AU AstroNews

The Newsletter of the Astronomical Unit

January 2004 Sponsored by the Santa Barbara Museum of Natural History

Dr. Alex Filippenko Returns

Special thanks to all the AU members who gave presentations at our last meeting. Jim Williams, Gail Massey, Ken Pierskalla, Tom Bún, Jiri Polivka, and John Boyd worked overtime to entertain and educate us until 10:00 PM. For our January 2 meeting, popular speaker and former AU member Dr. Alex Filippenko will give a presentation on "The Big Bang: Truth or Nonsense?" Alex will review the observational evidence in favor of the "big bang theory" of the Universe — a theory that our Universe began its existence in a hot, compressed state. Currently, other scenarios have serious difficulties explaining various observed properties of the Universe, whereas the big bang theory is generally very successful. However, several aspects of the standard model seem contrived. A modification of the standard big bang theory, known as the "inflationary universe", presents a novel view of the first instant of the Universe's existence, and naturally provides answers to these problems. Alex will conclude by describing current work on the frontiers of the big bang theory, such as repulsive gravity and the idea of multiple universes. Alex is highly qualified to give such a heady presentation — he received his Ph.D. in Astronomy from Caltech in 1984, and joined the UC Berkeley faculty in 1986. His primary areas of research are exploding stars, active galaxies, black holes, and the expansion of the Universe; he has coauthored over 400 publications on these topics. He has won numerous awards for his teaching and research, most recently a Guggenheim Fellowship. A dedicated and enthusiastic instructor, he has won the top teaching awards at UC Berkeley. He has appeared in several TV documentaries, most recently Nova's "Runaway Universe." In 1998 and 2003 he produced respective 40-lecture and 16-lecture video courses on introductory astronomy with The Teaching Company. He coauthored an introductory astronomy textbook in 2000 and 2003 (second edition). **We will meet in Fleischmann Auditorium, which can seat 300 people, so bring all your friends to enjoy this FREE presentation!**

New AU Officers and Appointees

After the usual political mudslinging, backbiting, and manipulation, the 2004 AU officers were elected in a very tense, down-to-the-wire struggle at our last meeting. Pat McPartlin will continue as president, Chuck McPartlin will stay on as vice president, and Bob Brown will remain treasurer. Kathy and Ken Pfeiffer, with assistance from Tim Wittenburg, will jointly serve as secretary. For the appointed positions, Gustavo Litvin will be newsletter editor, Edgar Ocampo will be refreshments coordinator, Paul Winn will remain webmaster, and Chuck McPartlin will be outreach coordinator. Thanks to all who help with the AU!

December Outreach Volunteers

AU outreach volunteers John Boyd, Bob Brown, Art Harris, June Kelley, Nicole Lemaster, Pat & Chuck McPartlin, Edgar Ocampo, Craig Prater, and Tim Wittenburg showed cool stuff on cool nights (and days) to 307 customers since the last report.

For the year 2003 so far (two events yet to go), we had a record attendance of 10,705 people at 92 AU outreach events. That's about one event every four days. Of course, the huge turnout for the Mars Night at Elings Park (3,500) contributed a lot, but it would have still been a pretty impressive year without it. We had about 50 AU members help out for at least one event. **A big *THANK YOU* for your contribution to astronomy!** The following people volunteered at enough events (6 a year) to earn our incentive reward of a free year of membership: Tim Crawford (7), Bill Clausen (8), Warren Bitters (9), Dora Drake (9), John Boyd (10), Jim Williams (10), Joe Doyle (10), Ron Pembleton (12), June Kelley (13), Tim Wittenburg (16), Craig Prater (16), Helen Osenga (20), Art Harris (45), Pat McPartlin (61), Edgar Ocampo (70), and Chuck McPartlin (81). That's up from only 12 freebies last year. Donations received for doing some of the outreaches more than pays for these memberships, so why not pitch in and get on the list if you're not there already?

AU Events for January

Friday, January 2, 7:30 PM – Dr. Alex Filippenko will speak about new results affecting cosmology and our models of the Big Bang. Since we greatly exceeded "standing room only" in Farrand Hall when Dr. Filippenko last spoke, we will dispense with the business and refreshments portions of the monthly meeting, and join the general public in Fleischmann Auditorium for this great **free** lecture. Get there early and get a good seat!

Saturday, January 3, afternoon – Celebrate the landing of the first Mars Exploration Rover at SBMNH. Contact Chuck if you can bring solar viewing equipment. **Our new solar scope will be there at 1:30-3:30 for AU members.**

Saturday, January 10, 5:30 PM – AU Planning Meeting at SBMNH in the classroom next to Krissie's office. Come help plan future AU activities and help in the decision making for *your* club.

Saturday, January 10, 7:00 PM – Monthly Public Star Party at SBMNH. Saturn should be well placed for viewing, plus Comet C/2002 T7 LINEAR and the Crab Nebula.

Friday, January 16, 7:00 PM – Westmont College Monthly Public Observation at Van Kampen Observatory.

Saturday, January 24, afternoon – Second Mars Mania event at SBMNH.

Saturday, January 24, all night – Dark sky observing. Contact Paul Winn (**strg8zn@cox.net**) or Joe Doyle (**jdoyle@mrl.ucsb.edu**) to find out where and when.

Scheduled events are subject to change and additions with little notice! For the latest developments, contact Chuck McPartlin (**macpuzl@west.net**).

Looking Forward to 2004

Although January is a slow month for AU activities, there are plenty of things happening in the first half of the year to get us excited.

January – Saturn starts the month at opposition, and will be a fantastic sight for months to come. Alex Filippenko speaks at our meeting. The two Mars Exploration Rovers land.

February – Jupiter is starting to appear at reasonable hours. Look for the Zodiacal Light at mid-month. Dr. Andrew Lang of Caltech will lecture at SBMNH.

March – Comet T7 LINEAR should be reaching naked-eye visibility by the end of the month. All five naked-eye planets, plus the Moon, will be visible in the evening sky. Jupiter will have a triple moon shadow transit. Annual Messier Marathon! Chris Butler potential AU speaker.

April – Dark Sky Week and Astronomy Day.

May – Venus at greatest brilliancy low in the evening sky. Both comet T7 LINEAR and comet Q4 NEAT should be naked-eye objects. UCSB's Dr. Lubin will speak at our meeting. RTMC at Big Bear!

June – Venus transits the Sun. It's not visible from Santa Barbara, but if you travel east (Nebraska) or north (Alaska) you can catch some of it. AU Picnic!

Ask Dr. Nebulous

If you are like most amateur astronomers, you probably have some nagging unanswered questions about astronomical matters. Dr. Nebulous to the rescue! The AU has retained the noted astronomical authority Dr. O. Ryan Nebulous III to answer any and all questions you may have. Submit your questions to the newsletter editor, and Dr. Nebulous will answer in the next letter, space permitting.

For Sale

* Celestron C8 SCT w/ 50mm UO finder scope, electric focuser. Losmandy dovetail plates, camera plate, and LXD mounting plate. TO solar filter w/hard case. Off-axis mask (metal) w/ Tuthill Solar Skreen.

* Celestron C102 four inch refractor w/ two inch focuser, rings, finderscope, and LXD mounting plate. Very little color. TO solar filter.

* Meade LXD-55 GOTO equatorial mount w/ wooden tripod, polar alignment scope, manuals. Autostar model w/ case and two 10 lb. weights.

* 1.25 in. Celestron diagonal, Celestron 25mm Plossl eyepiece 1.25 in., and other goodies.

$1400.00. Tony 805-685-5387
galvan@dosgatos.com

NASA's Space Place

So Little Time, So Many Galaxies

by Dr. Tony Phillips

Fourteen billion years ago, just after the Big Bang, the universe was an expanding fireball, white hot and nearly uniform. All of space was filled with elementary particles and radiation. "Soupy" is how some cosmologists describe it. Today the universe is completely different. It's still expanding — even accelerating — but there the resemblance ends. The universe we live in now is "lumpy." Great cold voids are sprinkled with glowing galaxies. In galaxies, there are stars. Around stars, there are planets. On one planet, at least, there is life. How we got from there to here is a mystery. Finding out is the goal the Galaxy Evolution Explorer, "GALEX" for short, a small NASA spacecraft launched into Earth orbit April 28, 2003. GALEX carries an ultraviolet (UV) telescope for studying galaxies as far away as 10 billion light-years. "GALEX is a time machine," says astronomer Peter Friedman of Caltech. Because light takes time to travel from place to place, pictures of distant galaxies reveal them as they were in the past. "GALEX is investigating the evolution of galaxies over 80% of the history of our universe." The Hubble Space Telescope can see faraway galaxies, too, but GALEX has an advantage: While Hubble looks in great detail at very small regions of the sky, GALEX is surveying the entire sky, cataloging millions of galaxies during its 2-year mission. GALEX is a UV mission for a reason. Friedman explains: "UV radiation is a telltale sign of star birth." Stars are born when knots of gas condense in interstellar clouds. The ones we see best are the big ones — massive stars that burn hot and emit lots of UV radiation. "These stars are short-lived, so they trace recent star formation." Understanding star formation is crucial to studies of galaxy evolution. When galaxies collide, star formation surges. When galaxies run out of interstellar gas, star formation wanes. In galaxies like the Milky Way, spiral arms are outlined by star-forming clouds. The shapes of galaxies, their history and fate, they're all connected by star formation. Even life hinges on star formation, because stars make heavy elements for planets and organic molecules. "Our measurements of UV radiation will tell us both the rate at which stars are forming in galaxies and the distances of the galaxies," says Friedman. How did we get here? GALEX will show the way. Find out more about GALEX at **www.galex.caltech.edu** For children, visit The Space Place at **spaceplace.nasa.gov/galex_make1.htm** and make a beautiful galactic mobile while learning about some of the different shapes galaxies can take.

AU Information Box

President:	Pat McPartlin	964-8201
	parsnip7@yahoo.com	
Vice President:	Chuck McPartlin	964-8201
	macpuzl@west.net	
Secretary:	K & K Pfeiffer	687-2327
	keagle10@cox.net	
Treasurer:	Bob Brown	683-2138
	BobBrownSB@cox.net	
Outreach:	Chuck McPartlin	964-8201
	macpuzl@west.net	
Webmaster:	Paul Winn	685-5646
	strg8zn@cox.net	
Refreshments:	Edgar Ocampo	964-0914
	eocampo26@earthlink.net	
Newsletter:	Gustavo Litvin	971-6654
	shadess@umail.ucsb.edu	

AU Astronomy Information Pager
(leave a short message) 564-9002

SBMNH Astronomy Programs Coordinator
Krissie Cook 682-4711x316
kcook@sbnature2.org

SBMNH Astronomy Programs Tape
Updated monthly 682-4711x405

AU AstroNews is the monthly publication of the **Astronomical Unit (AU)**, mailed to the general membership. Submit stuff by the 20th of the month! Current annual membership rates are:

Single $15 Family $25

Our address is:

Astronomical Unit
C/O Santa Barbara Museum
of Natural History
2559 Puesta Del Sol Road
Santa Barbara, CA 93105-2998

On the Web: `www.sbau.org`