



**PISGAH ASTRONOMICAL RESEARCH INSTITUTE**

Volume 4 Number 4 Winter 2004

## Public Invited to “An Evening at PARI”

PARI has launched a new outreach program called “An Evening at PARI” that will allow the public to visit our campus, hear lectures on astronomy, learn about PARI and our mission and, weather permitting, view celestial objects through a PARI telescope.



The Evenings at PARI began this fall and are scheduled the third Thursday of the month. Reservations are required. Complete information and registration instructions can be found at <http://campus.pari.edu/blake/parinights/parinights.html>.

Topics this fall have included The Formation of Stars, The Lunar Eclipse, The Case for Water on Mars and The Star of Bethlehem. In addition to the astronomy lecture, a typical evening includes a short tour of the PARI radio telescopes and a demonstration of the 4.6 meter “Smiley” radio telescope. If the skies are clear, an optical telescope will be available for about an hour of observing.

Because of staff size limitations, PARI is not generally open to the public. One of our goals is to obtain funding that will allow us to add facilities and staff to accommodate visitors and expand our public educational programs. The Evening at PARI is a step in this direction and we welcome your input and participation.

### PARI Calendar

- December 11 2004:** PARI Scientific Advisory Committee Meeting
- December 13 2004:** PARI at Chimney Rock for Geminid Meteor Shower
- December 16 2004:** Public Evening at PARI “The Star of Bethlehem”
- January 9-13 2005:** PARI Astronomers presenting six papers at the 205th Meeting of the American Astronomical Society
- January 14-16 2005:** Cape Fear Academy High School weekend workshop at PARI
- January 20 2005:** Public Evening at PARI
- February 17 2005:** Public Evening at PARI
- February 19 2005:** PARI Participating in Science Olympiad at UNC-Asheville
- March 17 2005:** Public Evening at PARI
- March 19 2005:** SGRA Workshop
- April 23 2005:** SGRA Workshop

### UNC-TV Reminder

*In our last newsletter we announced that PARI will be featured on a new UNC-TV program, “Our State.” The segment on PARI is scheduled to air Wednesday, December 1, at 8:00 p.m., on stations throughout the statewide UNC-TV system. Each station will also repeat the program at various times during the month, so if you miss it Dec. 1, just check your local PBS station listings for a repeat showing.*

# PARI Staff Continues to Grow

PARI's staff recently expanded, with the addition of Dr. David Clavier as vice president of administration and development. Dave began his duties at PARI in October and will play a key role in our plans to significantly expand our communications and fund-raising efforts.

Dave earned his Ph.D. in mass communications at Florida State University and has taught at Florida State, Auburn University and the University of Georgia. He also has extensive marketing credentials in the private sector,



*Dave Clavier and Don Cline tour PARI*

including his most recent position as senior vice president of corporate marketing at Reynolds, Smith and Hills, Inc. (RS&H), a 600-person architectural engineering planning and environmental services firm headquartered in Jacksonville, Florida. Prior to joining RS&H he was president and CEO of Clavier Consulting Group, a Jacksonville communications consulting firm he owned and managed for seven years. Dave was also a principal with Husk Jennings advertising agency and served as AT&T division manager of public relations for the state of Florida.

Dave has deep roots in Western North Carolina and is in the process of moving to Brevard with his wife, Darla. Their son, John, is a sophomore at the North Carolina School of Arts in Winston-Salem. Dave's parents, Gene and Betty Clavier, have been Brevard residents for 30 years. His mother is the owner/broker of Carolina Realty in Brevard.

## New Telescope to Study Polaris

PARI has recently completed installation of the North Field telescope, an instrument designed for autonomous stellar observations. When sunset occurs the weather is checked. If conditions are right, the door to the telescope opens and data collection begins until sunrise or the weather is no longer suitable.

The telescope will collect data on the star Polaris, the pole star, which is a pulsating variable that is ceasing its variability. Few stars have been seen to go through this stage of evolution, so the study will provide valuable data for understanding how these stars evolve. Deeper images will allow searches for variable stars near Polaris and look for enigmatic explosions called gamma ray bursts.

You can view images from the North Field telescope at the PARI web site. The direct link is

[http://www.pari.edu/p07\\_telescope\\_display01.asp?scope=13](http://www.pari.edu/p07_telescope_display01.asp?scope=13).

The North Field telescope was installed and configured by PARI astronomers Michael Castelaz and Mel Blake, and brings to six the number of telescopes currently on our optical ridge.



*PARI Astronomers Michael Castelaz and Mel Blake with the North Field Telescope*

# January's Predawn Dance of the Planets

astronomer's corner

Dr. Bob Hayward, Astronomer/Educator

Have you ever seen Venus in the sky? You probably have even if you didn't know what it was. Venus is the brightest planet in the sky and is often called either the "Morning star" or the "Evening star" depending on which side of the Sun it appears on as viewed from the Earth. But Venus is only the brightest of the visible planets. There are four others – Mercury, Mars, Jupiter and Saturn – that can be seen without a telescope. Because the ancients knew of them, we label these five planets variously the classical, visible or naked-eye planets.

Now, since each of these has its individual orbit to follow around the Sun, the classical planets appear in various parts of the zodiac and at differing times of the night and day. (Yes, you can see Venus with your naked eye in the daytime sky if you can locate it.) However, it is a relatively rare event to be able to walk out and find all five in the sky at the same time. But, in January 2005 this will be possible. Read on!

Let's start at the very first of the year. In the predawn hours of January 1 as you make your way home from whatever New Year's Eve party you went to, look low in the west. There in the edge of the constellation of Cancer the crab to the lower right of a waning gibbous moon and to the left of the twin stars Castor and Pollux, you will find the most distant of the visible planets – Saturn. At the same time high in the south to the left of the Moon are two bright objects. The brighter one, the one on the right, is the planet Jupiter while the other is Spica the brightest star in Virgo. Across the sky low in the southeast shines the queen of the sky, the brilliant Venus. It's been in the morning sky for some months now but is getting lower as the winter progresses. Just above Venus, but much fainter, is the planet Mercury. Then above and to the right of this pair look for two reddish colored objects. The lower one is the star Antares the heart of the scorpion. And above Antares is its planetary twin the red planet Mars.

So it's cloudy on the morning of January 1. Or maybe you just aren't seeing very well. Have you missed the show? Definitely not! These five planets, each in its own way, are dancing with each other and with the Moon over the next couple of weeks. Step ahead a week to the morning of January 8. Saturn is still low in the west before dawn. Jupiter is still to the right of Spica but just a tiny bit closer to the star. In the southeast Venus and Mercury have moved just a little closer together and Mars has moved downward decidedly closer to Antares. But now the waning crescent moon lies in the middle of this group – above and to the right of Venus and Mercury and below and to the left of Mars and Antares.

Another week passes and it is the morning of January 15. Saturn, still low in the west, has hardly moved. (Hey, it takes  $29\frac{1}{2}$  years to go around the Sun once!) Jupiter is again a tiny bit closer to Spica a little west of south. Now Mercury has passed by Venus and lies just below the bright planet. The two make a close pair. Mars has moved downward and is level with Antares as it passes this star. And the Moon – gone! Well, not exactly. The Moon has moved into the evening skies after sunset and now is no longer seen before dawn.

As you watch this dance of the planets, imagine what the ancients thought. In many cultures the planets were the homes of the gods. Can you imagine what they thought when they saw the planets dancing in the sky? Successful observing to you!

# PARI needs your help!

PARI is a public, not-for-profit foundation. Financially, we are dependent upon contributions and grants for our educational and research programs, and for the many operating expenses associated with maintaining the campus and our facilities.

If you have recently contributed, we thank you for your support. If not, please help support PARI and our mission with a contribution. PARI is a 501 c(3) organization and all donations are tax deductible to the full amount allowed by law.

A financial contribution automatically makes you a member of Friends of PARI. Membership levels and benefits include:

<b>Student Member</b>	\$10.	Member level for full time students. E-mail copy of the PARI Newsletter.
<b>Associate Member</b>	\$50.	Receive Quarterly Issues of the PARI Newsletter.
<b>Member</b>	\$100.	All of the above plus a PARI key chain with light.
<b>Sponsor</b>	\$200.	All of the above plus a PARI coffee mug. Use of the PARI Astronomy Library.
<b>Supporter</b>	\$500.	All of the above plus a PARI hat and a PARI lapel pin.
<b>Mentor</b>	\$1,000.	All of the above plus an invitation to one of the quarterly night astronomy sessions at PARI.
<b>Advisor</b>	\$2,000.	All of the above plus use of the Internet controlled remote optical imaging Space Observatory.
<b>Benefactor</b>	\$5,000.	All of the above plus "Guest Astronomer Program." Spend a day working with the astronomy staff, learning how to operate a radio telescope.

All donors at the level of \$5,000 and above will receive recognition on a plaque at PARI.

Please provide the requested information below and mail it with your contribution to:

**Pisgah Astronomical Research Institute**  
**One PARI Drive**  
**Rosman, North Carolina 28772**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City State Zip \_\_\_\_\_

email address \_\_\_\_\_

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The Pisgah Astronomical Research Institute (PARI) is a not-for-profit public foundation established in 1998. Located in the Pisgah National Forest near Brevard, NC, the PARI campus is an optimal "dark sky" location for astronomy and was selected in 1962 by NASA as the east coast tracking station for manned space flights. Today, the 200 acre campus houses radio telescopes, optical telescopes, 30 buildings, a full-time staff and all the infrastructure necessary to support astronomy education and research. PARI offers educational programs at all levels, from K-12 through post-graduate research, and is affiliated with the 16-campus University of North Carolina system through PARSEC, a UNC Center hosted at PARI. For more information about PARI and its programs visit:

[www.pari.edu](http://www.pari.edu)

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