



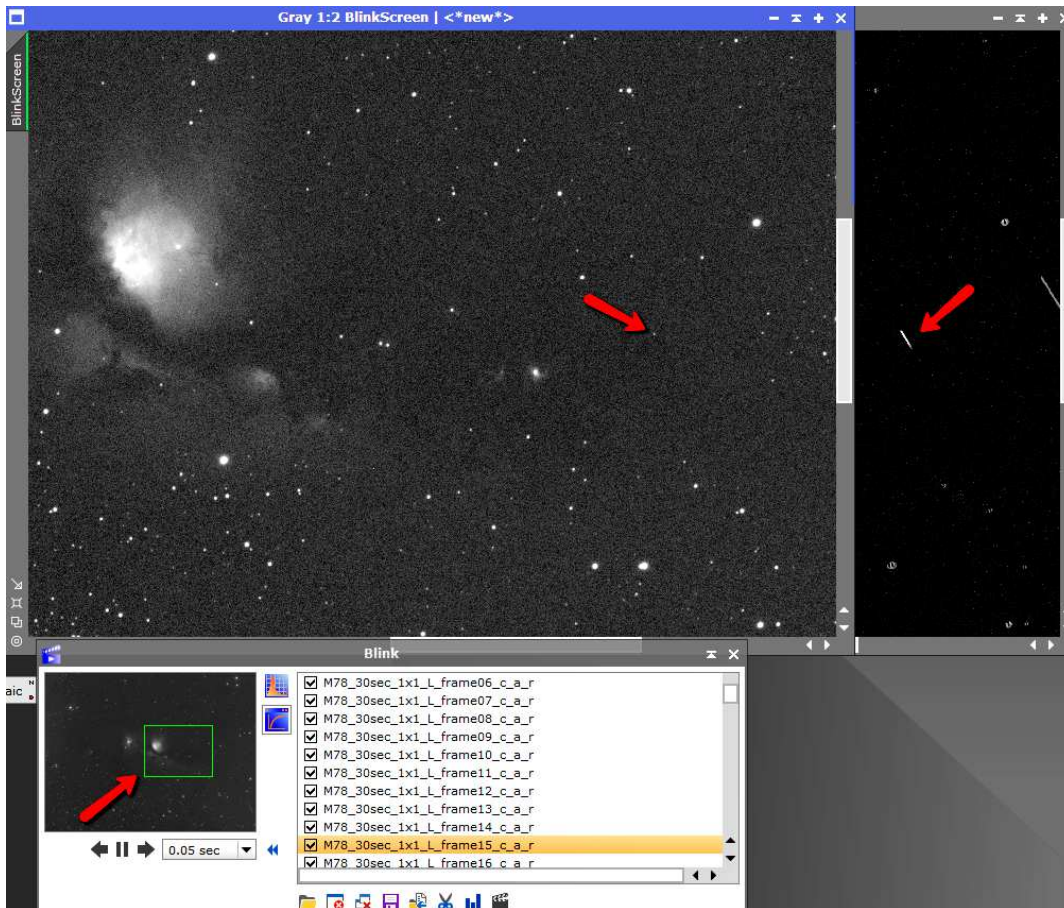
Asteroid (29701) 1998 YT6 next to M78

by Awni Hafedh

Jan 5th, 2019 – We had clear sky three days in a row so I decided to drive to Lake Hudson state park on Saturday to capture as many objects as I could. It was a relatively great night as clouds showed up at 3:00am and by then I had captured a lot of subs.

One of the objects that I captured was M78 with a Luminance filter. I basically captured 75 subs 30 seconds each using my Hyperstar setup. A few days later I started stacking my data just to see how good my data was and I found something very interesting.

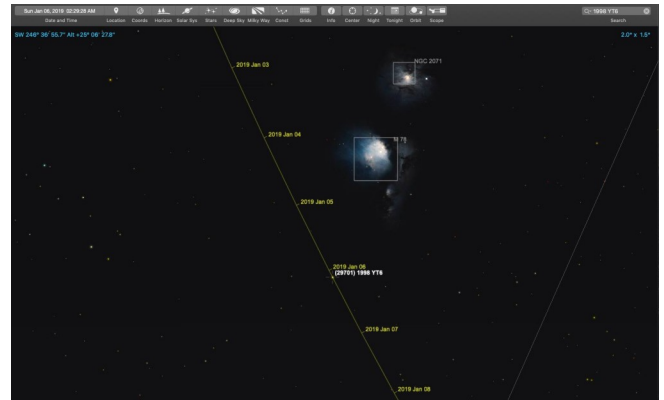
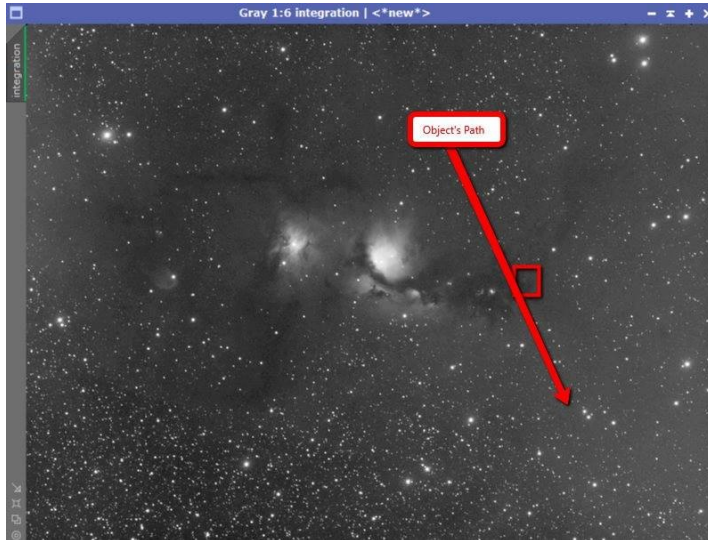
For those who are familiar with PixInSight stacking process, it will generate a rejection map image which contains all the moving pixels that won't repeat across the frames, mostly you will find comets, satellite trail, airplane trail, out of focus stars ... etc. One thing that caught my attention in the rejection map was a small bright line, so I went back to the registered subs before I stack them and ran them in sequence like a time-lapse using a blink process and I found what seems like a comet or an asteroid moving super slow in the background.



(Left)

I started capturing my subs at 2:00am until 2:45am EST on Jan 6th, 2019, during the 45-minute time this object moved exactly as much as the line pointed in the rejection map image. I also included my stacked image that shows the object's path relative to M78.

Asteroid (29701) 1998 YT6 next to M78 continued



Now I did ask couple of club members about it and the closest match that we can find was Asteroid (29701) 1998 YT6 that was passing at that date and time.

I had forgotten that Hyperstar flips the images (Thanks to John Talbot), and after aligning both images I agree that what I imaged was that asteroid. It was a fun discovery and I hope you liked it too.



2018 Year in Review by President Charlie Nielsen

The year 2018 was a year of growth for the University Lowbrow Astronomers. Membership at the end of 2017 was 140 strong, but at the end of 2018 we were over 150!

We did not build any telescopes this year, but we did complete the improvement project on our 17.5 inch DOB. The telescope is now full Go To with tracking, and wireless interfaces. We previously had a wireless interface and digital setting circles, but having the Go To ability and therefore not having to frequently adjust the scope when guests are looking through it just made a great telescope greater. There were a few glitches along the way of course, and we suffered a close call with disaster when the telescope was taken to an arid region for a star party...and the weather turned horrible. Water got into the base assembly, but it turns out that no real damage was done! As a bonus we used some spare parts from that project to outfit our Cave 8 inch Dob with digital setting circles. Now it is a "push to" telescope.

We continued holding our monthly meetings in G115 Angell Hall, except for our July meeting which we hold at Eastern Michigan University. That is a tradition that we started many years ago to avoid the Art Fair and the massive parking problems it causes. It turns out that we had so much fun there that we decided to do it even in the rare years when Art Fair and our July meeting do not clash.

Our meeting speakers were as follows:

January was our first meeting of the year, which is normally true. Our speaker was Jamie Cutler, a professor in U of M Aerospace Engineering. Jamie spoke to us about something he is very involved in, that being Cube Sats. They are tiny cubical satellites that look much like a Borg spaceship from the Star Trek Next Generation series...except they are smaller than a basketball. Some around softball size. But they can do a lot of science and measurement, as Jamie explained to us. We had 35 people in attendance.

February brought back to us, David Austerberry. What I mean by "brought back" is that David is a club member that went pro; got a job with JPL; and moved to the Los Angeles area. David spoke to us about his adventures during his first year of employment for JPL as a high altitude synthetic aperture radar operator. This proved to the 27 attendees that Lowbrows can make it to "high" places! We used a Blue Jeans remote connection for his talk.

March featured two club members that filled in due to our guest speaker having to cancel. VP Dave Jorgensen demonstrated his homemade interferometer, which he calls mini-LIGO. This was followed by a presentation by President, Charlie Nielsen; who showed us how to use our "Glass and Mirrors" Night Sky Network Toolkit. We had 16 people there.

April was a jam packed meeting. We had a long talk from our guest speaker, officer elections, a business meeting, and we were going to do some optics demos as part of State-Wide Astronomy Night. We also had Sally Oey there to tell the 42 people present, that she had some literature near the door about our efforts to fight light pollution. Our presentation was about galaxy mergers, by Vatican Astronomer Father Richard D'Souza. It was a great presentation and though it went on for well over an hour, Richard is such a delightful speaker and personality, that we did not want him to stop. As a bonus...later in the year he received much notoriety for his work and discoveries regarding M32. We got a preview of that work! There were no changes to the officers and nothing significant business-wise. By the time we moved to our State-Wide demos there were some people still there that appeared to have showed up due to it being State-Wide Astronomy night. But as soon as we started the demos...they left!

May had 22 people present to hear a very good presentation on light pollution and outdoor lighting by U of M Astronomy Professor, Sally Oey. Sally has been very active in leading a group of dark sky advocates in an effort to enact outdoor lighting ordinances, starting with the City of Ann Arbor. Several club members are involved with this group.

2018 Year in Review Continued

June brought us a return of Ethan Siegel via Google Hangouts. This time he spoke about the James Webb telescope and what it is hoped it will do for us. I think this was the third time we had Ethan speak to us, and they were all very engaging talks. There were 26 people there to enjoy it.

July was our annual trip to Sherzer Observatory at Eastern Michigan University, to be entertained by Norb Vance. We usually have a larger turnout (this time 30) for this meeting. Could the free food have something to do with it? This time we had (via Skype) Dan Davis, co-author of "Turn Left at Orion", who spoke to us about the book, and also plate tectonics (or lack thereof) around our solar system. By the way; the other author of that book is our dear friend and repeat speaker, Br. Guy Consolmagno. We held our business meeting, followed by some of us walking to Sherzer Observatory for a tour of the facilities. Unfortunately the weather prevented us from using any of it. But we had a great time anyway.

August brought us another repeat speaker, Dr. Ed Cackett from Wayne State University. He spoke to us about gravitational waves and the new way of doing astronomy that their detection has opened up. The graphics and simulations he used were some of the best we have ever seen! I think that the 31 people there would agree that this was an excellent presentation.

September was headlined by a very good presentation by Dr. Nicolle Zellner, from Albion College. She spoke about her research into asteroid and comet strikes on the Earth and Moon, what we learned about the history of these impacts, and how she did it. The 26 people attending were glad she made the trip to come and speak to us.

October's meeting brought 32 of us to G115 to enjoy a presentation by Jim Shedlowski, about the history and current conditions at McMath-Hulbert Observatory. This is significant to our club because this is the observatory where our beloved McMath telescope was first installed. The facilities have been deteriorating over the years, but there is hope that someday funding can be found to bring it back to life.

November featured a "Skype" presentation by David Levy. Yes, THE David Levy...live from Vail, Arizona. David did a remote connect for us several years ago. I had the pleasure of spending time with him at the Vatican Foundation Annual Seminar that was held here in Ann Arbor. At that event I recruited David Levy, Richard D-Souza, and Dan Davis. David (Doveed as his friends call him) is a very nice person and it was a pleasure working with him on the remote connection. His talk was about how he became a comet hunter and some of his discoveries. He spoke about working with the Shoemakers and their very famous co-discovery, Shoemaker/Levy-9, and the little encounter it had with Jupiter. It was a great presentation that involved slides, video, and music. Spoiler alert...we may get another talk by David, but this time he will be in person! We had 26 people there to enjoy David. I hope next time it is 126.

December was our finale for the 2018 meeting schedule, and we finished it in grand style! Every few years, long term member, Fred Schebor presents "The Artsy-Meaningless Slide Show" It is a Power Point presentation set to music that features images taken by club members and images of many of our activities and trips. The show is beloved by our membership. We had a turnout of 46. I am pleased that so many of us got to enjoy it because this only comes around every few years.

We attempted to start our open houses for the 2018 season on March 10 and it should come as little surprise for that time of year...the weather made us cancel. We also had to cancel our April 14 and 21 Open Houses. So you are thinking what a horrible start, however May usually brings clearer skies...but NO, we had to cancel May 12 and 19 also! To add insult to injury, June 9 also got stepped on by Mother Nature. I do not know if 0-6 is a record bad start or not, but I would not be surprised

2018 Year in Review Continued

Finally, On June 16 we held our first Open House of the season! Adrian Bradley was our OHC and was helped by 8 other club members. We had great skies, planets, and about 50 visitors to show them and some other objects to. We continued our better luck on July 7 as this writer served as OHC for around 100 guests. I was aided by 13 club members, and we needed all of you. We had a great clear and cool evening and very few of our little flying friends to pester us. Sometimes I think a larger crowd may help that way because it is more people to spread the bugs around to. Well, it's a theory. Our streak ended at two in a row as we had to cancel the second July Open House.

Better luck returned though as we were able to conduct both August Open Houses. Our OHC for August 4 was Adrian, and again we had about 100 visitors. Adrian had 8 Lowbrows helping him. We had murky skies, allowing only the brighter DSO's to be observed, but several bright meteors were seen. August 11 brought out 150 members of the public. Largest turnout of the year and as it turns out very memorable. Don Fohey and I were co-OHC's and were assisted by 4 club members. With just 6 of us and a large crowd, we were very busy. Sometime after 11 PM, radar showed a severe thunderstorm headed toward us from the north. We continued for another 15 minutes or so and saw that the sky was clouding out and lightening was occurring to our north. The observatory was shut down and secured and as everyone had finished packing up and the public had departed...the first rain drops started to fall. About a half hour after that a severe storm rolled through the area, maybe even a direct hit. It seems that we extracted the most that we could out of that evening. We had an Open House scheduled for September 8, but the weather had other ideas. We also got erased on October 6, but were able to do the event on October 13. Adrian was once again our OHC and was assisted by 6 other Lowbrows to entertain about 40 guests. The weather was cool and the skies hazy, but they made the best of it.

We concluded our Open House season on November 3 with John Manney leading the way as OHC. He was aided by a team of 4 others and we had 35 visitors. Many guests reported they were there for the first time. Skies were good until about 9 PM and then clouds ended the session. We had an Open House scheduled for November 13 but we had to cancel it.

We had other events scheduled through 2018, starting with one at a school in Tecumseh on March 6, but the requestor canceled it. On July 24 we did our star party for the Michigan Math and Science Scholars, a group of high school seniors preparing to enter college. After a mostly cloudy day the sky cleared up enough for planet and brighter DSO observing. We had 15 students and 5 assistants. Club members helping were me, Jack Brisbin, Jim Forrester, and Adrian Bradley. I did a short presentation about the three main telescope types and how they work before we began observing.

On August 18 we made our first appearance at Hidden Lake Gardens, located in the Irish Hills area. The plan was for me to do a presentation about astronomy and telescopes and then we would go outside for a star party. Despite rainy weather up until shortly before the event, the forecast showed that clearing was coming just in time for us. My one hour presentation turned into almost an hour and a half, but that was OK for two reasons. We had time to kill before it got dark, and it did not matter anyway because the clearing did not come. We did manage a few brief glimpses of the Moon, and Saturn just before we gave it up. We also noted occasional lighting to our east. On my way home; about 2 or 3 miles from the site, I drove into one of the hardest rains I have ever experienced. I wanted to pull off the road for a minute, but I could not see where the edge of the road was! I and the other 6 club members making the trip really liked the venue and the large number of people that made it there. Our contact said they were very impressed with us despite the sky, and that they planned to invite us back.

2018 Year in Review Continued

September 14 and 15 were the nights of our annual multi-club event, Astronomy At The Beach. This was the second year at our new site at Island Lake Recreation Area. We had 21 Lowbrows make it between the two nights to handle a crowd of about 1000 on Friday night and 3800 Saturday night. I would call that another success! On September 29 we showed up at one of our favorite venues, Leslie Science and Nature Center. We expected the clouds to roll in about half way through the event, but it happened before the event. We never set up a telescope, though our hosts at LSNC did and Adrian and I showed the dozen or so that showed up a telescopic view of lights in downtown Ann Arbor. Before Adrian and I got out of there we actually had some small breaks in the clouds, and a couple of the children present managed to find a few stars in the telescope. Sign them up! We also saw Mars occasionally. We had 4 other club members show up to see how we were doing.

The night of October 14 found our club at Westland Library. There was some confusion at first as to where to set up our telescopes, and when we did figure that out we were concerned about a tree line in the south. But as it turned out, Saturn, Mars, and the Moon were all lined up above that tree line just fine for us. It was a clear and cool night, but a very successful one. About 75 guests showed up and we had a turnout of 12 club members to wow them. We had planned a star party on October 25 for students and parents of Emerson School, but the school did not pull this together and had to cancel. Too bad because we have had some very successful events there in the past and it is a pretty good site for observing. Hopefully it works out next time.

This summer we ran another full schedule of Camp Burt Shurley events. This camp is for students of Detroit Public schools and is located just a few miles west of Peach Mountain. Starting in June and running until early August we attempt to do a star party for them on every Monday night. If the weather does not allow it then we try the next night and the next night, and finally give up for that week after Thursday.

In addition to our sessions at Peach Mountain and many observing events at various locations; we still held ACNO (Any Clear Night Observers) events at the home of John Causland. He has a pretty dark sky despite being between Ann Arbor and Dexter. Plus, having a paved surface to set up on and the ability to retreat into the house for warmth make this a most convenient venue. Sometimes an ACNO event will happen at other locations, but it is usually at John's and we are grateful for his generosity.

As I approach the end of this report I must bring up some sadness. One of our very long term members left us last year. Mark Cray was a great service to our club. He built several of the eyepieces that we use in the observatory, and the 6 inch refractor that we have mounted on the McMath. He was one of the finest people you could ever meet. Despite his long battle with cancer and heart failure, he managed to make it to several meetings and even brought a telescope to help out at an open house this past summer. One of his favorite places in the world was Peach Mountain. For that reason I helped arrange a service for Mark at Peach Mountain, in the radio telescope area. A bunch of his family and Lowbrows were in attendance as his ashes were put in the ground; the ground that he loved so much. At the lunch after the service Doug Scobel and I asked Mark's sister, Kim, if she and her family would take over Mark's membership. She was delighted and now she and her daughter have made it to several club events. We miss Mark very much, but we are delighted to have Kim and Lexie with us.

In conclusion, 2018 was another active year for our club. We have grown, our treasury is in good shape, and membership is increasing. And thus we march on...

By Charlie Nielsen, February 2019

Comet C/2018 Y1 Iwamoto by Doug Bock



Doug Bock Email to members on Feb24th.

The past two clear nights (partially) I was able to capture about an hour of data on Comet C/2018 Y1 Iwamoto. This comet just went by closest approach this past week, so it is moving fast relative to us, as you can see with the trailing stars.

On the 18th I took 120 x 30 second sub frames, guiding normally at sidereal rate, then stacking on the comet core in PixInsight.

On the 22nd I took 90 x 60 second sub frames, using only the last 62, guiding at the published delta RA and delta Declination rates for the comet. Then stacking on the comet core in PixInsight. I enjoy going after transients like this because they are like a once in a lifetime event to document. I've now imaged and tracked 14 comets over this past two years, and will continue to do so in the future.

Two nights of capture of comet C/2018 Y1 Iwamoto video.

Segment 1 is from Feb 18, 2019, 120 frames at 30 seconds each. Tracking at sidereal rate

Segment 2 is from Feb 22, 2019, 60 frames at 60 seconds each. Tracking on comet rate

Imaging system:

- 10" f/8 RC
- asi071mc camera cooled to -5C
- Losmandy G11 mount

<https://www.youtube.com/watch?v=TuT0J5d4TBQ> (Editor: very nice video)

Doug Bock, Northern Cross Observatory

Upcoming Events

DATE	EVENT	LOCATION	
Saturday March 9th	Lowbrows at Briarwood	Briarwood Mall	Girl Scouts Heart of Michigan. We will be explaining and demonstrating different types of telescopes and running optics demos. Volunteers Needed.
Friday March 15, 2019. 7:30pm	Monthly Meeting	Room G115 Angel Hall 435 South St. Street Ann Arbor, MI	Tom Drummond "Orion's Quest Program"
Saturday March 30, 7pm – Sun, March 31, 5am	Messier Marathon	Lake Hudson Recreation Area, 5505 Morey Hwy, Clayton, MI	Messier Marathon for club members.

University Lowbrow Astronomers - Meeting Minutes 2/15/2019

Meeting Start: 7:30PM

Lowbrow member David Austerberry gave us an update on his role at his job with the Jet Propulsion Laboratory (JPL). The talk was titled 'The Adventure Continues'. To see a recorded copy of this presentation, you can go to <https://photos.app.goo.gl/C87PXZRTU3TdyqtC7>

Talk ended: 8:53

Business meeting start: 8:54PM

Lowbrow President Charlie Nielsen

We have many requests in 2019:

- March 9th - Girl Scouts Heart of Michigan Campout at Briarwood Mall.
- June 22nd - Hidden Lake Gardens
- June 25th - MMSS Event at Peach Mountain
- July 1st - Camp Burt Shurly begins
- August 10th - Salem Library

Also, we have a map of the moon from the Night Sky Network. We will be putting it in the Observatory at Peach Mountain.

Vice President Adrian Bradley - Nothing to report

Vice President Dave Jorgensen - Nothing to report

Vice President Jim Forrester - Nothing to report

Observatory Directory Jack Brisbin

- Operators Manual for running the observatory and it's telescopes was sent out for review.
- Reviews are complete and it will be put on the members only page
- Continuing to sell 8x11 Rubylith sheets for \$1 apiece.

Treasurer Doug Scobel (via email):

- We have 152 memberships, and \$7657.23 in the treasury.
- Nothing else to report

ACNO Directory John Causland:

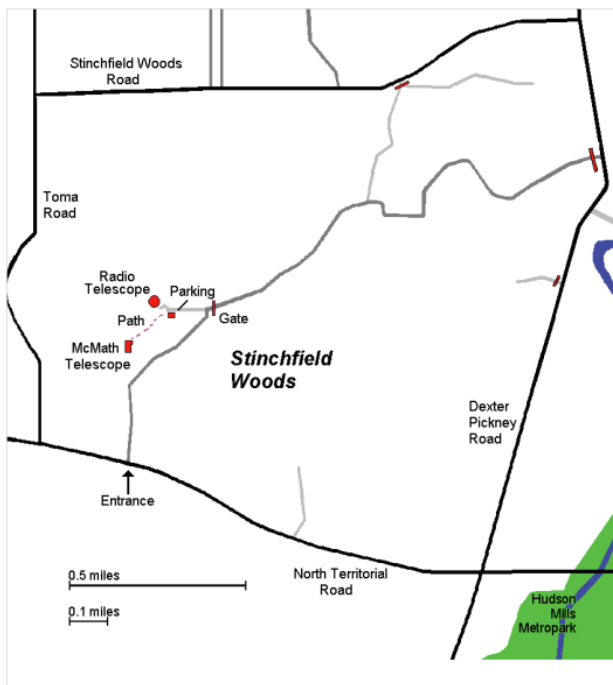
- Last Saturday had a good turnout
- Tomorrow night (2/16/2019) is iffy, depending on weather report
- If you are not on the ACNO list and are a club member, send an email to Doug Scobel, Kurt Hillig, or Krishna Rao to get on the list.

MEETING ADJOURNED @ 9:06PM

Places & Times

Monthly meetings of the University Lowbrow Astronomers are held the third Friday of each month at 7:30 PM. The location is usually Angel Hall, ground floor, Room G115. Angell Hall is located on State Street on the University of Michigan Central Campus between North University and South University Streets. The building entrance nearest Room G115 is the east facing door at the south end of Angell Hall.

Peach Mountain Observatory is the home of the University of Michigan's 25 meter radio telescope and McMath 24" telescope which is maintained and operated by the Lowbrows. The entrance is addressed at 10280 North Territorial Road, Dexter MI which is 1.1 miles west of Dexter-Pinckney Rd. A maize and blue sign marks the gate. Follow the gravel road to the top of the hill to a parking area south of the radio telescope, then walk about 100 yards along the path west of the fence to reach the McMath Observatory.



Public Open House / Star Parties

Public Open Houses / Star Parties are generally held on the Saturdays before and after the New Moon at the Peach Mt. Observatory, but are usually cancelled if the forecast is for clouds or temperature below 10° F. For the most up to date info on the Open House / Star Party status call: (734) 975-3248 after 4pm. Many members bring their telescope to share with the public and visitors are welcome to do the same. Mosquitoes can be numerous, so be prepared with bug repellent. Evening can be cold so dress accordingly

Lowbrow's Home Page

<http://www.umich.edu/~lowbrows/>

Membership

The University Lowbrow Astronomers membership dues are \$30 per year for individuals or families, \$20 per year for students and seniors (age 55+) and \$5 if you live outside of the Lower Peninsula of Michigan. Membership entitles you access to our monthly Newsletters on-line at our website and use of the 24" McMath telescope (after some training). A hard copy of the Newsletter can be obtained with an additional \$18 annual fee to cover printing and postage. Dues can be paid at the monthly meetings, by PayPal, or be check made out to University Lowbrow Astronomers and mailed to:

The University Lowbrow Astronomers
P.O. Box 131446
Ann Arbor, MI 48113-1446

Lowbrow members can obtain a discount on these magazine subscriptions:

Sky & Telescope - \$32.95/year or \$62.95/2 years

Astronomy - \$34.00/year, \$60.00/2 years or \$83.00/3 years

For more information about dues or magazines contact the club treasurer at: lowbrowdoug@gmail.com

Newsletter Contributions

Members and non-members are encouraged to write about any astronomy related topic. Contact the Newsletter Editor: Don Fohey donfohey@gmail.com to discuss format. Announcements, articles and images are due by the 1st day of the month as publication is the 7th.

Telephone Numbers

President:	Charlie Nielsen (734) 747-6585
Vice President:	Adrian Bradley (313) 354 5346
	Jim Forrester (734) 663-1638
	Elizabeth Calhoun
	Dave Jorgensen
Treasurer:	Doug Scobel (734) 277-7908
Observatory Director:	Jack Brisbin
Newsletter Editor:	Don Fohey (734) 812-3611
Key-holders:	Jim Forrester
	Jack Brisbin
	Charlie Nielsen
Webmaster	Krishna Rao

A NOTE ON KEYS: The club currently has three keys each to the Observatory and the North Territorial Road gate to Peach Mountain. University policy limits possession of keys to those who they are issued. If you desire access to the property at an unscheduled time, contact one of the key-holders. Lowbrow policy is to provide as much member access as possible.

Email to all members

Lowbrow-members@umich.edu



University Lowbrow Astronomers



Member Club



Astronomical League Member Society
#201601, Great Lakes Region

University Lowbrow Astronomers
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STAMP