

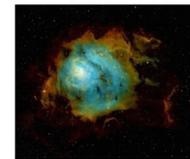


February, 2015

## February 21<sup>st</sup>: Membership Meeting at Charles Z. Horowitz Planetarium

The upcoming General Membership Meeting will be held on February 21<sup>st</sup>, at 8:00 PM at the Charles Z. Horowitz Planetarium of the Retzer Nature Center (see the map).

**Dennis Roscoe** will present a talk entitled "Star Dust, the Foundation of our Existence". The atoms that make up our body are billions of years old. Over 90% of them come from the death of stars. This presentation will trace the origins of the atoms in your body and how they were forged in the universe. The journey spans from three minutes after the Big Bang to the supernova explosions of massive stars. "We are all star stuff" (Carl Sagan).



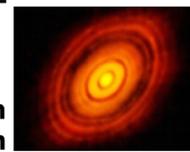
Nebula  
Star Nursery

Star Death



Star Birth

Solar System  
Birth

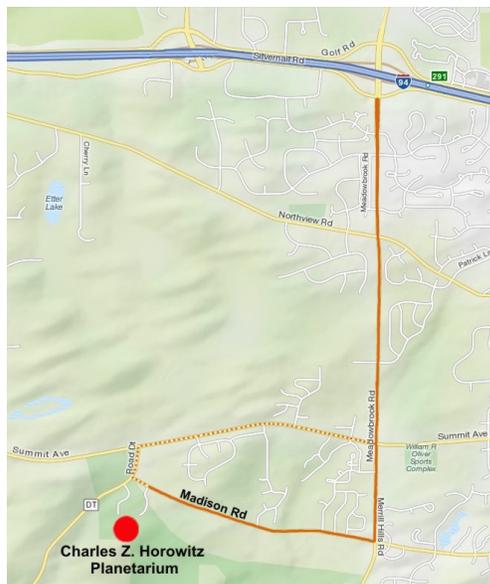


The General Meeting will be preceded by a Board Meeting from 7:00 PM, which is open for anybody who is interested.

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## The MAS Winter Schedule



The MAS meetings from January through April will be held at the Charles Z. Horowitz Planetarium at the Retzer Nature Center, S14 W28167 Madison St in Waukesha. Starting from May the meetings will return to the MAS Observatory in New Berlin.

Directions: take I-94 West to Pewaukee/Waukesha (exit 291) and go south on Meadowbrook Rd. After about 2.2 miles turn right onto Madison Rd. Drive about 1.2 miles. The driveway to the planetarium will be on the left side of the road (see solid line on the map). Alternatively, after 1.9 miles on the Meadowbrook Rd. turn right onto Hwy. 18 (Summit Ave), go 1.2 miles, turn left onto Hwy DT and follow the signs to Retzer Nature Center (see dotted line).

## Observatory Report

The furnace in the Quonset fired up immediately. The HVAC technician diagnosed that it was a frozen line and the valve was stuck in the closed position. In a warmer weather the line had cleared itself. He recommends we keep it open all the time, even when it's running because the furnace does not get that much use. We have updated the operating procedure which is posted on the door. In addition, we installed a carbon monoxide detector.

Scott Jamieson has done a variety of work since my last report. He got the B Dome motor rebuilt and reinstalled, worked on the 12" LX-200 in the Tangney Observatory, and a variety of tasks to get the G-Scope remotely operational from the Z Dome. See details in January Focal Point.

Paul Borchardt has gained access to a plow to clean our observatory parking lot for the rest of the winter! This means we only need our snow blower for the paths between the observatories.

Visits to our [website](#) continue to grow over time now averaging 230 unique visits per day. We received a couple of complaints that the embedded links were not obvious enough. We discovered that it makes a great deal of difference what monitor you're using and their settings. The brown often ends up looking too black. We changed the color to make it more reddish and this seems to help a great deal.

As was reported in the December Focal Point, we successfully placed on the website all the old Focal Points and Double Domes going back to 1968. They are now searchable, but the results very much depend on the quality of the PDF scans.

Respectfully Submitted,

Gene Hanson, Observatory Director

## Membership Report

Four new MAS Memberships of Peter Muller, Steve Paulch, Leonardo Fernandino and Michael Haley was approved by the Board.

Current Membership number is at 78.

Respectfully Submitted,  
Tamas Kriska, Committee Chair

## Meeting Minutes

**Held** on January 16<sup>th</sup> at the Charles Z. Horwitz Planetarium, Waukesha. The meeting was called to order at 8:02 PM by President, Scott Jamieson.

Since we do not have Meeting in December **Minutes** were not read.

**Old Business** - G-scope has communication issues. The replaced B-dome slit motor is working properly.

**New Business** - The Board discussed some future investments to increase the Club's capabilities. The 2015 Open House schedule proposal by Sue Timlin was also discussed. The topics will be determined on the next Board Meeting.

**The Program** David DeRemer Planetary Director gave a brief tour of the sky and then presented the Planetarium show entitled Cosmic Colors.

The meeting was adjourned at 8:50 PM.

Respectfully Submitted,  
Agnes Keszler, Secretary

## Treasurer's Report

\$3,942.79	<b>Starting Balance as of 11/19/2014</b>
	<b>Expenditures</b>
\$310.00	WE Energies
\$754.23	Equipment
\$9.55	Paypal Fees
\$7.50	Water/Sewer
\$100.00	Schmeling's Landscape
\$46.00	Macali Refund
\$366.00	Magazine Subscriptions
\$466.75	Foremost Insurance
-\$1,694.03	<b>TOTAL Expenditures</b>
	<b>Revenue</b>
\$179.00	Donations-Lange, Schlueter
\$503.00	Membership Dues
\$0.00	Paypal Account
\$682.00	<b>TOTAL Revenue</b>
<b>\$2,221.17</b>	<b>Ending Balance as of 1/15/2015</b>

Respectfully Submitted,  
Dennis Roscoe, Treasurer

## In the Astronomical News

### Wild Weather on WASP-43b

You thought finding planets around stars hundreds of light-years away was spectacular, exceeded only by determining their sizes and orbits. Well, in the ongoing exoplanet version of the game “can you top this?” comes another phenomenal feat: discerning the weather on a distant exoplanet—including sensing water vapor in its atmosphere.

The planet is WASP-43b, orbiting a deep orange dwarf (at spectral class K7, as orange as a star can be without being a red dwarf) a tenth the size of the Sun, and with a cooler surface temperature (maybe 7,500°F compared to 10,000° F for the Sun, a G2 star). A whopping 260 light-years away in the constellation Sextans, you’d need an 8-inch telescope under dark skies even to pick out the host star (magnitude 12.4).

Like just about every other exoplanet discovered so far, WASP-43b is no vacation spot. The planet is the size of Jupiter but twice as massive. Indeed, the planet is slightly more than a tenth the diameter of the star itself. Worse, it is in a nearly circular orbit less than a million miles from its star’s surface—closer than four times the distance of the Moon from Earth: so close that it orbits the star in a year of just 19.5 hours. Its day is also 19.5 hours long because the planet’s rotation is tidally locked: one side always faces the star and suffers permanent day while the other side has permanent night.

What does all that mean for its weather? To find out, the team secured several precious days of observing time on the Hubble Space Telescope to obtain measurements of the planet over three nearly consecutive orbits with Wide Field Camera 3. They also acquired data from three primary transits and two secondary eclipses, observing in the thermal near infrared. They supplemented the HST observations with observations from NASA’s Spitzer infrared space telescope.

During transits, they measured how the host star’s light filtered through the planet’s atmosphere—a technique called transmission

spectroscopy—to determine the abundance of any water vapor in the atmosphere where the day side transitions to the night hemisphere. Also at different points during transits, they used a technique called emission spectroscopy to monitor the heat emitted at night by the planet itself.

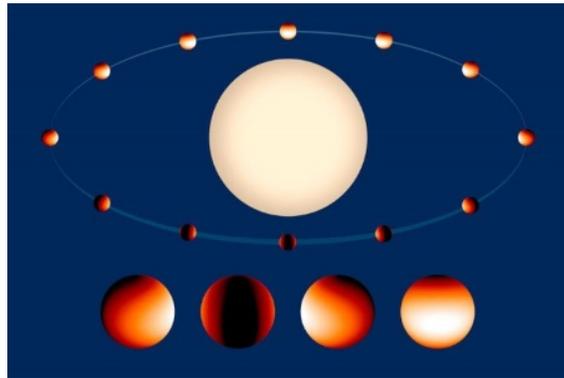
Using custom software run on the Hyades supercomputer cluster at UCSC, they used the extracted spectra to provide a comprehensive view into WASP-43b’s atmosphere, including how temperatures change with height around the planet. They were also able to map temperatures and water abundances in the atmosphere at different longitudes across the planet’s day and night sides—an entirely new technique. The emission spectrum shows strong evidence for water absorption. The Spitzer data also suggest that carbon monoxide and carbon dioxide exist in the atmosphere. The place seems to be too hot for clouds.

Studying the exotic inferno WASP-43b 260 light-years away actually may shed light on our own solar system. Even though Jupiter is much closer to Earth, the composition of its atmosphere is actually harder to study than WASP-43b’s. Our own solar system’s giant planet is so cold that most of its important molecules are

hidden in clouds far below the visible atmosphere. The high temperatures of ‘hot Jupiters’ such as WASP-43b make studying their atmospheres easier.

How hot? WASP-43b’s day side is hot enough to melt iron (2,700°F); the night side is much “cooler”—at 900°F it would “only” melt lead. Because heat is so poorly distributed through its atmosphere, fierce hot winds roar from the day side to the night side.

The team hopes that their measurements can reveal more about the conditions under which planets form. Thus, they are an important step towards characterizing the atmospheres of more Earth-like worlds with future, specialized space telescopes.” —Trudy E. Bell, M.A.



*Artist's conception shows exoplanet WASP-43B orbiting its orange dwarf host star. The four images below show close-ups of the planet at points in its orbit 90 degrees apart. (Transits and eclipses are not shown.) Credit: NASA, ESA, and Z. Levay (STScI)*

## Adopt a Telescope Program - Signup Sheet

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

### At Your Service

#### Officers / Staff

President	Scott Jamieson	262-592-3049
Vice President	Brian Ganiere	414-961-8745
Treasurer	Dennis Roscoe	608-206-0909
Secretary	Agnes Keszler	414-581-7031
Observatory Director	Gene Hanson	262-354-0138
Asst. Observatory Director	Jill Roberts	414-587-9422
Newsletter Editor	Tamas Kriska	414-581-3623
Webmaster	Robert Burgess	920-559-7472

#### Board of Directors

Robert Burgess	920-559-7472
Russell Chabot	414-881-3822
John Hammetter	414-519-1958
Gene Hanson	262-354-0138
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

#### February/March Keyholders

2/21	Lee Keith	414-425-2331
2/28	Henry Gerner	414-774-9194
3/7	Tamas Kriska	414-581-3623
3/14	Mike Smiley	262-825-3981
3/21	Tom Schmidtkunz	414-352-1674
3/28	Dan Yanko	262-255-3482



### MAS Observatory

18850 Observatory Rd  
New Berlin, WI

[www.milwaukeeastro.org](http://www.milwaukeeastro.org)