
RIVER ~ BEND * ASTRONOMY * CLUB

NEWSLETTER * April 7, 2003

> NEXT MEETING

The next club meeting will be:
Astronomy Day!

Saturday
May 10, 2003
The Children's Museum at Edwardsville
9 am (Museum opens at 10 am)

> I OWE, I OWE

Jace missed the meeting because he had to work—after all,
he has payments to make on his Obsession. We understand.

> THE WEEKLY GRIND

Work on Ed's telescope mirror continues. He promises to send
a report soon...

> ALIGNMENTS

Jamie made some nifty laser collimators for Gary and Eric.
The tubes shine a bright red laser light that can help align your
mirror or blind your enemies in a pinch. These are the same
devices used by stealth astronomers to take out neighborhood
street lamps. Similar laser collimators retail for \$60 or more,
but you can own one for the low, low price of...see Jamie for
details. (Ed will need one someday soon--that is, if he doesn't
drop his mirror.)

> SODA BOTTLE ASTRONOMY

Mark Young showed one of his school projects. He turned a plastic soda bottle into a representation of the constellation Taurus, complete with the Hyades star cluster. Mark's next project will be a summertime soda bottle with enough holes poked to show the Hercules cluster.

> BATTLE OF THE TELESCOPES

Europa was transiting Jupiter the evening of April 5. We watched through Gary's refractor on a tracking equatorial mount and looked through Jamie's reflector on a smooth-as-silk Dobsonian mount. Throw in Mark's rainbow of eyepiece filters and we had awesome views despite thin clouds. Once Europa crossed over the planet's face, the bright white of its light was a notable contrast to the darker edge of the planet. This contrast difference near the edge has never struck me before. Of course, I haven't seen many transits.

> TERMINATOR 3

We couldn't help ourselves on a hazy night. We went for the lunar terminator--craters, mountains, and mountains within craters.

> HOPPING LIKE RABBITS

A challenging star hop was performed by Gary and Jamie on the way to Comet RX-14. It looked a tiny blur in Gary's 13".

> OBSERVER'S LOG--COMING EVENTS

Mercury will be well-placed by mid-April in the evening twilight. Looking ahead to next month, be sure and plan to watch the total eclipse of the Moon on the night of Thursday, May 15th.

> ASTRO DAY

Do you still have your nametag from the last Astronomy Day? Let Mark know if you need a new one.

The telescope donated by Hardin Optical is impressive though it has some problems. First a bolt wouldn't go in and then a

small support broke off the base. Mark will patch it up prior to the event. Otherwise the scope looks great. The scope will make a great giveaway--it's probably better than any of us had as kids.

We previewed Mark's very impressive audiovisual presentations. He does great work. Mark should offer these to schools. His shows will have still images, video clips, sound. Just great.

Mark has a list of duties that has been sent to you via a separate e-mail.

Mark has assembled list of contributors to the event. Gary will post these on the web site.

Gary and Mark will visit the museum to inspect the site.

Within a week you will receive the final flyer and information to distribute to your friends, families, neighbors, co-workers, etc.

The Space Telescope Institute plans to release a new image May 10. We may have it on time for the event. If so, we'll play it up for the public.

> UNTIL NEXT TIME

Is there a more comfortable time of year to observe? Not too hot, not too cold, and few bugs. Get out and enjoy it before the summer hazy makes us lazy (and heat-crazy.)

Eric

> JPL/NASA NEWS (Courtesy of Ed)

Frisbees in Space

by Dr. Tony Phillips

When Pete Rossoni was a kid he loved to throw Frisbees. Most kids do-it's pure fun. But in Pete's case it was serious business. He didn't know it, but he was practicing for his future career in space exploration.

Grown-up Pete Rossoni is now an engineer at NASA's Goddard Space Flight Center. His main project there is figuring out how to hurl spacecraft into orbit Frisbee-style.

The spacecraft are small-about the size of birthday cakes. "This wouldn't work with big satellites or heavy space ships like the

shuttle," notes Rossoni. But a cake-sized "nanosatellite" is just right.

Nanosatellites-nanosats for short--are an exciting new idea in space exploration. Ordinary satellites tend to be heavy and expensive to launch. The cost alone is a deterrent to space research. Nanosats, on the other hand, can travel on a budget. For example, a Delta 4 rocket delivering a communications satellite to orbit could also carry a few nanosats piggyback-style with little extra effort or expense.

"Once the nanosats reach space, however, they have to separate from their ride," says Rossoni. "And that's where Frisbee tossing comes in."

Rossoni has designed a device that can fling a nanosat off the back of its host rocket. "It's a lot like throwing a Frisbee," he explains. "The basic mechanics are the same. You need to impart the spin and release it cleanly--all in about a tenth of a second." (The spinning motion is important because it allows the science magnetometer to measure the surrounding field and lets sunlight to play across all of the nanosat's solar panels.)

The ST5 nanosats are designed to study Earth's magnetosphere--a magnetic bubble that surrounds our planet and protects us from the solar wind. But their primary goal, notes Rossoni, is to test the technology of miniature satellites.

"We haven't done anything like this," says Rossoni. Soon, however, the concept will be tested. A trio of nanosats is slated for launch in 2004 on the back of a rocket yet to be determined. The name of the mission, which is managed by JPL's New Millennium Program, is Space Technology 5 (ST5).

Can groups of nanosats maintain formation as they fly through space? Will their internal systems--miniaturized versions of full-sized satellite components--satisfy the demands of both the harsh space environment and critical science measurements? Is Frisbee-tossing as much fun in orbit as it is on Earth?

ST5 will provide the answers. Read about ST5 at at <http://nmp.nasa.gov/st5> Budding young astronomers can learn more at http://spaceplace.nasa.gov/st5/st5_tortillas1.htm

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