



Focal Point



October, 2014

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Membership Meeting on October 17th



Laleh Sagedhian

The next Membership Meeting will be on **October 17th at 8:00 PM** at the MAS Observatory. The speaker of the night will be Dr. Laleh Sagedhian, a Postdoctoral Research Associate at the Center for Gravitation, Cosmology, and Astrophysics of the Physics Department, UWM. Laleh will talk about her research area on dark matter.

The Mystery of Dark Matter

The mysterious Dark Matter outweighs ordinary matter - all of the atoms that make up stars, galaxies and clouds in the cosmos - by a factor of four to one. Dark matter neither emits nor absorbs light or other forms of

electromagnetic energy. Although we already know a lot, the dark matter is still a mystery.

We will discuss the evidence for the universe's great mystery and what it could be.

MAS Fundraising



Dan Yanko is selling the 2015 Astronomy Calendar as a fundraising for the MAS. This is one of the best among astronomy calendars. The Calendar, that retail for \$12.95 is sold for only \$10.00 for MAS Members. This is ideal as a Christmas gift!

The order will be placed soon, so contact Dan at danheleny@aol.com or call him at [262-255-3482](tel:262-255-3482) if you would like to buy.

Observatory Report

We have made great progress regarding the addition of the two telescopes going into the Zit Observatory. The building work is nearly complete. The scopes are on their pedestals and we are happy to report that the clearance is a solid 4 inch.

Paul Borchardt has made progress on the Halbach scope (aka A scope) by replacing the focuser with a motorized one. It was also collimated.

Website update: we did get paperwork from the state for the approval process on our non-profit status for PayPal so we can accept donations through the website. Web traffic has risen to about 300 visitors a day.

Respectfully Submitted,
Gene Hanson, Observatory Director

Membership Report

We are well into the renewal process for the 2014-15 calendar year. As the renewals seemed to be coming slow from the notice in the Newsletter, we sent out individual emails to those who had not responded yet and expanded that list to anyone who had lapsed in 2013. For our next step we plan on sending out a mailing hoping that might help further. So far we have received 27 membership renewals.

We are happy to welcome 5 new members who joined the MAS in September:

Vinod Meesala and family, Brajendra Gupta and family, David L. De Bruin, Jeffrey Kraehnke, and David Barnstable.

Respectfully Submitted,
Tamas Kriska, Committee Chair

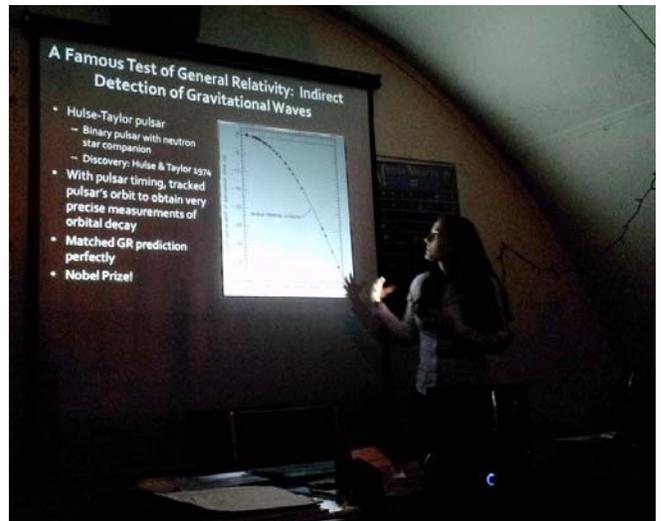
Meeting Minutes

Held on September 19th at the MAS Observatory, New Berlin. The meeting was called to order at 8:02 PM by President, Scott Jamieson.

Minutes and **Reports** will be submitted ahead the meetings electronically, and will not be read.

Old Business - Scott gave an update on the Z project. Since the Right Ascension box is unable to handle the huge weight of the scope, Z scope will be put back to the original visual state. The camera and filters we bought will be set out to the new 14" telescope, which is on an extremely high quality mount. This way we have the imaging capability we were looking for, just not in the same observatory building.

The Program Brian Ganiere introduced the speaker of the night, Megan DeCesar Postdoctoral Research Associate from the Center of Gravitation, Cosmology and Astrophysics of the Department of Physics UWM. Megan gave a presentation entitled "Pulsars: The Universal Timekeepers".



The meeting was adjourned at 9:08 PM.

Respectfully Submitted,
Agnes Keszler, Secretary

Treasurer's Report

\$2,033.69	<i>Starting Balance as of 8/8/2014</i>
	<u>Expenditures</u>
\$75.42	WE Energies
\$1,888.45	Oceanside Photo - 8" Celestron telescope
\$17.80	Paypal Fees
75.00	JMI Focuser for A-scope
-\$2,056.67	TOTAL Expenditures
	<u>Revenue</u>
\$2,000.00	Transfer from Investco
\$135.00	Cash Donation
\$2,112.00	Membership Dues
\$154.46	Paypal Account
\$4,401.46	TOTAL Revenue
\$4,378.48	<i>Ending Balance as of 9/17/2014</i>

Respectfully Submitted: Dennis Roscoe, Treasurer

The Last Public Night

The weather disaster continued on October 3rd. We had the third cloudy public night in a row. Many MAS members came out to the hill, and we could not hide our disappointment. What a bad luck.

But shortly after 7 PM the first visitor arrived. And the second one. And the third one. Our enthusiastic guests just kept coming, they did not let themselves discourage by the weather. By the time the presentations started, we had a good 30 people in the quonset, not counting the members.

First Gene Hanson gave a flavor for the club showing a power point about the past and present of the MAS, then Brian Ganiere gave a talk about the Moon. Finally everybody went over to the Z dome to enjoy a tour given by Scott Jamieson.



Astronomical Events

Lunar Eclipse on October 8th

Many devoted members stayed awake very late on October 7th, or got up early on October 8th to enjoy the total lunar eclipse which started at 4:15 AM and still lasted when the moon set at 6:16.



Paul Borchardt mounted his DSLR camera on A scope and used a 800 mm F8 telephoto lens.



Paul Borchardt also took pictures with the camera on a tripod, and using a 200 mm telephoto (left), while Paul Smith photographed the eclipse from Bay View, near the lake (right).

Partial Solar Eclipse on October 23th

A partial solar eclipse can be observed in the afternoon of October 23th. You will need a very good western horizon to see most of the event. The eclipse starts at 16:33:05 (CDT) with the sun just 13 degrees above the horizon. Mid-eclipse is at 17:40:56 with the sun just 2 degrees above the horizon. 57% coverage. Sunset is at 17:56. Stay tuned.

In the Astronomical News

'Smoking Gun' for Stellar Explosion Mystery

Some stars end their lives in cataclysmic explosions: spectacular supernovae, which briefly become the most brilliant objects in their home galaxies, visible from millions or even billions of light-years away. Supernovae are of several distinct types, as is evident from their spectra - the distribution of colors of the supernova light. One major category is core-collapse supernovae. The most mysterious of these are known as Type IIb. Theory and computational simulations suggested that some may be stars that have entered the Wolf-Rayet phase of their final existence.

In Wolf-Rayet stars—behemoths over 20 times as massive as our Sun and at least five times as hot—nuclear reactions have produced carbon, oxygen, and heavier chemical elements. Some of these elements are mixed to the surface and help produce powerful winds that shed part of the star's outer layers into space. After the Wolf-Rayet star's core turns to iron, evidence suggested that protons and electrons merge and the core collapses, releasing a flood of energy and neutrinos, and powering a shock wave that explodes the star. But until recently, no definitive observations confirmed that hypothesis, in part because dense clouds of stellar winds often obscure Wolf-Rayet stars. The definitive answer came on May 3, 2013, illuminated in a brilliant flash of ultraviolet light from a supernova dubbed SN 2013cu, in a galaxy 360 million light-years away in the constellation Boötes.

The iPTF is a computationally beefier upgrade to the original Palomar Transient Factory (PTF) launched in 2008, which can catch supernovae within hours after their initial light reaches Earth. Atop Palomar Mountain, the 1.2-meter Samuel Oschin Telescope acts as an automated wide-field survey camera, snapping exposures of 7 square degrees across the night sky. Every minute, its

sensitive 96-megapixel CCD camera records stars and galaxies down to 21st magnitude, 2.5 million times fainter than the human eye can see.

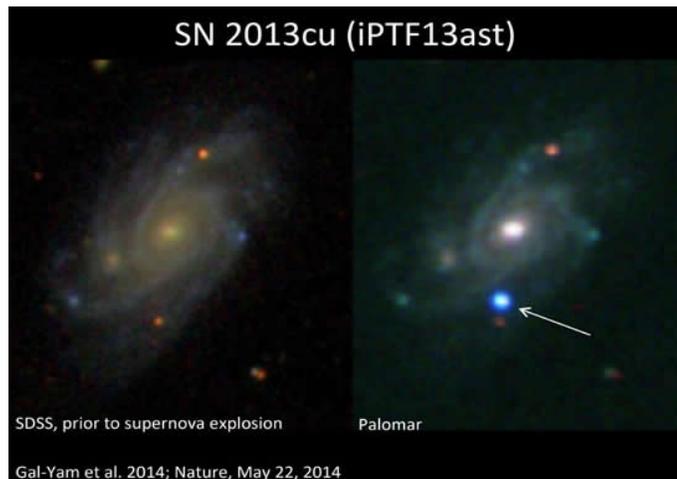
Each digital image is instantly beamed to the San Diego Supercomputing Center at UC San Diego, and then to the National Energy Research Scientific Computing Center (NERSC) at Lawrence Berkeley National Laboratory (LBNL). Within minutes, supercomputers subtract reference images from each incoming image, comparing new sources of light to all public databases. Every night, on average, iPTF discovers one to two new supernovae.

Less than 30 minutes after images are taken, coordinates of suspected supernovae are sent to astronomers worldwide. The iPTF alert triggered researchers at the Weizmann Institute of Science to capture a spectrum with the 10-m Keck-I telescope only 10 hours after SN 2013cu was first imaged, just 15.5 hours after light from the explosion reached Earth.

Shortly after the star exploded, an ultraviolet flash from the shock wave heated and lit up the wind. The UV flash was brilliant enough for the iPTF team to

analyze the wind's chemical makeup—which revealed the composition of the star before it exploded, confirming it to be similar to that of a Wolf-Rayet star. For the first time, we can directly point to an observation and say that this type of Wolf-Rayet star leads to this kind of Type IIb supernova.

—Trudy E. Bell, M.A.



While observing a galaxy known as UGC 9379 (left; image from the Sloan Digital Sky Survey) about 360 million light-years from Earth, the iPTF team used a 1.2-meter robotic telescope at Palomar Observatory to discover a new supernova, SN 2013cu (right, marked with an arrow; image from a 1.5-meter robotic telescope, also at Palomar).

The University of California High-Performance AstroComputing Center (UC-HIPACC), based at the University of California, Santa Cruz, is a consortium of nine University of California campuses and three Department of Energy laboratories (Lawrence Berkeley Laboratory, Lawrence Livermore Laboratory, and Los Alamos National Laboratory). UC-HIPACC fosters collaborations among researchers at the various sites by sponsoring an annual advanced International Summer School on AstroComputing (ISSAC), offering travel and other grants, co-sponsoring conferences, and drawing attention to the world-class resources for computational astronomy within the University of California system. More information appears at <http://hipacc.ucsc.edu>.

Adopt a Telescope Program - Signup Sheet

	Adoptee	Scope	Location
1	Sue Timlin	18" F/4.5 Obsession	Wiesen Observatory
2	Neil Simmons	12.5" F/7.4 Buckstaff	B Dome
3	Russell Chabot	12.5" F/9 Halbach	A Dome (Armfield)
4	Dan Yanko	18" F/4.5 Obsession (Kyle Baron)	Albrecht Observatory
5	Tamas Kriska	25" F/3.4 Zemlock	Z Dome
6	Henry Gerner	12" LX 200	Tangney Observatory
7	Vacant	8"/14" Celestrons	Ray Zit Observatory
8	Vacant	10" LX 200	Jim Toeller Observatory

At Your Service

Officers / Staff

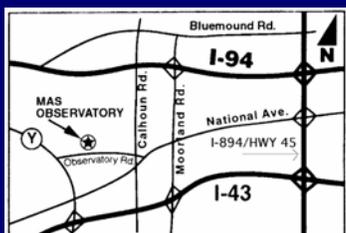
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Asst. Observatory Director	Jill Roberts	414-587-9422
Newsletter Editor	Tamas Kriska	414-581-3623
Webmaster	Robert Burgess	920-559-7472

Board of Directors

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John Hammetter	414-519-1958
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Lee Keith	414-425-2331
Agnes Keszler	414-581-7031
Tamas Kriska	414-581-3623
Dennis Roscoe	608-206-0909
Michael Smiley	262-825-3981
Sue Timlin	414-460-4886
Dan Yanko	262-255-3482

October/November Key Holders

10/18	Paul Borchardt	262-781-0169
10/25	Gene Hanson	262-354-0138
11/1	Scott Jamieson	262-592-3049
11/8	Jill Roberts	414-587-9422
11/15	Tim Hoff	262-662-2212
11/22	Lee Keith	414-425-2331



MAS Observatory

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New Berlin, WI

www.milwaukeeastro.org