



# *After Dark*

## MSU's Astronomy Newsletter

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### *Upcoming Astronomical Horizons Lectures*

All lectures are free to the public and given at Abrams Planetarium, starting at 7:30pm

#### **FEB 23: Through a Lens Darkly: Testing Dark Matter with the Hubble Space Telescope**

**Professor Megan Donahue**

Dark matter, matter that seems to have a gravitational pull, but which we cannot see directly, remains one of the greatest puzzles in our understanding of the universe. Gravitational lensing, the bending of light by mass, is one of the ways in which we can detect this mysterious matter. I will describe an on-going, multi-year program by MSU astronomers, collaborating with astronomers from the Space Telescope Science Institute and institutions around the world, to provide the world's best measurements of dark matter in a sample of 25 extremely massive clusters of galaxies. We use the Hubble Space Telescope to provide full-color images of the gravitational lensing of galaxies behind these clusters. We use other telescopes, including the Chandra X-ray Observatory and radio telescopes, to provide independent measurements of the dark matter. With these observations, we will test theoretical predictions about where and how dark matter and normal matter pile up in the universe.



Arcs in this image of a galaxy cluster are gravitationally lensed images of still more distant galaxies.

## **March 22: GLOBULAR CLUSTERS, THE SYSTEMS THAT KEEP EXPOSING THE SECRETS OF SPACE**

**Dr. Mark Peacock**

Globular clusters are balls of thousands to millions of stars in orbit around our galaxy (and many others). Not only are they among the most beautiful objects in the night's sky, they are extremely useful to astronomers. In this talk, we'll tour these systems and discuss their current and historical roles in understanding stars, galaxies, and our place in the Universe. We'll also delve into the centers of these clusters to find some of the most extreme objects in our galaxy, including colliding and interacting stars, black holes, and neutron stars.

## **April 19: ASTRONOMY AND 2012, SHOULD I STILL PLAN FOR RETIREMENT?**

**Dr. Charles Kuehn**

Television programs, movies, and blogs have recently hyped yet another doomsday scare: that a catastrophic event will engulf the world in 2012. Some of these doomsday predictions center on a so-called ending of the Mayan calendar on Dec. 21, 2012. But what does science have to say about these predictions and how worried do we really need to be about these end of the world forecasts?

## **CAMPUS OBSERVATORY PUBLIC VIEWING NIGHTS**

The MSU Campus Observatory opens its doors to the public two nights per month, *weather permitting*. This is your chance to look at planets, star clusters, and other beautiful celestial objects using the 24-inch telescope and also a number of smaller telescopes. Knowledgeable professional and amateur astronomers will be on hand. But come only if the sky is clear, and dress warmly. For a map, see [www.pa.msu.edu/astro/observ](http://www.pa.msu.edu/astro/observ).

### **MSU Campus Observatory Open House**

Public observing nights for the spring semester will resume at the end of March. Weather permitting the next open houses will occur from 9-11pm on Friday and Saturday nights, March 30 and 31.

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