



STAR FIELDS

Newsletter of the
Amateur Telescope Makers of Boston
Including the Bond Astronomical Club
Established in 1934
In the Interest of Telescope Making & Using

Vol. 32, No. 5 June 2020

This Month's Meeting . . .

Thursday, June 11th, 2020 at 8:00 PM
Zoom On-line Meeting

All ATMoB meetings scheduled for the Harvard-Smithsonian Center for Astrophysics in Cambridge, MA have been **canceled through the month of September** due to concerns over the [coronavirus](#) outbreak.

We are holding virtual on-line meetings using the Zoom application. Please refer to the [ATMoB website](#) for future meetings. Members should check their email on the ATMOB-ANNOUNCE list for additional information.

Design and Construction of an Automated Observatory

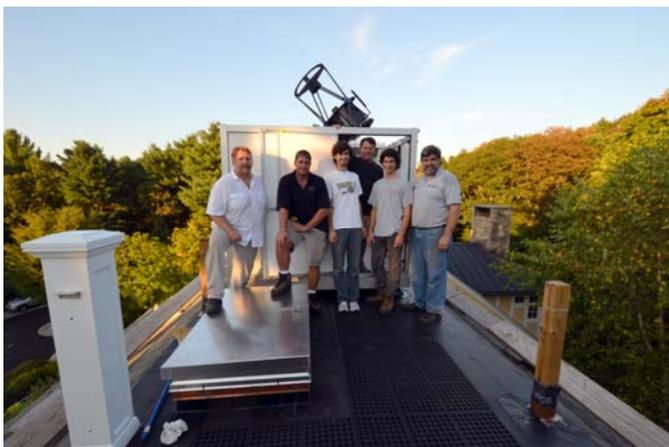


Image courtesy of Alan Sliski

Our speaker this month will be Alan Sliski, who will talk to us about how he designed and constructed an automated observatory.

Alan Sliski has been interested in mechanics and electronics from childhood. He built his first tube amplifier in 6th grade.

Astronomy has always been a passion as well, traveling to Prince Edward Island in 1972, and Kenya in 1973, to photograph solar eclipses. Alan received a BS in Physics from the University of Massachusetts at Amherst in 1978. For the last 30 years he has designed medical equipment for treating cancer with radiation, and has received 34 patents for his innovations. More recently, he has been getting more involved with astronomy at home, with 2 sons interested in astronomy. He has a reasonable collection of modern telescopes in sizes from an 80mm refractor to a C14 Schmidt-Cassegrain telescope. He is the president of the Antique Telescope Society and also hosts informal meetings of local antique telescope collectors. He has several classic telescopes, in whole or in parts. The most recent project involves the restoration of a 9.5-inch Warner and Swasey telescope built in 1916. He maintains a complete machine shop and lab at his home for projects such as this. Alan is a member of the Amateur Telescope Makers of Boston and is currently a Member at Large.

Annual Meeting Announcement . . .

§ 2: Annual Meeting – The first regular meeting of the members in June of each year shall be the annual meeting for the election of officers and the hearing of the annual reports.

President's Message . . .

Dear Fellow ATMoB Members,

Almost 2 years have past since taking on the role of president of one of the premiere amateur astronomy organizations in the country if not the world. I am humbled and honored that I have been asked to serve in this capacity, following in the footsteps of great individuals such as Glenn Chaple, Neil Fleming, Bernie Kosicki, Mike Hill, and Stephen Beckwith. They all had their own style and approach to solving problems and maximizing opportunities. I learned a great deal from these gentlemen in my time on the board.

It must be said that the club could not function without our Membership Secretary working overtime to ensure member's needs are met. Chris Elledge has brought an immense amount of energy and talent to the role as well as pioneering our YouTube channel productions that have allowed us to reach members that cannot travel to meetings. John Harrington put his significant talent for recording detail that may have been missed by others as our Secretary. Each report reads like a chapter from his outstanding book, *Shallow Sky, Imaging our Solar System with the Masters*. Enough cannot be said of our Treasurer, Eileen Myers. Another former president, Eileen has worked tirelessly to ensure our financials are in order and that expenses and bills are paid promptly. She also carries significant historical perspective that has been invaluable to me and the organization. Our Members At Large including Alan Sliski, Maria Batista and Al Takeda rounded out the board and all made significant contributions during board meetings and as *Ad Hoc* advisers. Alan has worked on a project for the club that holds great

opportunity for the membership. Maria has contributed to helping with electronic elections and website development. Al continues his labor of love in generating our newsletter *Starfields*, as Editor requiring countless hours and a bottomless well of patience. Last but certainly not least is our vice-president, Rich Nugent. I have enjoyed immensely my time working with Rich on club projects. His energy and charisma have certainly helped to shape the outreach committee consisting of Bernie Kosicki, Laura Sailor and John Harrington to a level not seen in many years. He is also an excellent teacher and holds a wealth of knowledge regarding the night sky.

Special thanks to Steve Clougherty, John Reed and Dave Prowten for ensuring our Clubhouse is maintained and available for all members. Our observing committee consisting of Glenn Chaple, Bruce Berger and Bill Toomey have pushed the boundaries for visual and electronic imaging efforts. There are too many members that have made contributions I wish to thank, and I apologize that I cannot single out every individual.

I believe we have all made great strides in improving our observing, imaging, mirror making, metal and woodworking, and outreach capabilities, and I look forward to watching the club continue to evolve and grow.

With respect to upcoming elections to be held in June, please stay tuned for an announcement on the candidates for open board positions and procedures for voting. I believe the nominating committee has put forth an excellent slate of candidates for your consideration. The nominations are as follows:

President	Rich Nugent
Vice President	Pierre Fleurant
Secretary	Alva Couch
Membership Secretary	Chris Elledge
Treasurer	Eileen Myers
Past Presidents (2 positions)	Glenn Chaple, Tom McDonagh
Members-at-Large (3 positions)	Maria Batista, Alan Sliski, Bill Toomey

Again, it has been a great privilege to serve you as president for the Amateur Telescope Makers of Boston. It has been a highly fulfilling experience and I encourage you all to consider serving the club in whatever capacity you may be able. I look forward to our upcoming Zoom meeting to be held at 8:00 pm on Thursday, June 11th.

In the meantime, stay safe and healthy by remaining physically but not socially distant.

~ Tom McDonagh – President ~

May Meeting Minutes . . .



Dr. Jenna Samra. Image courtesy J. Samra

Minutes of the 930th ATMob meeting held on May 14, 2020 via Zoom due to the ongoing pandemic. Club President Tom McDonagh presided and called the meeting to order at 8:00 pm. He welcomed all members participating online.

President McDonagh then discussed the upcoming election for the Club's Executive Board and announced the slate to be put forward:

President: Rich Nugent
 Vice President: Pierre Fleurant
 Treasurer: Eileen Myers
 Secretary: Alva Couch
 Membership Secretary: Chris Elledge
 Past Presidents: Tom McDonagh and Glenn Chaple
 Members-at-Large: Maria Batista, Alan Sliski, Bill Toomey

The election will be held at the Club's Annual Meeting in June.

- Eileen Myers presented two months of the Treasurer's Report, having been ill for the previous meeting.
- John Harrington read the minutes of the Club's April meeting.
- Membership Secretary Chris Elledge presented the Membership Report, showing 334 total memberships covering 431 Club members.
- Glenn Chaple gave the Observers Report and noted several comets were upcoming. The Observer's Challenge object for the month is M85, a lenticular galaxy in Coma Berenices, plus NGC 4394, a barred spiral also located in Coma Berenices.
- Rich Nugent gave the Outreach Report and lamented that no in-person events were scheduled in the near future due to the pandemic. However, a virtual star party was scheduled to be held at Farrington Nature Linc in Lincoln, MA on May 23rd.
- Steve Clougherty gave the Clubhouse Report and noted that he and John Blomquist had mowed the Clubhouse yard and that the Clubhouse and observatories all looked to be in good

shape. Unfortunately, the Clubhouse remains closed for the foreseeable future.

- Bill Toomey gave an update on ARIO (the ATMoB Research and Imaging Observatory), stressing that this is a chance for the Club to accomplish some real science. The Club Science Group has been taking various AAVSO courses, including those on variable stars, exoplanet observing, and use of VStar software, a multi-platform variable star visualization and analysis tool.
- Old Business: none.
- New Business: none.

President McDonagh then welcomed Dr. Jenna Samra of the Harvard-Smithsonian Center for Astrophysics, who spoke on the topic of her high-altitude infrared observations of the solar corona. Dr. Samra holds degrees in both applied physics and electrical engineering.

Dr. Samra uses the Airborne Infrared Spectrometer (AIR-Spec) instrument to look for particular emission lines in the faint solar corona. She used AIR-Spec to observe both the 2017 and 2019 solar eclipses from the National Science Foundation's high-altitude Gulfstream V aircraft. The goals of her research include a better understanding of the solar corona's dynamics and the mechanism by which the corona is heated to several million K. Her spectrographic research focuses on spectral lines emitted when excited electrons fall back down to lower orbits, enabling us to observe the Sun's magnetic field lines from Earth. Specifically, her research focuses on certain iron, magnesium and silicon spectral emission lines.

To characterize these highly-ionized emission lines, Dr. Samra used the AIR-Spec instrument to observe the 2017 and 2019 eclipses at infrared wavelengths of about 1-4 microns. The high-flying Gulfstream V aircraft enabled the instrument to observe above most of the atmosphere's water vapor, greatly reducing the absorption of infrared light inevitable at lower altitudes. The AIR-Spec instrument uses a 100 lines/mm grating mounted behind a 100mm Cassegrain telescope, which looks out of the aircraft through a window made of sapphire (!). A moveable mirror facilitates AIR-Spec's tracking of the Sun. To increase the AIR-Spec's sensitivity, its sensor is cooled to 50 K by a bath of liquid helium.

Dr. Samra's future plans for AIR-Spec include using a new, improved sensor and a larger tracking mirror. She plans to image the upcoming December 2020 and April 2024 eclipses. In winter 2024-2025, she is proposing to fly a new follow-on instrument on a NASA balloon in the Antarctic to observe at even higher altitudes.

President McDonagh thanked Dr. Samra for her presentation and adjourned the meeting at 9:55 pm.

~ *John Harrington Secretary* ~

Membership Report . . .

I am pleased to welcome our newest members: Walter Mulligan and Gabriel Ramirez.

As of May 31st, 2020 we have 337 memberships covering 432 members. This is broken down as follows:

- 144 Regular Members
- 120 Senior Members
- 9 Student Members
- 56 Family Memberships covering 151 Members
- 6 Guest Members
- 2 Honorary Members

June 1st is the beginning of our renewal period. Members with an email address registered with the club should receive an email notifying them of their need to renew. Members who joined after January 2020 are not due for renewal until next year.

You can check if you need to renew and start your renewal process on the website at <https://www.atmob.org/renew>

You can also download the membership application from the website at <https://www.atmob.org/signup> by clicking on the "[Download an application](#)" link.

Donations are encouraged during membership renewal to help keep our club running smoothly, our Clubhouse maintained, and telescopes in good condition. Donations are tax deductible to the extent allowed by law. If you choose to pay by credit card please consider making at least a small donation since credit card companies take a few percent of your payment to the club.

Please contact me if you need any help with renewing or logging into the website.

~ *Chris Elledge – Membership Secretary* ~

Clubhouse Report . . .



Clubhouse Observing Field. Image by John Stodieck.

June 2020 Clubhouse Report

A severe tornado/microburst that hit the surrounding area on Friday, May 15th thankfully bypassed the ATMoB Clubhouse.

We are still under a complete lockdown of all activities at our Clubhouse due to the Covid-19 pandemic. President McDonagh has secured permission for cutting the lawn to prevent ticks and mosquitoes from becoming a hazard. The team made up of John Blomquist, Paul Cicchetti, Steve Clougherty and John Stodieck has been activated twice. First on May 5th with John B's tractor mowing followed up by Steve C. with mowing, raking, and trimming. The second on May 31st was started by John B.'s tractor mowing, and followed by John S. mowing, raking and some trimming. Each visit provided for a security check of all buildings, and all seems to be in order and secure. We will be implementing these procedures several more times to keep our observing field ready for re-opening when MIT gives us permission to do so. We also received our oil delivery in preparation for the coming winter.

Clubhouse Saturday Schedule	
Indefinite Period	CLOSED DUE TO THE CORONAVIRUS PANDEMIC

Clubhouse Evening Schedule	
Friday Night Educational Videos	CANCELED
Saturday Night Observing	CANCELED
# Closing time is determined by the organizers	
## Closing time is determined by the "A" members on duty.	

~ Clubhouse Committee Chairs ~
~ Steve Clougherty, John Reed and Dave Prowten ~

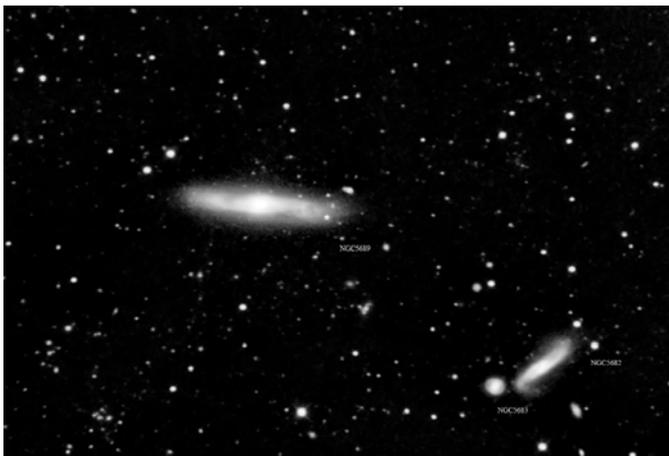
Observer's Challenge . . .

June, 2020

NGC 5689 - Lenticular Galaxy in Boötes

Mag: 11.9

Size: 3.3' X 1.0'



NGC 5689 taken through 32-inch scope with a ZWO ASI6200 camera, 45 minutes total integration time, processed in PixInsight. Image by Mario Motta

June is a difficult month for backyard astronomers here in the northern hemisphere. We battle fatigue (June sunsets are the latest of the year), haze and humidity, and mosquitoes. While yawning, sweating, and swatting, you'll be struggling to glimpse this month's Observer's Challenge, the 12th magnitude lenticular galaxy NGC 5689.

I went after NGC 5689 with a 10-inch f/5 reflector on a clear, moonless evening under typical suburban skies (limiting magnitude 5). To find the galaxy, I star-hopped, beginning from a triangle made up of the stars kappa (κ), iota (ι), and theta (θ), Boötes, located in the upper northwest corner of Boötes and east of the handle of the Big Dipper. From there, I traced a path to the 6th magnitude stars 24 Boötes and SAO45121. At 139X and using averted vision, I could barely make out a ghostly glow less than a degree south and slightly east of the latter star. The glimpses were so fleeting that I was unable to capture any detail. If I were to tackle NGC 5689 again, I would observe from a much darker site.

If you're limited to a small-aperture scope and/or skies compromised by artificial lighting, I encourage you to check out a trio of nearby double stars shown in Finder Chart B. Kappa (κ) Boötes is a charming magnitude 4.5 and 6.6 pair separated by 13.7 arc-seconds. Less than a degree southeast is iota (ι) Boötes whose magnitude 4.8 and 7.4 components are a roomy 38.9" apart. Both pairs are easily split at 30X. You'll need a boost in magnification (100X or more) to split 39 Boötes. In 2019, this magnitude 6.3 and 6.7 duo was separated by a mere 2.5". Both are mid F-class main sequence stars. Are you able to detect a subtle off-yellow hue?

NGC 5689 was discovered by William Herschel in 1787. Sources place its distance as somewhere between 100 and 120 million light years. In either case, the photons striking your retina left when dinosaurs ruled the earth.

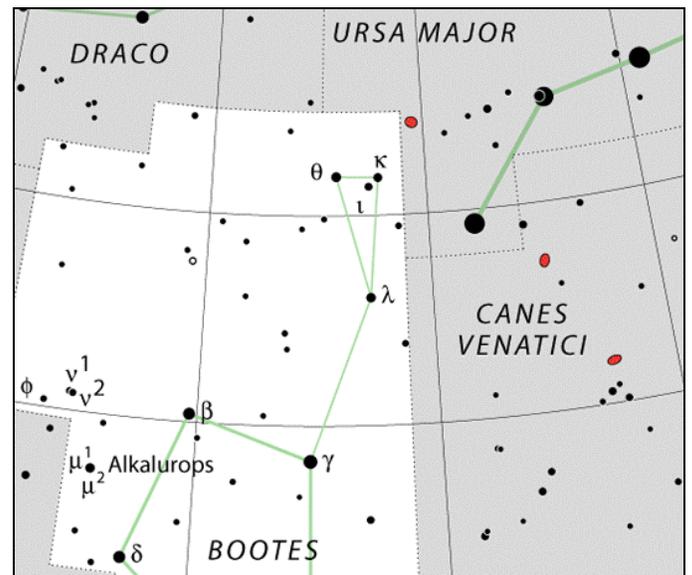


Chart A: constellation-guide.com (from IAU and Sky and Telescope)

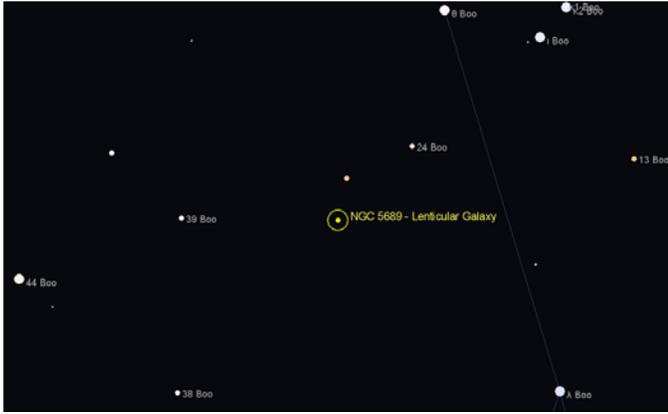


Chart B: theskylive.com

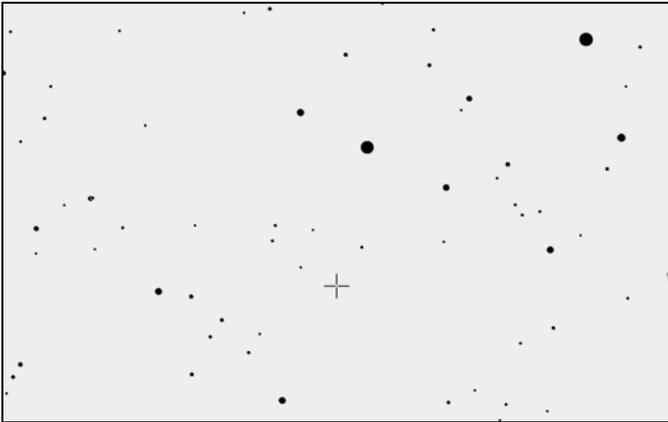


Chart C: Stars plotted to magnitude 11. North is up in this 2° by 3° field. Bright star at upper right is 24 Boötis. Bright star above center is SAO 45121. From AAVSO Variable Star Plotter.

The purpose of the Observer's Challenge is to encourage the pursuit of visual observing. It is open to everyone who is interested. If you'd like to contribute notes, drawings, or photographs, we'll be happy to include them in our monthly summary. Submit your observing notes, sketches, and/or images to Roger Ivester (rogerivester@me.com). To find out more about the Observer's Challenge or access past reports, log on to <https://rogerivester.com/category/observers-challenge-reports-complete/>.

~ Submitted by Glenn Chaple ~



[Comet C/2017 T2 passing M81, M82 and NGC3077](#). Image by Al Takeda.

2020 Stellafane Convention CANCELED . . .

The executive board of the Springfield Telescope Makers thought long and hard about canceling this year's [Stellafane Convention](#). There were many issues related to Covid-19, not the least of which is the possibility of resurgence in coronavirus infections once society opens up, forcing a last minute ban on large gatherings. For those who are counting the consecutive Stellafane Conventions they attend, remember that if there is no Convention held this year then you did not "miss" one.

The Stellafane.org website has the following messages:

"The 85th Convention of Amateur Telescope Makers on Breezy Hill in Springfield, Vermont, the 2020 Stellafane Convention, HAS BEEN CANCELED.

It is with great sadness that we must announce the cancellation of the 2020 Stellafane convention. After long consideration the board has concluded that we simply cannot open safely nor do justice to what our Stellafaners have come to expect.

We hope all of our extended community remains safe and look forward to seeing all of our friends next year." (Posted Monday, 2020-May-04)

~ Eileen Myers, ATMoB Treasurer and member of the Springfield Telescope Makers ~

2020 Astronomers Conjunction CANCELED . . .

[The Connecticut River Valley Astronomers Conjunction website](#) has the following message.

"Like Stellafane, we are canceling this year's Conjunction due to the COVID-19 pandemic. The coordinators have debated long and hard about this decision and we all agree that this is the only course, given the situation. Hopefully, things will be closer to "normal" (whatever that is these days) and we will be back again in 2021.

Assuming it does, Conjunction 2021 will likely be scheduled for the weekend of July 9-10, given that Stellafane will be over the weekend of August 5-8.

Be well!

Conjunction Hosts - Dave Gallup, Phil Harrington, Jack Megas, Rich Sanderson, Donna Szaban and Ron Woodland"

~ Al Takeda - Member at Large and Newsletter Editor ~

Editor: * Photos by Al Takeda unless otherwise noted.

July Star Fields DEADLINE
Sunday, June 21st

Email articles to Al Takeda at
newsletter@atmob.org

Articles from members are always welcome.

POSTMASTER NOTE: Not mailed due to the coronavirus pandemic

Amateur Telescope Makers of Boston, Inc.
c/o Chris Elledge, Membership Secretary
99 College Ave
Arlington, MA 02474
FIRST CLASS

EXECUTIVE BOARD 2019-2020

PRESIDENT: Tom McDonagh (617) 966-5221
VICE PRES: Rich Nugent (508) 935-8158
SECRETARY: John Harrington
MEMBERSHIP: Chris Elledge (781) 325-3772
TREASURER: Eileen Myers (978) 456-3937
MEMBERS AT LARGE: Maria Batista (617) 347-3730
Alan Sliski
Al Takeda (508) 494-7877

PAST PRESIDENTS:
2015 - 18 Glenn Chaple (978) 597-8465
2012 - 14 Mike Hill (508) 485-0230

COMMITTEES

CLUBHOUSE: John Reed (781) 861-8031
Steve Clougherty (781) 784-3024
David Prowten (978) 369-1596
OBSERVING: Bruce Berger (978) 387-4189
NEWSLETTER Al Takeda newsletter@atmob.org

PUBLIC OUTREACH

COMMITTEE CHAIR: Rich Nugent starparty@atmob.org
STAR PARTIES: Bernie Kosicki
Laura Sailor
John Harrington

How to Find Us...

Web Page www.atmob.org

MEETINGS: Held the second Thursday of each month (September to July) at 8:00PM in the Phillips Auditorium, Harvard-Smithsonian Center for Astrophysics, 60 Garden St., Cambridge MA. For INCLEMENT WEATHER CANCELLATION see www.atmob.org and check your email on the ATMOB-ANNOUNCE list.

CLUBHOUSE: Latitude 42° 36.5' N Longitude 71° 29.8' W

The Tom Britton Clubhouse is CLOSED. It is the white farmhouse on the grounds of MIT's Haystack Observatory in Westford, MA. Take Rt. 3 North from Rt. 128 or Rt. 495 to Exit 33 and proceed West on Rt. 40 for five miles. Turn right at the MIT Lincoln Lab, Haystack Observatory at the Groton town line. Proceed to the farmhouse on left side of the road. Clubhouse attendance varies with the weather. It is wise to call in advance: (978) 692-8708.

Heads Up For the Month . . .

To calculate Eastern Daylight Time (EDT) from Universal Time (UT) subtract 4 from UT.

Jun 5 Full Moon
Jun 13 Last Quarter Moon (Moonrise at midnight)
Jun 19 Venus 0.7 deg. S. of Moon, occultation 08:07.4 UT (04:07.4 EDT)
Jun 20 Summer solstice
Jun 21 New Moon
Jun 28 First Quarter Moon (Moonset at midnight)
July 5 Penumbral Lunar Eclipse 03:07 - 05:52 UT (23:07 - 01:52 EDT)
July 5 Full Moon
July 5 Jupiter, Saturn and Moon are ~2 degrees apart from each other