MEMBERS!

Welcome aboard to Mike Boyle of Petaluma and Tim Slater of Santa Rosa.

SILENT AUCTION

Bring any astronomy-related items you wish to sell to the April meeting. Another member might be looking for that very thing!

Scope City
New Member Bonus!

- Scope City at 350 Bay Street, San Francisco, is offering a
- **\$25 merchandise discount to new members.**
- Manager Sam Sweiss has supported SCAS and Striking
- Sparks and offers a huge selection of telescopes, accessories
- and more. Obtain a receipt from Walt Bodley, Membership
- Director, showing you have paid the \$25 SCAS membership
- dues. To arrange for your merchandise discount, contact
- Sam at 415/421-8800 or at sanfrancisco@scopecity.com

Events

ROBERT H. FERGUSON OBSERVATORY

**Public Viewing: Saturdays, April 14 and
April 21 (Astronomy Day)**

Solar Viewing: 12:00 AM - 4:00 PM

Night Viewing begins 9:00 PM

The Observatory: Three scopes are operating: The 14-inch SCT with CCD camera in the East wing, the 8-inch refractor under the dome and the 24-inch Dobsonian in the West wing. No admission fee for the solar viewing, but donations are appreciated. The Park charges \$6 per vehicle for entry. A \$2 donation is requested from adults 18 and over for admission to the observatory during night viewing sessions. SCAS members may set up telescopes in the observatory parking lot to assist with public viewing. Auto access closes at dusk; late arrivals must carry equipment from the horse stable parking area.

Classes, Labs

Night Sky Spring Series #5, Apr. 10, 7:30 PM

Night Sky Spring Series #6, Apr. 17, 7:30 PM

Each class includes a lecture on the constellations of the season, their history and mythology, and how to find objects within them. Learn the bright stars, deep-sky objects, and visiting planets of the spring skies. After each presentation (sky conditions permitting), enjoy a review of the constellations in the actual night sky and learn how to find them for yourself. Viewing through telescopes follows.

Fees: \$75 for the series of six presentations. (Single session fee is \$23). Classes are held at the Observatory. Space is available. (707) 833-6979, <http://www.rfo.org> or nightsky@rfo.org

UC BERKELEY ASTROPHYSICS CLUB

Institute for Particle Astrophysics Journal Club Seminars

Apr. 5: “Reaching for the sky with SDSS and LSST”—Zeljko Ivezic (University of Washington)

Despite a several thousand years long history, sky surveying is experiencing a bonanza as detectors, telescopes and computers become ever more powerful. I will discuss how the unprecedentedly accurate and diverse data from the optical Sloan Digital Sky Survey have recently enabled numerous exciting discoveries. I will use three specific examples (asteroids, quasar variability, and mapping of the Milky Way stellar distribution in a 7-dimensional phase space spanned by the position and velocity vectors, and metallicity), to give a preview of what to expect from the upcoming next-generation surveys, such as the Large Synoptic Survey Telescope.

Apr. 27: “Nano Crystal Solar Cells”—Paul Alivisatos (LBNL)

Lectures: 12:00 Noon. Location: Bldg. 50, room 5026, Lawrence Berkeley National Laboratory, 1 Cyclotron Rd., Berkeley. Contact Vitaliy Fadeyev VAFadeyev@lbl.gov. Information: <http://stokstad.lbl.gov/INPA/journalclub.html#aboutjclub>

SRJC PLANETARIUM

**“Sixteen Years of Hubble” ends April 15
“Our Summer Vacation Sky” April 20-May 20**

There are reasons we may favor observing the summer sky: the nights are warm and skies are clear and it is our traditional time for vacation travel. In this show we'll learn the reason for the seasons. Then we'll tour our summer sky and Milky Way with its bright stars, constellations, nebulae, and distant galaxies.

Shows are held at Santa Rosa Campus, Lark Hall, Room 2001, on Fridays and Saturdays at 7:00 PM and 8:30 PM, Sundays at 1:30 PM and 3:00 PM during the Fall and Spring semesters. Admission is \$5 General; \$3 Students and Seniors (60+). Tickets are sold at the door only, beginning 30 minutes before show time. A parking permit is required and is included in the Planetarium admission price. Pick it up at the planetarium when you pay admission. Please arrive early enough to place your permit on your vehicle's dashboard before the show starts. Info: 527-4372, <http://www.santarosa.edu/planetarium/>

SONOMA STATE UNIVERSITY SERIES “WHAT PHYSICISTS DO”

Mondays at 4:00 PM

Darwin Hall Room 103 (Coffee at 3:30 PM)

Apr. 2—The Cosmic Microwave Background Radiation and the Origin of the Universe. Dr. Sarah Church of Stanford University will discuss how measurements of the Cosmic Microwave Background radiation—the relict radiation from the Big Bang—have contributed to our understanding of the origin and evolution of the universe.

Apr. 16—Astromaterial Sciences. Dr. Alexander Tielens of NASA Ames Research Center will discuss the behavior of small dust particles under the extreme conditions in space and the role of this dust in the formation of planets.

Apr. 23—Modeling Formation of Large-Scale Structures in the Universe. Dr. Andrey Kravtsov of the University of Chicago will review current understanding of how the largest structures in the Universe—galaxies, clusters of galaxies, filaments, and voids—have formed and describe supercomputer simulations used to model the formation process.

Apr. 30—Turbulent Fields. Ned Kahn, an artist whose works incorporate fluid dynamics, will present a series of videos and describe his work in visualizing turbulence on the scale of buildings.

Contact <http://phys-astro.sonoma.edu/wpd/>

SSU OBSERVATORY PUBLIC VIEWING

Apr. 27, 9-11 PM: Venus, Moon, Saturn, Bode's Nebula
Observatory located inside the stadium area at the SE corner of campus (E. Cotati Ave. and Petaluma Hill Rd., two miles east of US 101). Follow signs to campus. Parking Lot F is most convenient. Call 707/664-2267 if it appears weather may force cancellation. <http://www.phys-astro.sonoma.edu/observatory/pvn.html>

Events

SCAS STAR PARTY REPORT

They say that March comes in like a lion and goes out like a lamb. Actually, the beginning of March was rather pleasant – until March 7, when the first SCAS star party at El Verano Elementary in Sonoma was scheduled—it rained and the event was canceled.

The March 15 star party at Evergreen Elementary in Rohnert Park, however, was a great success. This star party was held in conjunction with the school's science night. One of the instructors had developed a "passport" that each of the 220 attending students brought around to each of the telescope stations to get signed off of what he/she had observed. Walt Bodley, Loren Cooper, Merlin Combs, Dan Gunyan, Len Nelson, Emilio Ricci, John Whitehouse and Dickson Yeager each brought telescopes and Lynn Anderson had binoculars and a laser pointer to do sky tours of the constellations and point out the planets and brighter stars. Telescope targets for the night were Venus, Saturn, the Orion Nebula, the Pleiades, the Beehive, Mizar, and Polaris.

On the day before the Science Night/Star Party, Len Nelson gave two PowerPoint presentations to over 300 total students.

On Wednesday evening, March 21 about 130 students and parents at Hidden Valley Elementary School in Santa Rosa were treated to views of the three day old crescent moon with earthshine, Saturn, Venus, the Orion nebula, the double cluster in Perseus, and a double star with about a 5" separation found by Melissa Bates. Other SCAS members in attendance include Merlin Combs, Sean Jeane, Al Karbousky, Walt Bodley and Frank Siroky. The Genesis-1 satellite was also seen passing overhead.

On Thursday, the 22, Lynn Anderson gave a PowerPoint presentation about the solar system to 58 third graders at Piner Elementary.



Lynn Anderson and Piner class

On Saturday, March 24, Lynn set up the Sunspotter and his Pronto with an h-alpha filter for solar viewing at the Mark West School's science day activities. He had about 75 individuals look through my telescope at Mark West School—20 adults and maybe 55 kids. There were some nice prominences, one that looked like the Eifel Tower, that was about 15 Earths tall. He also used some of the materials from the Night Sky Network's Shadows and Silhouettes toolkit.

—Lynn Anderson

DAY UNDER THE OAKS MAY 6

Plan to come to the Santa Rosa Junior College's "Day Under the Oaks" which will be held on Sunday, May 6. There are a multitude of activities that day, but the SCAS supports Ed Megill's planetarium operations. While Ed will be doing planetarium shows for the public, outside the SCAS will be showing the public what their nearest star looks like, encouraging them to visit the RFO, describing the benefits of joining the SCAS or getting their children to come to the SCAS's Young Astronomer meetings and things of that nature. If you'd like to help, please contact me, Len Nelson, at lennelsn@comcast.net for details.

Sonoma Skies, April 2007

YOSEMITE, AUGUST 3-4, 2007

Here is what I know about our Yosemite trip: The Park Department will reserve 5 campsites within the same loop of the Bridal Veil campground. They expect no more than 6 campers, nor more than two vehicles in each campsite. They would like to have a minimum of 10 telescopes set up at Glacier Point each night (Friday and Saturday). We currently have 11 telescopes, and 22 people (members and family) on the sign-up sheet. Should more people sign up, it may become necessary to secure more campsites. Additional campsites may be purchased on a first come-first served basis at \$11 per night. SCAS will cover the cost of any necessary extra campsites.

As we get closer to the beginning of August, we will need to get a firm count of how many SPARKS winners, SCAS members and family will be going and maybe assign at least one person to get to Yosemite a day ahead of time to sign-up and pay for any additional campsites should we need to hold them for people arriving on Friday.

The campground is approximately 8 miles from Glacier Point.

However, camping is not the only option. Ranger Balogh informs me that there exist condos and B&Bs inside the park, near the turnoff for the campground and Glacier Point: <http://www.yosemitewest.com/> Another option would be to stay in Yosemite Valley, either at the Yosemite Lodge or the Ahwahnee Hotel. The valley floor is approximately 25 miles (50 minutes) from Glacier Point. Because Yosemite is such a popular destination, I would doubt, however, that any of these rooms are still available. They tend to fill up a whole year in advance, but one might try at <http://www.nationalparkreservations.com/yosemite.htm> This website lists lodging both inside and just outside of the park. One can also just Google "Yosemite Lodge" and find many other links.

I will be out of the state for both the April and May SCAS meetings. I will leave a sign-up sheet with John Whitehouse, or you can email me at astroman@sonic.net to get your name on the master list.

—Lynn Anderson

MORRISON PLANETARIUM DEAN LECTURE SERIES

Apr. 16, 7:30 PM: "From Dust to Dust: the Shrouds of Stellar Birth and Death"—Dr. Peter Tuthill, University of Sydney

The life cycle of most stars is bracketed at both ends by dust. From the spectacular flattened whirlpools feeding stellar births, to the dramatic plumes and shells cast by dying stars, new imaging technologies are delivering our first clear views into the crucibles of creation and destruction among the stars.

Location: Kanbar Hall, Jewish Community Center, 3200 California Street (at Presidio). Parking in the UCSF Laurel Heights campus parking lot is \$1.25/night. Parking in the JCC garage is \$1.25 per half-hour. Tickets \$4 at the door or by email. Contact: 415/321-8000, <http://www.calacademy.org/planetarium/dean.cfm>

Young Astronomers



Hubble Field Trip

**YA April 14 Meeting,
Field Trip to the SRJC Planetarium**

Join us on Saturday, April 14 for the final Young Astronomers meeting of this school year. We'll be attending a public showing of the Santa Rosa Junior College Planetarium presentation "Sixteen Years of Hubble", celebrating the incredible accomplishments of the Hubble Space Telescope. Further information about the Planetarium showtime and special YA pricing will be sent via an email announcement to our YA members and their families. If you think you're not on the list, email Gary Jordan at Sieramolly@aol.com, using the message header "planetarium show", and we'll be sure to notify you with the necessary information. We look forward to seeing you on April 14!

MARCH YA MEETING TAKES IT TO THE XTREME

On March 17 YA members were treated to our last conventional meeting of this school season, presented by YA president Melissa Downey. Her slide show was entitled ("with tongue in cheek," according to the presenter) "Xtreme Astronomy: Supernova, Gamma Ray Bursts, and Black Holes." In this fascinating presentation, Melissa explained how each of these cosmic "xtremisits" is in fact either vitally important to our current existence and well-being, a potential cause of our future extinction, or possibly both. The presentation was illustrated by some very stunning photographs, courtesy of the soon-to-be-late Hubble Space Telescope. As always, the meeting was chock-full of America's young future quantum physicists asking Melissa insightful questions by the dozen. I was impressed as always when she didn't yell "Understudy!" during the persistent grilling. Awesome presentation, Melissa!

—Max Eliaser, Editor

YA Web Link of the Month: 3-D Space Art at Inaka's Space World: Akira Inaka's images are artistic concepts, so don't expect scientific accuracy. However, I think they help us get a real feel for what we usually view as flat objects. And they're fun! I thought the new YAs should know about him.

Go to <http://pro.tok2.com/~aq6a-ink/mac/usbfr.htm>, click on "3-D Arts" at the top, read the instructions, then click on any link at the left to see objects in 3-D. I love the nebulas and star clusters. Just stare at the side-by-side pictures for a while, with your eyes about 18" from the screen (play around with the distance). Let your eyes relax until a 3rd image appears in between, and it's got depth! Relax even more, and you can look around the image. Enjoy!

—Cecelia Yarnell

Meet Melissa Downey (continued from Page 1)

around while looking through the eye piece until something caught my eye. I'd then go over to my star chart and try to figure out what I was seeing. It was a backwards way of finding objects, but I found it immensely entertaining."

It must have kept her interest, because by the time she was twelve she had joined the Board of Directors for the Young Astronomers group. By fifteen, she was President and still retains that office.

Despite being a busy girl, her energy, initiative and intelligence carried her right into college...early...as her curiosity led her in a familiar direction: "My interest in astronomy was what ultimately led to my interest in physics—I eventually wanted to know why everything in the night sky is as it is.

"I am in my second year of the junior college, though I've been taking classes at the JC since I was a sophomore in high school. I left high school a year early, which is why I'm younger than most of my classmates. I probably will transfer in the spring of 2008, which is a year from now. I'm looking into Santa Cruz or UCLA, though Berkeley would be cool and San Francisco State has a great astrophysics program.

"I am a physics major at the moment, though when I transfer I intend on taking most if not all of my upper division electives on astrophysics and cosmology, so that's the area of physics I'm most interested in (though I enjoy particle physics and quantum theory as much as the next geek).

"I hope to do research in an area of astrophysics—studying things like dark energy and dark matter, as well as string theory and the big bang. I figure that I'll almost definitely end up teaching—it's kind of the way our life cycles go as physicists. Very often we get our B.S.'s, go to grad school, and teach while doing research on the side."

Wonderful to hear that, isn't it? And even though she's only 19, her maturity and dedication leave me little doubt that she'll succeed. Could we be seeing another Lynn Cominsky-type developing in our midst?

In any case I personally find it a delight to have made her acquaintance and wish her the best of luck. She's already done well, and knowing there are rare gems like her in our upcoming generation brightens my heart. If you get the chance, you should try to meet her, encourage her, or just say, "Hi!"

—John Whitehouse

YA INFORMATION

Meetings: 7:30 PM the second Friday of each month of the school year, at Apple Blossom School, 700 Water Trough Road, Sebastopol, in the Multipurpose Hall. Open to all Sonoma County students.
Telescope viewing is held in the upper parking lot after the meeting. **Directions:** From Hwy. 116 in Sebastopol, go west onto Bodega Ave. Continue almost two miles to Water Trough Rd. Turn left and go about 1/3 mile to the school, on your right.

YA ELECTED OFFICERS

PRESIDENT: Melissa Downey 632-5661

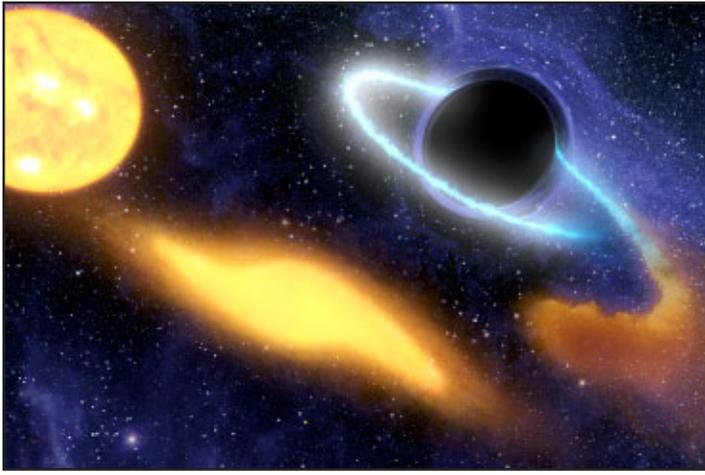
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In this artist's concept, a giant black hole is caught devouring a star that ventured too close.

NASA SpacePlace

Black Hole Breakfast

by Dr. Tony Phillips

We all know that birds eat worms. Every day, millions of birds eat millions of worms. It's going on all around you! But how often have you awakened in the morning, stalked out in the dewy grass, and actually seen a bird having breakfast? Even though we know it happens all the time, a bird gulping a worm is a rare sight.

Just like a black hole gulping a star...

Every day in the Universe, millions of stars fall into millions of black holes. And that's bad news for the stars. Black holes exert terrible tides, and stars that come too close are literally ripped apart as they fall into the gullet of the monster. A long burp of X-rays and ultraviolet radiation signals the meal for all to see.

Yet astronomers rarely catch a black hole in the act. "It's like the problem of the bird and the worm," says astronomer Christopher Martin of Caltech. "You have to be in the right place at the right time, looking in the right direction *and* paying attention."

A great place to look is deep in the cores of galaxies. Most galaxies have massive black holes sitting in their pinwheel centers, with dense swarms of stars all around. An occasional meal is inevitable.

A group of astronomers led by Suvi Gezari of Caltech recently surveyed more than 10,000 galactic cores—and they caught one! In a distant, unnamed elliptical galaxy, a star fell into a central black hole and "burped" a blast of ultraviolet radiation.

"We detected the blast using the Galaxy Evolution Explorer (GALEX), an ultraviolet space telescope," explains Gezari. Her team reported the observation in the December 2006 issue of *The Astrophysical Journal Letters*. "Other telescopes have seen black holes devouring stars before," she adds, "but this is the first time we have been able to watch the process from beginning to end."

The meal began about two years ago. After the initial blast, radiation diminished as the black hole slowly consumed the star. GALEX has monitored the process throughout. Additional data from the Chandra X-ray Observatory, the Canada-France-Hawaii Telescope and the Keck Telescope in Hawaii helped Gezari's team chronicle the event in multiple wavelengths.

Studying the process in its entirety "helps us understand how black holes feed and grow in their host galaxies," notes Martin.

One down, millions to go.

"Now that we know we can observe these events with ultraviolet light," says Gezari, "we've got a new tool for finding more."

For more on this and other findings of GALEX, see www.galex.caltech.edu. For help explaining black holes to kids, visit The Space Place at spaceplace.nasa.gov.

—Article provided by JPL/NASA

Is Gravity Leaking Out of Our Universe?

Gravity is strong, but it's also weak. You may be wondering how it can be both at the same time. Well, consider that gravity is strong enough to move planets, yet so weak that a simple refrigerator magnet can resist its pull. This paradox strikes to the very core of modern physics. Our best theories still don't come close to explaining why gravity is so much weaker than other fundamental forces in physics, such as electromagnetism. Recently a team of scientists proposed an unorthodox solution to this puzzle. Nima Arkani-Hamed and his collaborators hypothesized that gravity is seeping out of our three-dimensional universe and into two incredibly large extra dimensions that are diluting its force. In other words, our universe has a leak.

One year and three papers later, brand-new fields of research have sprouted up around this mind-bending idea. Numerous teams of theoretical physicists are exploring this hypothesis as the key to explaining gravity's "contradictory" behavior. Stay tuned: things are bound to get even stranger as scientists try to prove or disprove Arkani-Hamed's theory.

—Adapted by Max Eliaser from an article by Rena Marie Pacella in *Popular Science*

Huge Amounts of Ice Discovered on Mars?

Recently scientists revealed the discovery of extensive reservoirs of ice beneath the Martian surface. In fact, so much ice has been found in the polar regions that if it were to melt it could cover the planet in an ocean up to 10 meters deep.

Furthermore, it's possible the ice stretches far underground to regions where it is warm, raising the possibility of warm caverns of meltwater, possibly creating conditions suitable for life. However, scientists caution that we may never know until rock and ice samples are returned to Earth by an unmanned probe for analysis.

The underground ice solves one of the deepest and long-standing mysteries about the Red Planet: where did its water go? Mars' surface is covered with tantalizing evidence that in the distant past large amounts of water flowed. There is evidence of dried up rivers, lakes, ancient shorelines, and vast, empty canyons. Now, scientists are confident they know where all this water has gone—it appears to be frozen deep underground.

—Adapted from an article in *BBC News*

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The \$25.00 Annual Membership fee for 2007-2008 is due June 1.

Please complete this form and give it to Walt Bodley with your check, payable to "SCAS," at the next meeting, or mail them to: **SCAS, P.O. Box 183, Santa Rosa, CA 95402**

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Objects from Australia