

Springfield Telescope Makers

presents



**The Hartness House Workshop
Eclectic Astronomy IV**

July 24, 2025
Welcome to the Hartness House Workshop
Eclectic Astronomy IV

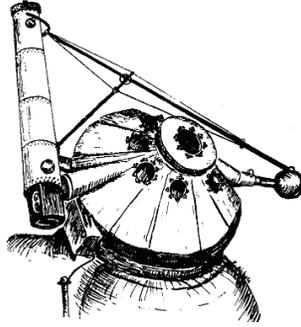


Taken during instrument calibration, this image helped test Webb's ability to dig up galactic "fossils." Ancient galaxies are so far that as space expands, their light has stretched into infrared wavelengths — Webb's specialty. Did that large spiral galaxy towards the bottom of the image catch your eye? Named LEDA 2046648, it's a little over a billion light-years from Earth and located in the constellation Hercules. Using images such as this one, scientists can compare galactic "dinosaurs" with modern galaxies. In turn, this helps us learn more about how galaxies evolve — making Webb the ultimate space paleontologist



Chairman Thomas Spirock
Co-Chair and Registrar Dan Lorraine

Cover: Alvan Clark and Sons circa 1870's (colorized by Retro Revive – follow them on Facebook)



Hartness House Workshop July 24, 2025 Eclectic Astronomy IV

- 8:00 – 9:00 **Registration and Breakfast**
Host Dan Lorraine, Springfield Telescope Makers
- 9:00 – 9:10 **Words of Welcome**
Cecilia Detrich, President, Springfield Telescope Makers
Thomas Spirock, Chairman of the Hartness House Workshop
- 9:10 – 9:50 **A Space Telescope Trifecta: Science with Hubble, Webb, and Roman**
Mitchell Revalski, Space Telescope Science Institute
- 9:50 – 10:30 **Victorian Astronomy as Reflected in Victorian Literature**
Kristine Larsen, Springfield Telescope Makers
- 10:30 – 11:00 **BREAK**
- 11:00 – 11:40 **The History of Robert Lincoln's Observatory and Telescope at Hildene**
Gary Parzych, Hildene
- 11:40 – 12:20 **The First Gathering at Stellafane**
Matt Considine, Springfield Telescope Makers
- 12:20 – 1:40 **LUNCH**
The Hartness-Porter Museum of Amateur Telescope Making is open
- 1:40 – 2:20 **Starlight Conference New Zealand: Worldwide Perspective on Light Pollution**
Mario Motta, Springfield Telescope Makers
- 2:20 – 3:00 **Art of Astrophotography: From Beginner to Pro**
Alexander Varakin, Rockland Astronomy Club
- 3:00 – 3:40 **Waiting on a Nova: From Peltier's Notebook to Today's Telescopes**
Brian Kloppenborg, AAVSO

- 3:40 – 4:10 **BREAK**
- 4:10 – 4:50 **From Photons to Megastructures: What Shapes Tomorrow's Telescopes**
Gabor Furesz, MIT
- 4:50 – 5:30 **It's Alive! Recent Developments in the Search for Life and the Birth of Planets**
Qijia Zhou, Center for Astrophysics
- 5:30 – 6:30 **Cocktail Hour at the Telescope Tavern, Hartness House Inn**
- 6:30 – 7:30 **Banquet at Hartness House Inn**
- 7:30 – 8:30 **Keynote Address**
Catch a Dying Star: Neutrino Astronomy and the Next Galactic Supernova
Stephen Sekula, SNOLAB



H. P. Wilkins with his telescope in 1953

Here we see British astronomer Hugh Percy Wilkins (1896-1960) being interviewed by a BBC reporter on his observation of the the O'Neils Bridge lunar feature - a feature thought to possibly be an artificial bridge, discovered in the same year by American observer John O'Neil. This was of course later realized that it was merely a trick of the light and in fact this was just a normal geological feature. Wilkins was a Welsh astronomer and selenographer renowned for his detailed lunar maps. A passionate observer, Wilkins created one of the most comprehensive lunar charts of his time, meticulously documenting craters, maria, and other features. His 1951 work, *The Moon*, became a standard reference for astronomers. (Image colorized by Retro Revive)

Abstracts and Biographies

Mitchell Revalski

A Space Telescope Trifecta: Science with Hubble, Webb, and Roman

Abstract: The Hubble Space Telescope has transformed our understanding of the Universe over the last 35 years. Now, the James Webb Space Telescope is building on Hubble's successes, pushing our view of the cosmos to the very limits of current technology to unveil new discoveries from nearby exoplanets to the dawn of cosmic time. The Nancy Grace Roman Space Telescope will soon join these incredible observatories to conduct an ambitious survey of the cosmos, providing more data than any other space mission ever flown. Please join me as I share a journey from grinding telescope mirrors to working on the Wide Field Camera 3 instrument team for Hubble. I'll share some of the incredible discoveries that these observatories have allowed us to make in recent years, and discuss how they'll continue to revolutionize astronomy well into the future. Finally, I'll share some resources that you can use to access the data from these powerful telescopes.

Bio: Dr. Mitchell Revalski discovered his passion for astronomy while growing up near the Paul Robinson Observatory, operated by the New Jersey Astronomical Association. With the support of his family and teachers, he pursued a bachelor's degree in physics at The College of New Jersey, followed by a doctoral degree in Astronomy from Georgia State University, where he studied the impact of supermassive black holes on their galaxies. He currently works at the Space Telescope Science Institute in Baltimore as a member of the Wide Field Camera 3 team for Hubble. Mitchell has frequented Stellafane for nearly two decades and is passionate about connecting people of all ages with the resources that they need to succeed in astronomy, so please come and say hello!

Kristine Larsen

Victorian Astronomy as Reflected in Victorian Literature

Abstract: The 19th century was a time of great expansion of our understanding of the nature and behavior of astronomical objects, due in no small part to careful observations by amateurs and professionals. Very specific references to individual astronomical objects and events, ranging from comets to novae, as well as to current astronomical theories of stellar evolution and variable stars, are accurately reflected in the popular literature of the day, not only in so-called scientific romances (the precursors to science fiction) but poetry and utopian novels. A careful study of these works through an astronomical lens reveals the widespread infiltration of astronomical knowledge into the popular imagination of the time, and allows astronomers to provide a valuable service to the field of literary analysis, as some of these references remain unnoted (or erroneously noted) in the scholarly record.

Bio: Dr. Kristine Larsen is Connecticut State University Distinguished Professor of Earth and Space Sciences at Central Connecticut State University and Director of the University Honors Program. Her teaching and research focus on the intersections between science and society, including the use and misuse of

science in popular culture, the history of science, and issues of science and gender. Her latest book is 'The Sun We Share: Our Star in Popular Media and Science' (McFarland, 2024).

Gary Parzych

The History of Robert Lincoln's Observatory and Telescope at Hildene

Abstract: In 1905, Robert Lincoln built Hildene— a sprawling 412-acre summer retreat in Southern Vermont. The home, nestled on a hilltop between the Green Mountains and the Taconic Mountains, proved to be an ideal site for viewing the night sky. Robert built an observatory and furnished it with a state-of-the-art, refracting telescope, which still lives at Hildene to this day. Join Hildene's Exhibit Manager, Gary Parzych, as he delves into the rich history of the observatory at Hildene. Discover Robert Lincoln's celestial pursuits, and his passion for astronomy through the fascinating artifacts left behind by the Lincoln family.

Bio: Gary Parzych is the Exhibits Manager at Hildene, The Lincoln Family Home. Parzych has studied the Lincoln Family extensively and has a particular interest in their residence in Manchester, Vermont. Parzych manages many aspects of the guest experience at Hildene, including the historic interpretation. He also leads the collections department, caring for the over 10,000 historic artifacts in Hildene's archive and display collections.

Matt Considine

The First Gathering at Stellafane

Abstract: Prior to the first formal Convention in 1926, a small gathering of a few curious people was held in 1925. This talk will recognize the centenary of the Stellafane Convention and attempt to put the 'gathering' of 1925 in its place as part of the Stellafane origin story.

Bio: Matt Considine is a member of the Springfield Telescope Makers and Treasurer of the Antique Telescope Society. Along with Jim Daley and Dave Groski, he has worked to restore, install and make operational the 1930's-era spectroheliometer now running in the Simoni observatory at Stellafane. He has been primarily concerned with fine tuning the visual capabilities of the instrument, as well as with developing an imaging workflow that helps support the mission of the Springfield Telescope Makers and the annual Convention.

Mario Motta

Starlight Conference New Zealand: Worldwide Perspective on Light Pollution

Abstract: Light Pollution has become a worldwide problem affecting our view of the sky imperiling major observatories and research, devastating the environment, and adversely affecting human health. In October of 2024, I had the honor to be the invited keynote speaker at the New Zealand "Starlight conference" which was a worldwide gathering of climate and Light Pollution activists from all 6 continents representing over 20 countries. The goal was to share Light Pollution information and mitigation efforts from a worldwide perspective. All aspects of the light pollution problem were discussed over 4 days of meetings. We had climate researchers, physicians and human health experts, environmental experts, lighting engineers and manufacturers, lawyers on climate action, and astronomers in attendance. I was able to collect the presented

material from the many presenters and will give a summary of the worldwide perspective on light Pollution and mitigation efforts from various viewpoints.

Bio: Dr. Motta had been in practice at North Shore Medical Center in Salem, Massachusetts, since 1983, recently retiring in 2022. He is a graduate of Boston College, with a BS in physics and biology, and of Tufts Medical School. He is board certified in Internal medicine and Cariology and is a fellow of the American College of Cardiology, and of the American Society of Nuclear Cardiology. He is an associate professor of medicine at Tufts University School of Medicine. Dr. Motta has long been active in organized medicine, both in the American Medical Association (AMA) and in the Massachusetts Medical Society (MMS), holding a number of posts through the years. He is a past President of the MMS. He was elected and served 8 years on the AMA council of Science and Public Health and then was elected to the Board of Trustees of the AMA in 2018, recently completing his term. In May of 2023 at its annual meeting, the MMS awarded Dr Motta its highest honor, the “Award for Distinguished Service.” Dr Motta also has a lifelong interest in astronomy, and has hand built a number of telescopes and observatories through the years to do astronomical research, including his entirely homemade 32 inch F6 relay telescope located in Gloucester, MA. He has been awarded several national awards in astronomy, including the Las Cumbras award from the Astronomical Society of the Pacific in 2003, and the Walter Scott Houston award from the northeast section of the Astronomical League, and in 2017 the Henry Olcott Award from the American Association of Variable star Observers (AAVSO). He has served as a president of the ATM’s of Boston and has served as a council member of the AAVSO and is a past president as well. He has also served on the Board of the IDA. He has worked on light pollution issues and published several white papers on LP as a member of the AMA council of science and public health. He served on a UN committee (COPUOS) representing the AMA on light pollution for a worldwide effort to control LP and satellite proliferation. Finally, several years ago the International Astronomical Union awarded Dr Motta an asteroid in part for his work on light pollution as well as amateur research, asteroid 133537MarioMotta.

Alexander Varakin

Art of Astrophotography: From Beginner to Pro

Abstract: This talk provides a comprehensive guide to astrophotography for beginners and those looking to enhance their skills. The discussion includes choosing and using appropriate equipment, along with the fundamental process of capturing celestial images. Moving beyond the basics, this talk delves into more advanced topics relevant to experienced imagers. Whether starting out or refining astrophotography skills, this presentation provides the knowledge and inspiration to capture the night sky.

Bio: Alex has been passionate about astronomy since childhood. At approximately 14 years old, he built his first telescope using eyeglass lenses. He began practicing astrophotography in 2012 and currently has about 180 images on AstroBin.com. On clear, moonless nights, he travels to dark sites to capture images and observe with his self-built 15-inch hexapod Dobsonian.

Brian Kloppenborg

Waiting on a Nova: From Peltier's Notebook to Today's Telescopes

Abstract: T Coronae Borealis (T CrB) is one of the rare novae that erupts on a human timescale, keeping astronomers—both amateur and professional—on the edge of their seats. This talk will explore the history of T CrB, from Leslie Peltier's poetic observations to the cutting-edge research being conducted today in anticipation of its next outburst. Along the way, we'll discuss what makes this system so special, how observers past and present have contributed to our understanding, and why we're all still waiting on a nova.

Bio: Dr. Brian Kloppenborg is an astrophysicist and entrepreneur currently serving as the Executive Director of the AAVSO. He earned a Ph.D. in Physics with an astrophysics specialization from the University of Denver and a B.A. in Physics from Hastings College. Before joining the AAVSO, Dr. Kloppenborg worked as a Research Scientist at the Georgia Tech Research Institute, where he led multidisciplinary teams as a subject matter expert, lead engineer, product owner, and project director. Dr. Kloppenborg's research focuses on combining photometry, spectroscopy, astrometry, and long-baseline optical interferometry to deepen our understanding of eclipsing binaries, novae, and young stellar objects. His work has been published in esteemed journals, including Nature, The Astrophysical Journal, and the Journal of the AAVSO. Throughout his career, Dr. Kloppenborg has been dedicated to fostering collaboration between amateur and professional astronomers, advancing scientific discovery, and promoting educational outreach in astronomy.

Gabor Furesz

From Photons to Megastructures: What Shapes Tomorrow's Telescopes

Abstract: The future of astronomy is being shaped not just by curiosity, but by the dynamic interplay of science, economy, and technology (SET). This talk takes a fast-paced tour through the evolution of telescopes—from the largest lenses made by Alvan Clark & Sons to the giant 'eyes' of today like JWST, the ELTs and giant 'ears' like LIGO, or the Event Horizon Telescope. We'll examine how shifting funding models, private space ventures, and global collaborations are redrawing the telescope roadmap of the future. On the horizon lie bold visions: inflatable space mirrors, kilometer-scale detectors, highly modular and even self-assembling observatories. For some we will be able to leverage industry, like using photonic wire bonders developed by telecom companies to sculpt micro-optics at nanoscale to increase observing efficiency. Orbital megastructures might be explored for us by space tourism first, but developing optical surfaces or detector arrays on such scale is probably left to astronomers alone. Can we do it, could artificial intelligence give us a boost and make Moore's Law to meet Galileo's dream? Join us as we explore what SETs the future of our telescopes, and how far down we see on that road today.

Bio: Gabor is an astronomer and technical lead whose work revolves around crafting and designing spectrographs for both optical and infrared domains, including those requiring high resolution and capable of multi-object observations. He thrives on the hands-on building and problem-solving aspects of his job, engaging in optical and opto-mechanical design. Gabor's approach to work involves a deep collaboration across various disciplines to ensure that scientific needs are accurately translated into concrete system architectures. This process involves analyzing risks, making crucial trade-offs, assessing the technical viability, and incorporating innovative solutions to deliver instruments that exceed expectations. Gabor's expertise and experience have been recognized through numerous invitations to serve as a review board member and chair for prestigious organizations such as NASA, NSF, GMT0, and several private

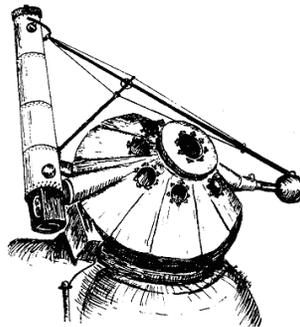
foundations. Additionally, he contributes to the academic community as an editorial board member of JATIS, a refereed journal of SPIE. Since joining MIT in 2014, Gabor has contributed to both ground-based and space-based projects, including the MMT, Magellan, GMT, and TESS. Before MIT, he worked as instrument scientist at the Harvard-Smithsonian Center for Astrophysics, between 2003 and 2014. His academic credentials were earned from the University of Szeged, Hungary, where he obtained his PhD in astrophysics in 2008 and his MSc in astronomy in 2002. Gabor's journey to astrophysics began at an early age, at the age of 10, when he built his first telescope. As a young teenager he engaged in visual observations, astrophotography, sidewalk astronomy and public outreach — things he still enjoys and values. Outside of work, he cherishes time with his family and deep conversations and discussions with a few close friends. Gabor's hobbies are reading and learning, photography, playing squash, biking, cultivating bonsai, quilting, and most importantly relishing the tranquility of nature. These activities bring him a profound sense of relaxation and rejuvenation after intense periods of work.

Qijia Zhou

It's Alive! Recent Developments in the Search for Life and the Birth of Planet

Abstract: Are we detecting signs of life on distant worlds? How do terrestrial planets form, and what determines if they will be habitable? What can our Solar System tell us about planets elsewhere in the universe? In this talk, we'll explore some of the most exciting headlines in exoplanet and planet formation science, focusing on recent discoveries largely enabled by the James Webb Space Telescope. I will highlight emerging results on potential biosignatures in exoplanet atmospheres, the evolution of our Solar System, and the early stages of planet formation.

Bio: Zhou is a rising second year PhD student in Astronomy at Harvard. Her research, advised by Professor Karin Öberg, focuses on the process of planet formation, specifically investigating potential chemical pathways to life and the habitability of planets beyond Earth. Her current projects include analyzing JWST data to explore the chemical inventory of planet-forming disks, and testing chemical reactions that form molecules important to life in the laboratory. She graduated from Harvard College in 2024 with a joint concentration in Physics and Astrophysics.



The Hartness House Workshop

Keynote Speaker

Stephen Sekula

Catch a Dying Star: Neutrino Astronomy and the Next Galactic Supernova

Abstract: 168,000 years ago, very close to our home galaxy, a massive star exploded. On February 23, 1987, the first signs of this catastrophe reached earth. This event was a turning point in astronomy, a moment that helped shift the field from what we can see (light) to all the things we cannot see. Supernovae produce invisible messengers that can penetrate entire stars, cross undeflected through vast expanses of space, and reach Earth in countless numbers. They are frustrating to detect but are too important to ignore. We'll explore how these messengers tell us about our own Sun and how the visible deaths of distant stars can be forecast by a global network of early warning detectors.

Bio: Dr. Stephen Sekula is the Research Group Manager at SNOLAB, the deepest-cleanest underground laboratory in the world, and Professor of Physics at Queen's University in Kingston, Ontario, Canada. He earned his PhD in Physics from the University of Wisconsin-Madison after completing his Bachelor of Science at Yale University. He held post-doctoral research positions at MIT and The Ohio State University and was a Professor of Experimental Particle Physics at Southern Methodist University in Dallas, Texas from 2009-2022. His primary research areas are in the study of neutrinos and the search for dark matter. He is Co-Spokesperson of the Helium and Lead Observatory (HALO) supernova early warning detector and Science Board Chair for the PICO dark matter search experiment. He is particularly proud of the excellent high school, undergraduate and graduate students and post-doctoral researchers that he works with in his research programs. He previously worked on the Large Hadron Collider at the CERN laboratory and is a co-laureate for the 2025 Breakthrough Prize in Fundamental Physics for his contributions to that program. He is also an author of several books, including co-author of a general audience ("Reality in the Shadows (or) What the Heck's the Higgs?"), author of a multi-audience book for undergraduates and the general public ("The Friendly Physics Guide to Nuclear and Particle Physics in Modern Medicine"), and co-author of an advanced textbook for graduate students ("The Dark Matter Discoverer's Guidebook"). He is proud of his work with his co-authors Dr. S. James Gates Jr., Frank Blitzer, and Dr. Jodi Cooley, and extremely grateful to his editor and publisher, Otto Barz. Dr. Sekula is the recipient of the two highest teaching prizes at Southern Methodist University and delights in working with new learners to tackle the mysteries of the universe.



Alvan G. Clark & Carl Lundin with the 40” Yerkes Lens in 1896

Alvan Graham Clark (1832–1897) was a pioneering American astronomer and lens maker whose contributions to telescope optics transformed astronomy. Born in Fall River, Massachusetts, Clark honed his craft in his family’s optical firm, Alvan Clark & Sons, becoming a master lens maker. His precision-crafted refracting telescopes, renowned for their clarity, were sought after by observatories worldwide. In 1862, while testing a telescope, Clark discovered Sirius B, the white dwarf companion to Sirius, a groundbreaking find that validated theoretical predictions about stellar evolution. (Image colorized and brought to life by Retro Revive)



Charles “Chicky” Capen and Jim Young at Table Mountain Observatory 1963

Capen can be seen carefully guiding by eye through the 16" F/20 Cassegrain, while Young is taking a long exposure photo through the co-mounted 6inch refractor. This is how guiding was done for long exposure photos many decades ago. Capen was a pioneering planetary astronomer renowned for his extensive studies of Mars. A mentee of Clyde Tombaugh, Capen worked at JPL’s Table Mountain Observatory, contributing to NASA’s Mariner and Viking missions. His innovative planetary imaging and color filter techniques influenced Kodak’s filter categorization. As Mars Recorder for ALPO, he fostered pro-am collaboration, mentoring countless astronomers. Capen’s vibrant personality and dedication left a lasting legacy, with a 43.5-mile Martian crater named in his honor. (Image Retro Revive)



The Hartness House Workshop
See you next year!