



CONSTELLATION

Spring 2005, No. 1

“God is infinite, so His universe must be too. Thus is the excellence of God magnified and the greatness of His kingdom made manifest; He is glorified not in one, but in countless suns; not in a single earth, a single world, but in a thousand thousand, I say in an infinity of worlds.”

-- Giordano Bruno, 1584



CONFERENCE UPDATE

Paul Krupinski
President

Greetings! If I see one more snowflake, I'm going to scream! These cold temperatures...no, change that... These FRIGID temperatures and endless gray skies make me think of only one thing...Springtime! With the Vernal Equinox just around the corner, so is our gathering of friends and colleagues for the 2005 MAPS conference in Philadelphia, PA. Here's an update.

Where and when? This years event is planned for Wednesday, May 25 through Saturday, May 28, 2005 at the Franklin Institute Science Museum's Fels Planetarium. Our conference hotel is the Embassy Suites conveniently location 1.5 blocks from the Franklin Institute. Our conference rate (\$139 per night) is for a double occupancy suite complete with living room, bedroom, bath, and kitchenette. It also includes a full buffet breakfast and evening reception. To take advantage of our conference rate, please make reservations with the hotel before April 15, 2005.

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CONTACT!

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Paul J. Krupinski
Mobile Dome Planetarium
Buffalo, New York
mobiledome1993@earthlink.net

President-Elect

Patty Seaton
H. B. Owens Science Center
Prince George's County Public
Schools, MD
pxts13@yahoo.com

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Peter Connors
Suffolk Community College
Long Island, New York
nyorion@mindspring.com

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Sam Storch
Edwin P. Hubble Planetarium
Brooklyn, New York
liskies@aol.com

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Anthony J. Villano
Fair Lawn Schools Planetarium
Fair Lawn, NJ
anthonyj.villano@verizon.net

Board Members (2004-2006)

Kevin Conod
Dreyfuss Planetarium
Newark, New Jersey
kconod@newarkmuseum.org

Alan Davenport
Jordan Planetarium
Orono, Maine
aland@maine.edu

Lee Ann Hennig
Thomas Jefferson High School
for Science and Technology
Alexandria, Virginia
lahennig@earthlink.net

CONFERENCE UPDATE

(Continued from page 1)

Plan ahead! If you have a chance to arrive early, take advantage of the pre-conference tour of the Rowan University Planetarium in nearby Glassboro, NJ. This event is scheduled for Noon, Wednesday, May 25th and if you'd like more information, please contact Scott Huggins at Spitz, Inc. (shuggings@spitzinc.com).

We are very pleased to have Dr. James Kaler's "Astronomy Update" once again this year! In addition, learn about dark matter and energy with informative revelations by Dr. Michael Turner and don't miss Friday nights banquet with a special Margaret Noble Address, given by one of the giants of the planetarium industry, Fels Planetarium Director Emeritus, H. George Hamilton. But wait, there's more!

You can look forward to four "Themed Sessions" at this year's conference. Included are: "Tawkin' good in Duh Planetarium," presented by Tim McGee, Associate Professor and Director of the Instructional Design and Technology Program, Philadelphia University; "Twisting the Standards," a panel discussion by Ted Williams, Mallon Planetarium; "Design Tips for Instruction and Presentation," by Ruth List and Ted Williams, Instructional Design Masters Program, Philadelphia University; and "Comparing Technologies for Better Understanding," by Darryl Davis, Hayden Planetarium, Boston... Plus much more - see page 3 for a preliminary conference schedule.

Be there! As warmer weather infiltrates our region, your thoughts will drift toward fun-filled Taurus sessions, chats with colleagues, and educational presentations during MAPS '05. I always look forward to seeing old friends, meeting new ones, and as always, sharing a wealth of information that can be passed to eager individuals who visit our domes. Until May, keep your eyes skyward and dream of clear skies.

Paul

Paul Krupinski
President

MAPS 2005 PRELIMINARY SCHEDULE

MAY 25-28 2005, PHILADELPHIA

Wednesday, May 25th Evening Schedule

Time	Event	Location
5-9 p.m.	Registration	Space Command Exhibit
7-10 p.m.	Open House	Space Command and Planetarium
7:00 pm	Opening Remarks	Planetarium
7:15 p.m.	Opening Lecture - Speaker - TBD	Planetarium
8:30 pm	“Starball” Performance	Planetarium
10:00 pm	Reception Continues Theatre Tour, “Sonic Vision”, “Infinity Express” (as desired)	Planetarium and Space Command Exhibit

Thursday, May 26th Morning Schedule

Time	Event	Location
8:00 a.m. - 4:00 p.m.	Registration	Harcourt 1 st fl.
8:45 - 9:00 a.m.	Welcome/Updates	Stearns Auditorium
9:00 - 9:45 a.m.	Theme Session I Dr. Tim McGee, Philadelphia University “Tawkin’ Good in Duh Plantarium”	Planetarium
10 - 10:15 a.m.	Break	Harcourt 1 st fl.
10 a.m. - 5:30 p.m.	Vendor Halls open	Harcourt 1 st fl. and Pepper Hall
10:15 - 11:45 a.m.	Papers/Demos	Musser Theater, 3 rd fl.
Noon - 1:30 p.m.	Lunch Dr. James Kaler, University of Illinois “Update on the Universe”	Pepper Hall 3 rd fl.

Thursday, May 26th Afternoon/Evening Schedule

Time	Event	Location
1:30-2:00 p.m.	Theme Session II “Twisting Standards” and Panel Discussion	Musser Theater
2:15-3:15 p.m.	Papers/Demos	Musser Theater, etc.
3:15-3:30 p.m.	Break	Harcourt 1 st fl.
3:30-5:00 p.m.	Concurrent Workshops - Two 45 min. sessions (more can be added)	
	1. Slide Projector Maintenance – Gene Russo	
	2. Make Your Own Laser Pointer – John French	
	3. Vendor Workshop (Starlab, Bowen, Spitz, Keynote, etc.)	
	4. Hank Bouchelle – “The Universe in a Soupcan”	
5:00 - 5:30 p.m.	Group Photo	Winter Street Exit
6:00 - 8:00 p.m.	Dinner On Your Own	Anywhere!
8:00 – 11:00 p.m.	Vendor Evening	Planetarium
10 p.m. - ????	Taurus Session	Hotel Hospitality Suite

Friday, May 27th Morning Schedule

Time	Event	Location
8:30 a.m.–Noon	Registration	Harcourt 1 st fl.
8:45 – 9:00 a.m.	Updates	Planetarium
9:00 – 9:45 a.m.	Theme Session III	Planetarium
	R. List, T. Williams — “Lookin’ Good In Duh Plantarium”	
9:00 - 4 p.m.	Vendor Halls Open	Harcourt 1 st fl. and Pepper Hall
10:00 - 10:15 a.m.	Break	Harcourt 1 st fl.
11:15 - Noon	Papers/Demos	Musser Theater, etc.
Noon-1:30 p.m.	Lunch	Pepper Hall, 3 rd fl.
	Dr. Michael Turner, National Science Foundation	
	“The Dark Side of the Universe: Beyond Stars and the Starstuff We are Made Of”	

Friday, May 27th Afternoon/Evening Schedule

Time	Event	Location
1:30-2:00 p.m.	Theme Session IV	Musser Theater
	Darryl Davis	
	“Comparing Technologies for Better Understanding”	
2:15 -3:15 p.m.	Papers/Demos	Musser Theater, etc.
3:15 - 3:30 p.m.	Break	Harcourt 1 st fl.
3:30 – 4:30 p.m.	Papers/Demos	Musser Theater, etc.
3:30 p.m.	Vendor Halls Close	Harcourt and Pepper Hall
4:30 - 5:30 p.m.	MAPS Business Meeting	Planetarium
7:00 – 8:00 p.m.	Cash Bar	Pepper Halls
8:00 - 10:00 p.m.	Conference Dinner	Pepper Hall
	2005 Margaret Noble Address	
	H. George Hamilton, Fels Planetarium Director Emeritus	
10 p.m. - ????	Taurus Session	Hotel Hospitality Suite

Saturday, May 28th

Time	Event	Location
9:00 a.m.	Updates	Planetarium
9:15-10:00 a.m.	“Shoot Your Mouth Off”	Planetarium
10:30- 11:30 a.m.	Final Paper Session	Harcourt 1 st fl.
11:30-12:30 p.m.	Conference Close/Door Prizes	Harcourt 1 st fl.

Note: All events will take place at The Franklin Institute Science Museum unless otherwise noted.



DUES

If you have not renewed your membership dues please do so soon. To continue your MAPS membership, send a check for \$25 made out to the Middle Atlantic Planetarium Society and mail to:

Anthony Villano
 MAPS Treasurer
 Fair Lawn High School
 Berdan Ave, Fair Lawn, NJ 07410
 anthonyj.villano@verizon.net

We appreciate your support!



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NEW MEMBERS

The following have joined our merry band of planetarians. Please extend a warm welcome to:

- ◆ Alan Caskey, SEOS, Waterloo, Ontario, Canada
- ◆ Megan Dominguez, Schenectady Museum Planetarium, Schenectady, NY
- ◆ Paul Gitto, Novins Planetarium, Toms River, NJ
- ◆ Mary Hiller, The Newark Museum's Dreyfuss Planetarium, Newark, NJ
- ◆ Beth Lomanto, Queensbury, NY
- ◆ Melissa Dowd, Ecotarium, Worcester, Mass.
- ◆ Michael Muhler, Novins Planetarium, Toms River, NJ
- ◆ Eugene Russo, Novins Planetarium, Toms River, NJ
- ◆ Cyndie Slagle, Colonial Middle School, Plymouth Meeting, PA
- ◆ Denise Vacca, Stars On The Move, Swarthmore, PA
- ◆ Phil Zollner, Novins Planetarium, Toms River, NJ



DEADLINES

The Constellation is published quarterly near the solstices and equinoxes. Please observe a moment of silence for the following deadlines:

Issue	Deadline
June 2005	May 27
September 2005	Aug. 26
December 2005	Nov. 18

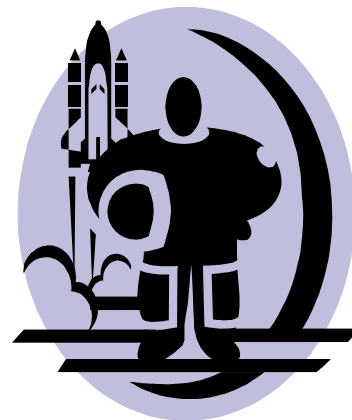
Please send articles, reviews, photos and other items to:

Kevin Conod
Newark Museum
49 Washington Street
Newark, NJ 07102
kconod@newarkmuseum.org



IPS ELECTIONS!

Congrats to MAPS Members Susan Button and Lee Ann Hennig on their elections. Susan is now President Elect and Lee Ann was re-elected Secretary of the International Planetarium Society (IPS). Kudos also to former MAPS member Shawn Laatsch who was reelected Treasurer of IPS.



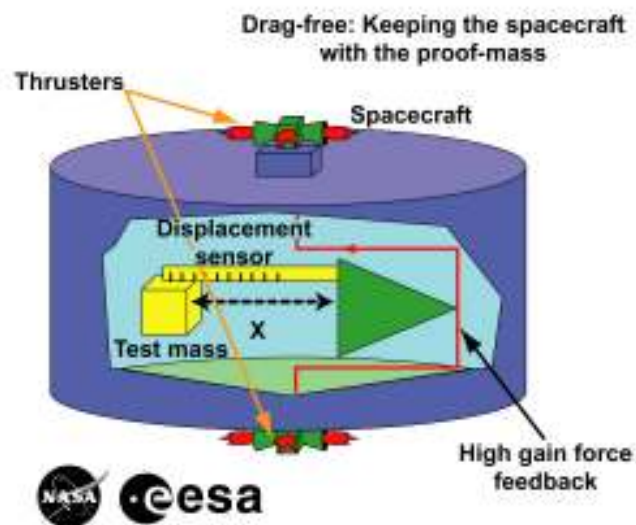
Hunting Gravitational Waves: Space Technology 7

by Patrick L. Barry and Dr. Tony Phillips

Among the mind-blowing implications of Einstein's general theory of relativity, direct verification is still missing for at least one: gravitational waves. When massive objects like black holes move, they ought to create distortions in space-time, and these distortions should spread and propagate as waves--waves in the fabric of space-time itself.

If these waves do exist, they would offer astronomers a penetrating view of events such as the birth of the Universe and the spiraling collisions of giant black holes. The trick is building a gravitational wave detector, and that's not easy.

Ironically, the gravitational waves spawned by these exceedingly violent events are vanishingly feeble. Gravitational waves exert a varying tug on objects, but this tug is so weak that detecting it requires a device of extraordinary sensitivity and a way to shield that device from all other disturbances.



Space Technology 7 will test a technology to be used in detecting gravitational waves in space.

Enter Space Technology 7 (ST-7). This mission, a partnership between NASA's New Millennium Program and the European Space Agency (ESA), will place a satellite into a special orbit around the Sun where the pull of the Earth's and Sun's gravities balance. But even the minute outside forces that remain -- such as pressure from sunlight -- could interfere with a search for gravitational waves.

To make the satellite virtually disturbance-free, ST-7 will test an experimental technology that counteracts outside forces. This system, called the Disturbance Reduction System (DRS), is so exquisitely sensitive that it can maintain the satellite's path within about a nanometer (millionth of a millimeter) of an undisturbed elliptical orbit.

DRS works by letting two small (4 cm) cubes float freely in the belly of the satellite. The satellite itself shields the cubes from outside forces, so the cubes will naturally follow an undisturbed orbit. The satellite can then adjust its own flight path to match that of the cubes using high-precision ion thrusters. Making the masses cube-shaped lets DRS sense deviations in all 6 directions (3 linear, 3 angular).

ST-7 is scheduled to fly in 2008, but it's a test mission; it won't search for gravitational waves. That final goal will be achieved by the NASA/ESA LISA mission (Laser Interferometer Space Antenna), which is expected to launch in 2011. LISA will use the DRS technology tested by ST-7 to create the ultra-stable satellite platforms it needs to successfully detect gravitational waves.

If ST-7 and LISA succeed, they'll confirm Einstein (again) and delight astronomers with a new tool for exploring the Universe.

- ◆ Read more about ST-7 at nmp.jpl.nasa.gov/st7.
- ◆ For kids in a classroom setting, check out the "Dampen that Drift!" article at spaceplace.nasa.gov/en/educators/teachers_page2.shtml.

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

Upcoming Events

- ◆ **April 08** - Hybrid Solar Eclipse (Visible From Pacific Ocean, Central America)
- ◆ **April 11** - 35th Anniversary, Apollo 13 Launch
- ◆ **April 16** - Astronomy Day
- ◆ **April 24** - 15th Anniversary, Hubble Space Telescope Launch (STS-31)
- ◆ **May 5** - Space Day
- ◆ **May 14** - Griffith Observatory's 70th Birthday
- ◆ **May 15** - STS-114 "Return To Flight" Launch (Space Shuttle Discovery)

Source: JPL Space Calendar

In This Issue...

2005 Conference Update

Preliminary Conference Schedule

Hunting Gravity



Constellation
c/o Kevin Conod
The Newark Museum's
Dreyfuss Planetarium
49 Washington Street
Newark, NJ 07102