



Focal Point



August, 2012

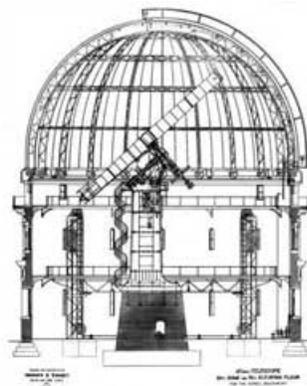
The MAS Summer Schedule

There will be no General Membership Meeting in June, July, and August. The September Meeting will be announced in the August issue of this newsletter. The use of the Observatory is not affected by the summer schedule. Remember - Saturday nights are the keyholder nights!

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Star Party at Yerkes Observatory



deep sky objects, and constellations/asterisms.

Not only did the students find viewing through the telescopes and binoculars awesome, they were fascinated by naked-eye seeing, especially the triangle formed by Saturn, Mars, and Spica. Mars, Saturn, M3, M8, M13, M17, M27, M57, Alberio, Mizar, Epsilon Lyrae, and the Coat Hanger and Summer Triangle asterisms were seen during the evening.

Some of the students did their own thing - they attempted photographing sky objects by holding their cell phones up to the telescope lenses and snapping pictures. Amazingly, a few of those cell phone photos turned out quite well!

The evening ended with snacks and more conversation -- and a bonus for the MAS members. Randy, who headed the student evening at Yerkes, took the MAS members up into the dome of the 40" refractor. For some of us, this was the first time ever seeing the famous telescope, and it was quite an experience!

Overall, it seemed to be a very successful and definitely an enjoyable evening.

by Sue Timlin .

Sunday night, August 5, MAS members once again gave a star party for 17 Chicago students as part of a summer science program sponsored by the Kavli Institute for Cosmological Physics (KICP) through the University of Chicago. (Two deer also passed through the festivities, sampling the grass and clover buffet at the edge of the woods).

Through the efforts of Lori, Paul, and Andrew Cannestra, Russell Chabot, Henry Gerner, Scott Laskowski, Neil Simmons, Mike Smiley, Paul Smith, and Sue Timlin, the students were told how telescopes work and the difference between refractors and reflectors, they were shown planispheres and star charts, declination and right ascension were explained to them, and they learned some facts about planets, stars,

MAS Events

The MAS Picnic

The Milwaukee Astronomical Society held its Annual Picnic on Saturday, August 4th at the MAS Observatory in New Berlin. Since a big thunderstorm has passed through the area, and was raining, it turned into a mostly indoor event. Despite of

weather conditions fifteen members and their guests showed up. There was plenty of food to share. The charcoal grills was set up, and all cooking was done just before the rain started. Brian even brought a big cake. Everybody was enjoying the evening.



Public Night - The Perseid Meteor Shower

On August 10th the MAS held a Public Night. The topic was the Perseid Meteor Shower. Approximately 50 guests visited the Observatory. Neil Simmons gave a presentation and answered many questions from the audience. The sky was clear, and

the public enjoyed the telescope viewing. The meteors were not extremely active (the peak was on following night), but we were lucky to see at least a couple.

The next Public Night will be on September 14th, about the Ice Giants.



Member's Story

Attending Wisconsin Observers Weekend

Has anyone been to any star parties this year? I attended the Wisconsin Observers Weekend (WOW) put on by The NEWSTAR Astronomy Club in Waupaca, Wisconsin July 20-21, 2012. A few friends Peter Smitka, Jill Roberts and Joe Horak also attended the WOW. The NEWSTAR Astronomy Club reserves five group campsites in the Hartman Creek State Park. I arrived early Friday morning and found a campsite and put up my tent and telescope for some observing later in the evening. I went for a bike ride around the park exploring different areas. As evening arrived I was excited to do some observing under some fairly dark skies. I found Saturn in the evening twilight so I put my 8 inch Meade LX-90 telescope on Saturn. The views were very good! As darkness arrived I met some new campers who wanted to see some celestial objects. We observed many Messier Objects such as the Ring Nebula(M57), Dumbbell Nebula(M27), Globular clusters(M13) & (M92) in Hercules, Double Star Albireo, the Crescent Nebula, the Cats Eye Nebula, a few planetary nebulas and many other objects. The location of the telescope would not allow me good views of the southern constellations due to the trees.

Late in the evening it was time to visit friends at other campsites. I visited Jeff from NCSF



Astronomy Club and had some spectacular views with his 22 inch Starmaster Dobsonian telescope. Jeff showed us the Cats Eye Nebula at 525X power. The view was just awesome! We then looked at the Crescent Nebula was treated to an equally spectacular view. The details were very crisp with the 22 inch aperture. We visited some people in Campsite 1 which had a great view of the southern sky. Someone showed us the Trifid Nebula (M20) and the Lagoon Nebula (M8) with their 12 inch Portaball Telescope. They looked amazing!

The next day there were threats of storms so I packed up the gear and headed home. I found out later in the evening that the skies cleared up and were better than the previous night. So much for putting faith in weather reports! The Wisconsin Observers Weekend is a great time to meet many people with different interests in Astronomy as well as get a chance to view out of a huge variety of different telescopes.

by Dan Yanko



In the Astronomical News

Simulating the Universe

Astronomy has historically been an observational rather than a laboratory or experimental science. But now supercomputers allow astrophysicists to experiment with the initial conditions and physical laws for astronomical processes, including the formation of the universe. Indeed, large cosmological simulations—computational working models—are the basis for much current astrophysical research.

The most accurate cosmological simulation yet made of the evolution of the large-scale structure of the early universe is being described in a series of research papers that began to be published in *Astrophysical Journal* and other journals in October 2011.

Named “Bolshoi”—the Russian word for “great” or “grand”—the simulation models the evolution of a representative volume of the universe about 1 billion light-years on a side, a volume that would contain over a million galaxies. The computer code took 6 million CPU hours to run on the Pleiades supercomputer at NASA Ames Research Center. The calculated results—spectacular visualizations of what the universe was like at 180 different times from the Big Bang to the present epoch—were saved for later analysis. Some of the raw data plus detailed summaries and analyses of the outputs are now publicly available to the world’s astrophysicists.

Co-principal investigators Joel R. Primack (University of California, Santa Cruz) and Anatoly Klypin (New Mexico State University) based the Bolshoi simulation on both the most precisely known observational data and the most robust physical theory.

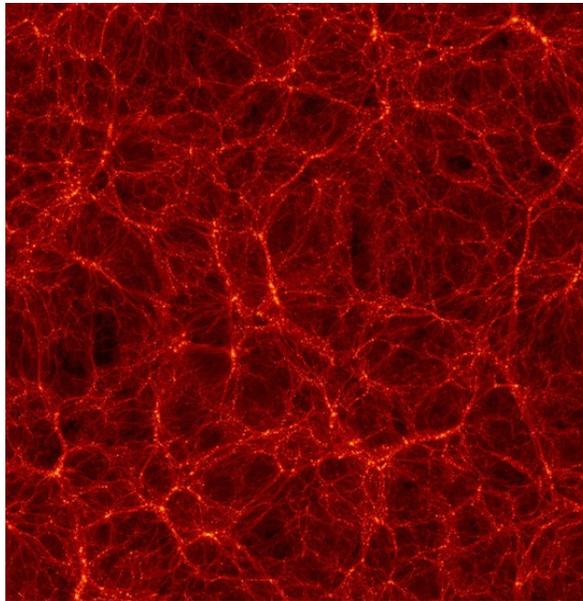
For observation, Primack and Klypin based the Bolshoi simulation on a meticulous data set combining ground-based observations with an

extended run from the highly successful NASA Explorer mission WMAP (the Wilkinson Microwave Anisotropy Probe). WMAP measured the detailed anisotropy (unevenness of temperature and other characteristics) over the whole sky of the cosmic microwave background radiation left over from the Big Bang that formed the universe 13.7 billion years ago. The anisotropy reveals a wealth of information about the history and composition of the early universe.

For theory, the Bolshoi simulation is based on the Lambda Cold Dark Matter cosmogony (λ CDM for short), now accepted as the standard modern theoretical framework for understanding the formation of the large-scale structure in the universe. Ordinary atomic matter makes up less than 5 percent of the universe; only about half a percent is visible as stars, nebulae, dust, and planets. Some 23 percent of the universe is made of invisible, transparent “cold dark matter,” felt only through its gravitational influence. λ CDM predicts that repeated mergers of smaller clumps of dark matter end up creating bigger dark matter “halos,” within which galaxies and clusters of galaxies form and congregate. The Greek

letter lambda (λ) in λ CDM represents the fact that 72 percent of the universe is “dark energy,” causing the universe’s expansion to accelerate. Since λ CDM says the universe is mostly made of invisible dark matter and dark energy, it might better be called the Double Dark theory.

Thus, the Bolshoi simulation models not just how the minority of the *visible* universe of stars, gas, and dust evolved, but also how the vast majority of the *invisible* universe evolved—rendering the invisible visible for astronomers to study, and to predict structures that astronomers can seek to observe.



Snapshot from the Bolshoi simulation at the red shift $z=0$ (meaning at the present time), showing filaments of dark matter along which galaxies are predicted to form. CREDIT: Anatoly Klypin, Joel R. Primack, and Stefan Gottloeber (AIP, Germany).

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 Armfield	A Dome
4	Dan Yanko	18" F/4.5 Obsession	Albrecht Observatory
5	Tamas Kriska	25" F/15 Zemlock	Z Dome
6	Henry Gerner	12" LX 200	Tangney Observatory
7	Jeffrey Fillian	14" Z-Two scope	Ray Zit Observatory
8	Kevin & John McCarthy	10" LX 200	Jim Toeller Observatory

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Michael Smiley	262-825-3981
Sue Timlin	414-460-4886
Dan Yanko	262-255-3482

September Key Holders

9/1	Scott Laskowski	414-421-3517
9/8	Jill Roberts	414-587-9422
9/15	Tom Schmidtkunz	414-352-1674
9/22	Neil Simmons	262-889-2039
9/29	Dan Yanko	262-255-3482



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