LARGE BINOCULAR TELESCOPE OBSERVATORY

LBT OBSERVATORY NEWSLETTER

June 2026 Issue 2026.1

From the Director

Joe Shields

The biggest change for the Large Binocular Telescope Observatory in 2026 is the departure of our German colleagues, represented by the LBT Beteiligungs-gesellschaft (LBTB), from the LBT Corporation. LBTB personnel had a foundational role in the development of the Observatory and its instruments, and in the science that has resulted. Those of us associated with the LBTO are deeply grateful for their contributions over many years.

The remaining Corporation Members – University of Arizona (UA), Istituto Nazionale di Astrofisica (INAF), and The Ohio State University (OSU) – have agreed on the following percentages of participation in the LBT going forward:

UA: 34.17%
INAF: 34.17%
OSU: 31.66%

The change is resulting in a significant increase in observing time available to scientists at the remaining Member institutions, beginning with the 2026A semester. The Corporation has also reached agreement to provide some continuing access to the telescope in the near term to scientists from the Max Planck Institute for Astronomy (MPIA) and AIP-Potsdam.

Under the new configuration, the Observatory has slightly modified scheduling by combining UA, MPIA, and AIP time into a unified Queue block with observations executed by LBTO personnel. INAF and OSU continue to operate their own mini-queues within scheduled blocks.

As previously announced, the Observatory remains open to participation by other institutions in the future, with flexible options for scheduling.

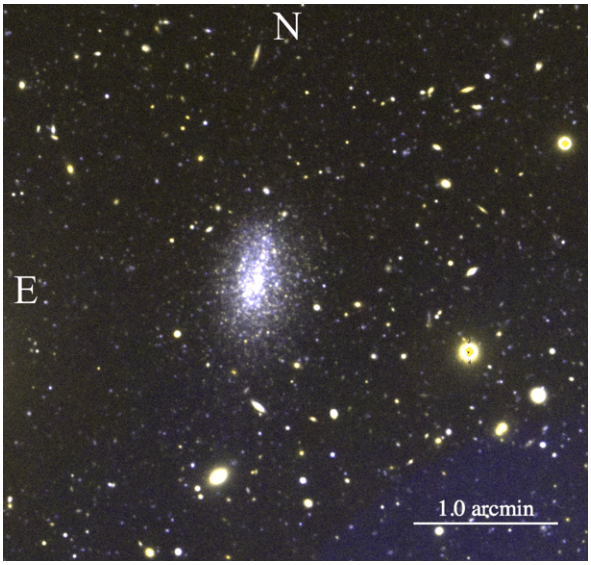
Some late-breaking good news is that the **iLocater** extreme precision radial velocity spectrograph has achieved first light observations at the LBT. This success is testimony to the hard work of the iLocater team and the Observatory staff who were involved in preparing for the instrument's arrival. We look forward to seeing exciting science from this important new addition to the LBTO's instrument complement.

LBTO Science Highlights

Probing the Nature of a Gas-Rich Dwarf Galaxy

The nature and incidence of low mass galaxies is important for understanding fundamental aspects of galaxy formation and evolution. Expanding the census of faint nearby galaxies is a valuable pathway for improving this understanding, and low-mass galaxies that retain significant gas – the raw material for star formation – are of particular interest. KK 153 was identified as a notable dwarf galaxy after its detection as an HI source by the Five-hundred-meter Aperture Spherical radio Telescope (FAST), implying presence of significant gas. The distance to KK 153 was estimated to be D = $2.0^{+1.7}_{-0.8}$ Mpc based on the baryonic Tully-Fisher relation. At

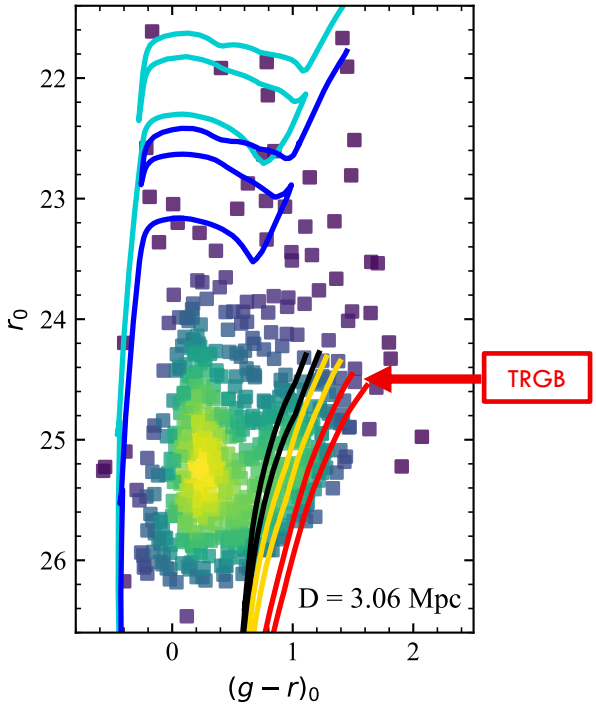
that distance KK 153 could be considered a rare example of a gas-rich ultra-faint dwarf (UFD) galaxy and also a possible member of the Local Group.



Stacked LBC g and r images for KK153.

A recent study by Bellazzini et al. has clarified our understanding of KK 153. The authors used the LBCs to acquire simultaneous images of the galaxy in the g- and r-bandpasses in 0.9″ seeing. The total exposure time was 1800s in each filter. The resulting data provide integrated photometry for the galaxy, while also permitting detection and photometry of individual stars. The results were used to construct a stellar color-magnitude diagram revealing a range of stellar ages and allowing identification of red giant stars.

A cutoff in the distribution of luminosities for the red giants – the Tip of the Red Giant Branch (TRGB) – was used as a standard candle, resulting in a measured distance to the galaxy of $3.06^{+0.17}_{-0.14}$ Mpc, which places this object outside the Local Group. Scaling from the integrated light, the galaxy's stellar mass is then $(2.4 \pm 0.2) \times 10^6$ $M_\odot$. While well above the UFD upper bound of $\sim 10^5$ $M_\odot$, KK 153 nonetheless remains interesting in relation to galaxy formation models as a dwarf galaxy that maintained a reservoir of atomic gas after the onset of reionization, allowing star formation to persist to recent times.



Color magnitude diagram for KK 153. The red arrow shows the location of the TRGB obtained by fitting the RGB brightness distribution. Isochrones are overplotted for the resulting distance of 3.06 Mpc. Isochrones for the RGB are shown for metallicity [M/H] = –2.0 (black), –1.5 (yellow) and –1.0 (red), with ages of 5.0 and 10.0 Gyr (older being redder). An indication of the ages for young stars is provided by isochrones for [M/H] = –1.0 and ages of 40 Myr (cyan) and 63 Myr (blue).

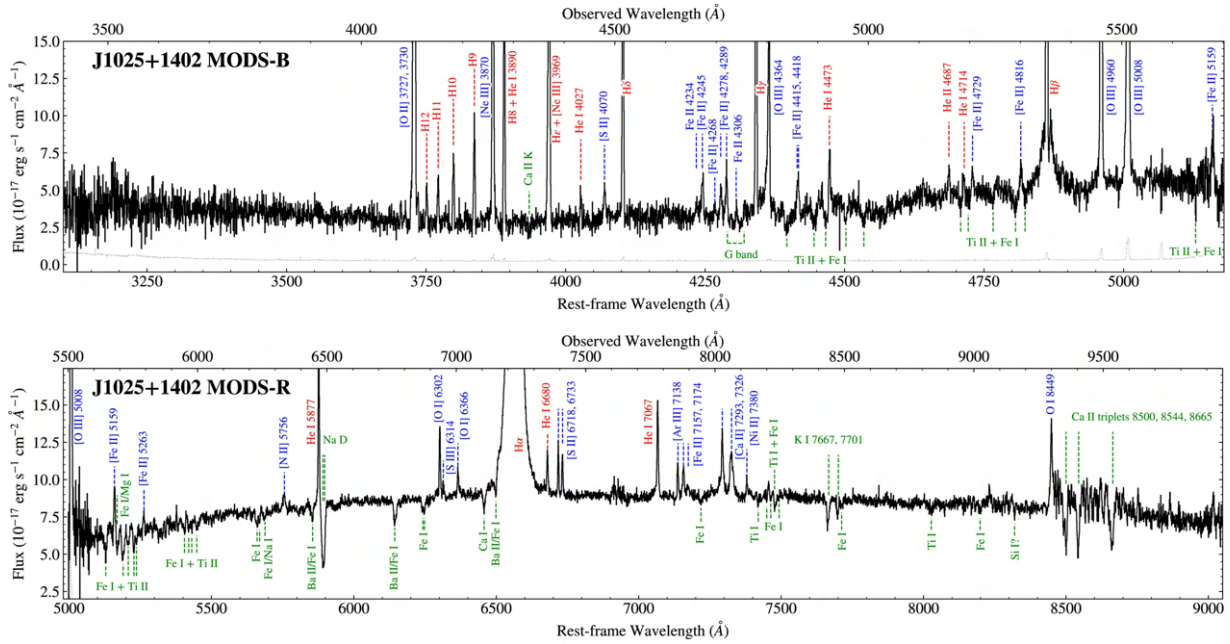
Little Red Dots in the Local Universe

Among the many remarkable results produced by the James Webb Space Telescope is the discovery at high redshifts ($z > 4$) of a class of objects now known as Little Red Dots (LRDs), based on their morphology and distinctive spectral properties. LRDs are compact, exhibit broad Balmer emission lines with underlying Balmer absorption in some cases, and V-shaped spectral energy distributions (SEDs) resulting from a blue ultraviolet continuum and red optical

continuum, with an inflection near the Balmer break. The broad lines resemble emission from an active galactic nucleus (AGN), but LRDs differ from AGNs in having weak X-ray and radio emission. And while the red optical continuum is suggestive of dust attenuation, LRDs exhibit weak mid-infrared and sub-millimeter emission thereby limiting how much radiation is reprocessed by dust. This novel collection of properties has prompted great interest in the possibility that LRDs are the signposts of the early and distinctive evolution of supermassive black holes in nascent galaxies.

While the number density of LRDs drops markedly at lower redshift, studies are now reporting discovery of similar objects in the Local Universe. A recent paper by Lin et al. provides an important investigation of newly discovered nearby LRDs. Their study used Sloan Digital Sky Survey spectra coupled with GALEX ultraviolet photometry to identify sources with V-shaped SEDs. These objects were filtered to select compact sources with strong optical lines exhibiting high ionization based on an [O III]/[O II] line ratio. The resulting sample was further distilled by removing objects displaying spectral features indicative of an evolved stellar population. From this selection, three sources at z~0.1-0.2 were ultimately identified that show a close similarity to the high redshift LRDs.

Lin et al. obtained follow-up spectra for this sample using LBT/MODS and Magellan/FIRE, with high-resolution spectra acquired for 2 sources using MMT/Binospec. Like the high-redshift LRDs, the local sources show broad emission in H and He lines. If these objects follow the scaling laws for normal AGNs, the broad Hα luminosity and linewidth would imply underlying black hole masses of 10^6 – 10^7 $M_\odot$. Analysis of the emission lines shows broad Hα/Hβ flux ratios significantly larger than Case B recombination predictions and values found in normal Type 1 AGNs, a characteristic also seen in high-redshift LRDs, implying the presence of unusually dense gas or atypical dust properties. Flux ratios for narrow lines are generally consistent with those for low-metallicity AGNs with minimal dust, also consistent with high-z LRDs.



MODS spectrum of the local LRD source J1025+1402

All three objects exhibit absorption in Balmer and/or He I 1083 nm lines, although different lines show different velocity behavior in absorption. One source, J1025+1402, additionally shows high equivalent width absorption in Na D, K I, and Ca triplet lines that is much stronger than typical interstellar features or in most stars, with additional weak absorption features present from multiple other low-ionization species.

The authors use the new spectra, coupled with additional multiwavelength constraints, to suggest a conceptual picture of LRDs powered by black hole accretion, with a cool-star-like gas envelope giving rise to thermal continuum emission and the high equivalent width metal-line absorption. In this scenario dense outflowing gas produces the observed Balmer and He I absorption, with lower density extensions giving rise to the narrow-line emission. Many questions remain as to the evolutionary state and accretion mode of LRDs, and the present study illustrates the opportunity to advance our understanding with examples of this phenomenon at low z.

LBT Acknowledgement for Publications

Researchers publishing results based on LBT data are requested to include a standard statement acknowledging access to the telescope and its support from the LBT Corporation Members. This long-standing policy is consistent with acknowledgement protocols at other major observatories. In response to the change in 2026 in LBT Corporation membership, the LBT Board has approved updated acknowledgement language.

Authors should follow a specified decision tree to select appropriate language reflecting Corporation membership when data were acquired. The standard language also includes acknowledgement of LBT archive support by IA2, and the ALTA forecasting system for atmospheric conditions. The new language and decision tree can be found on the LBTO website.

New Instrument Concepts

The LBTO released a call for proposals for New Instrument Concepts in July 2024, and results were announced by the LBT Board in January 2026. Nine proposals were submitted before the May 2025 deadline, and were subsequently reviewed by the LBT Science Advisory Committee (SAC). For this purpose, additional temporary SAC members as well as external reviewers were recruited, in order to ensure appropriate breadth of expertise and to manage conflicts of interest.

Based on the SAC recommendations, four proposals were approved by the Board:

- *LBCmos, an upgrade to the existing Large Binocular Cameras for wide-field imaging. PI: Michele Bellazzini (INAF)*
- *NirvanaVIS, an extension of LINC NIRVANA enabling near-diffraction-limited imaging for speckle holography in the visible bandpass. PI: Maria Bergomi (INAF)*
- *LIVE: the LBT Interferometer Visible Extension Project. PI: Jacob Isbell (UA)*
- *MODS-IFU: a Binocular Integral Field Unit for MODS. PI: Rick Pogge (OSU)*

The current Board approval authorizes the instrument teams to submit funding proposals, and to carry out development work as funding becomes available.

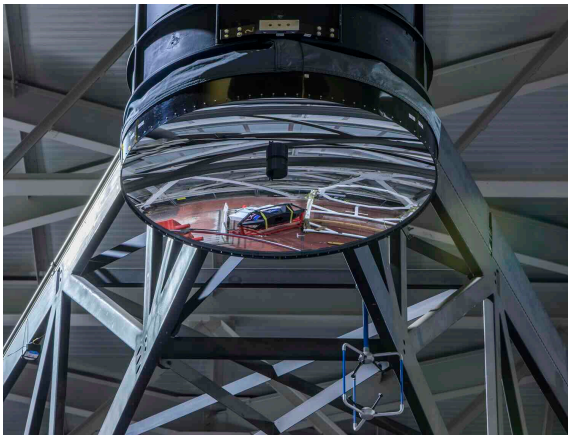
Five additional proposals remain under consideration pending further input, including guidance on the Observatory's future adaptive optics capabilities (see next item).

AO Strategic Plan

The majority of New Instrument Concepts submitted in response to the 2024 call for proposals depend on adaptive optics (AO) capabilities and in some cases propose major augmentations of AO infrastructure. Based on input from the SAC, the LBT Board decided to appoint a committee to produce an AO Strategic Plan, which will inform consideration of the current and future instrument proposals.

The committee is charged with providing guidance on future investments to shape the Observatory's AO capability and associated instrumentation over the next decade, with the goal of maximizing the scientific return. The committee is expected to provide a report in January 2027, to the SAC for evaluation and to the Board for final deliberation.

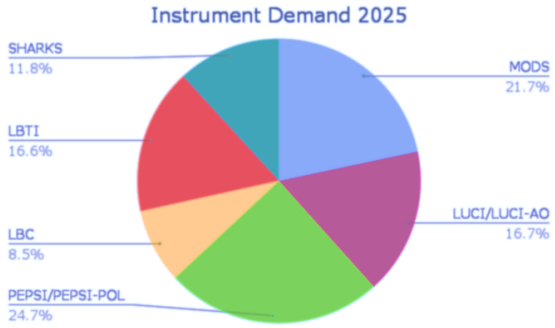
The committee is co-chaired by Rob Kennicutt (UA and Texas A&M University) and Peter Wizinowich (Keck Observatory). Other committee members are Lorenzo Busoni (INAF-Arcetri), Jeffry Chilcot (U. Notre Dame), Valentina D'Orazi (Rome U. Tor Vergata), Josh Eisner (UA), Jared Males (UA), Laura Pentericci (INAF-Rome), and Rick Pogge (OSU).



One of the two adaptive secondary mirrors at the LBT. Photo credit: R. Cerisola

Instrument Demand

While considering the future of instrumentation at the LBT, it is relevant to understand current demand for existing instruments, illustrated in the pie chart below.



Fraction of time requested with indicated instruments during the 2025A and 2025B semesters.

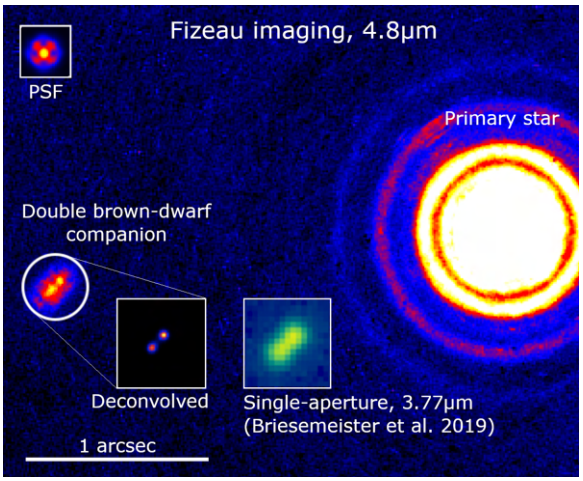
The 2025 results indicate that demand is broadly distributed across the existing facility instruments as well as the PI instruments SHARK-NIR/SHARK-VIS. Observers continue to see value in using all of these options, which is a positive reflection on the performance and versatility of the current instrument suite.

LBTI's FFTCam Delivers First Science Results

Steve Ertel

In late 2024 the LBTI team deployed the instrument's upgraded Fast Fringe Tracking Camera (FFTCam). Fringe-tracking is used by LBTI to stabilize the interferometric phase between the two apertures of the LBT to enable long exposures on the science camera when taking interferometric data. FFTCam's Saphira detector has replaced the PICNIC detector of the instrument's previous fringe sensor, PhaseCam, which was optimized for the nulling-interferometric HOSTS survey for exozodiacal dust around very bright, nearby stars. PhaseCam's bright limiting magnitude of K=4.5 was a major limitation on other interferometric observations.

Commissioning of FFTCam is now largely complete and the first science-quality observations utilizing the upgraded system have been obtained successfully. The LBTI team has demonstrated a new limiting magnitude for fringe tracking with FFTCam of K=7.7 in average observing conditions and estimates that in good conditions the limiting magnitude will be between K=9 and K=10. This quantum leap in sensitivity will enable Fizeau-interferometric high-contrast-imaging observations of planets and disks around young stars in nearby star-forming regions, planets around more mature nearby field stars, and faint Solar-system bodies among other use cases.



LBTI Fizeau-imaging observation of a benchmark brown-dwarf binary. The host star is seen as the very bright source on the right (saturated in this image stretch). The double brown-dwarf companion is seen on the left. The reconstructed point spread function is shown in the upper-left corner. The inlay at the bottom left shows the new result after image processing via deconvolution. The inlay at the bottom center shows a past, single-aperture image of the system obtained with LBTI (Briesemeister et al. 2019). Despite the longer wavelength of the Fizeau image (4.8 μm vs. 3.77 μm), the binary components are better resolved in the new Fizeau than in the old, single-aperture image. Image credit: J. Isbell / LBTI team

Utilizing FFTCam, the team has demonstrated Fizeau-imaging observations, delivering direct images at the angular resolution equivalent of a 28.8-m telescope, and Fizeau-aperture-masking observations delivering interferometric phases and visibilities with dense Fourier-plane coverage and an interferometric angular resolution equivalent to that of a single 44-m telescope. The LBTI hence continues its mission to make the LBT the world's first 30-m-class telescope.

The LBTI team is committed to making the instrument available to the entire LBT user community and to supporting users in the planning and execution of their observations, and is inviting interested users to contact the team at lbtipi@lbto.org to inquire about the potential use of FFTCam's new capabilities for their research.

MODS Upgrade

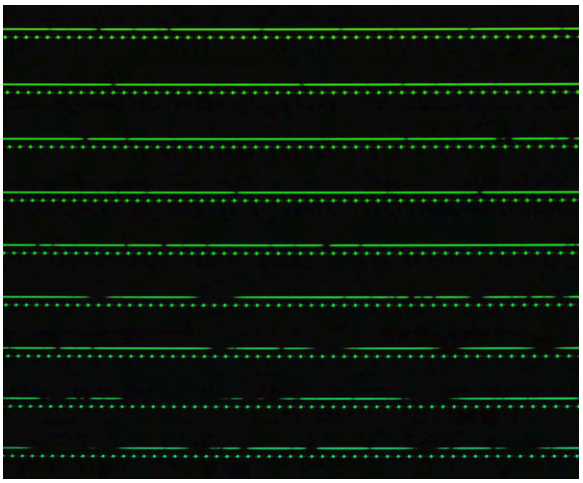
Following the replacement in August 2025 of the CCD controllers and associated electronics in the MODS spectrographs, an extended process of testing and troubleshooting continued through March 2026. This work was conducted by the Ohio State team led by Rick Pogge, with contributions also from Mike Lesser at U. Arizona, LBTO personnel led by Olga Kuhn, and experts at Semiconductor Technology Associates Inc.

MODS2 on the DX side of the telescope. Photo Credit: R. Cerisola

MODS1 was released for shared-risk use in April. Users will find that the new system has significantly shorter readout times, and the bias level offset between odd and even rows

is no longer present. MODS2 will remain offline until the 2026 Summer Shutdown due to an unrelated problem with the slit mask mechanism. Further updates will be posted on the LBTO webpages as new information becomes available.

iLocater Update



Zoomed view of a portion of a simultaneous spectrum of Vega (solid lines with absorption lines evident) and the laser frequency comb (dots) during the first night of on-sky operations for the iLocater spectrograph.

The iLocater spectrograph achieved first light with the LBT on an astronomical source on 2026 June 28 UT. This success follows completion in March of a successful two-part Pre-Ship Review with separate components focusing on readiness of the instrument and of the LBT to receive it, and subsequent approval by the LBT Board for access to the telescope for installation and commissioning.

The instrument arrived at the LBT on June 1. Following reintegration in the high bay cleanroom, the instrument was installed in its environmentally controlled chamber on level 3L in the telescope pier on June 15.

The success of iLocater in achieving this major milestone reflects an enormous amount of work by the iLocater team, and also by the LBT staff who were involved in the construction of the iLocater chamber and associated infrastructure on level 3L.

iLocater with installation in the level 3L chamber underway.

In advance of iLocater's arrival, a Menlo Systems Laser Frequency Comb (LFC) for wavelength calibration arrived at the LBT mid-May. The LFC was funded by an NSF Major Research Instrumentation award to Ohio State. The LFC will be important for allowing iLocater to achieve its full velocity precision. The system is also designed to feed PEPSI and will likewise enhance wavelength calibration and velocity precision for that instrument. First light with the LFC was achieved with PEPSI on May 14 and the LFC was also used successfully during the iLocater on-sky first-light observations.

The cabinets housing the new LFC on level 1 at the LBT.

LBT Archive News

IA2 Italian Center for Astronomical Archives
Centro Italiano Archivi Astronomici

PI Instruments. The LBT Archive, operated in coordination with INAF's IA2, is the official repository for data acquired with the Observatory's Facility Instruments. Based on guidance from the LBT Board at its April 2026 meeting, data from most PI instruments will also be available in the Archive going forward. In particular, data resulting from the second-generation PI instruments SHARK-NIR, SHARK-VIS, and iLocater will be available in accordance with the Observatory's public access policy. To manage data volume, the archived observations for iLocater will consist of processed 2D frames.

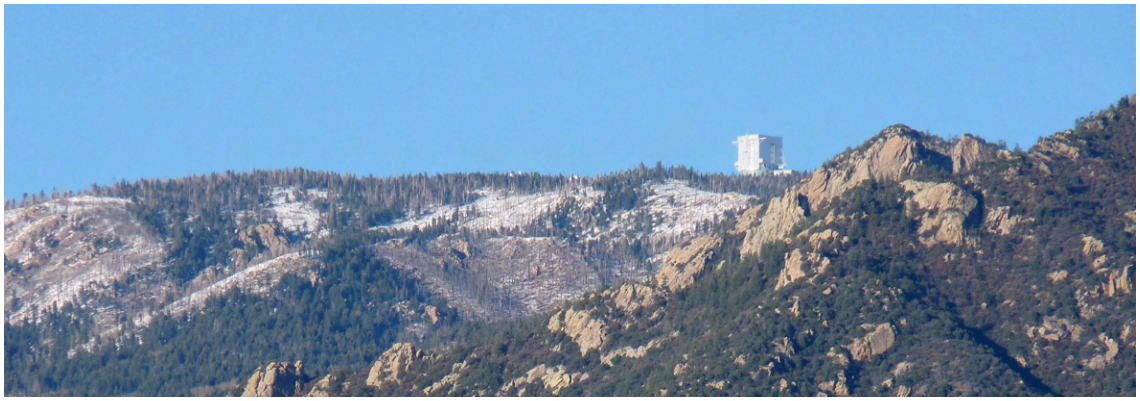
PEPSI 1D Spectra. Wavelength-calibrated spectra are now available in the LBT Science Archive. Approximately 1200 spectra, taken over the last two and a half years, have been archived. Of these, over 300 are publicly available. A mouse-over preview feature provides a user-friendly method for browsing. New help text has been added to the portal that instructs users how to access PEPSI spectra, either in a table format or as a plot. For assistance using this new feature, email aconrad@lbto.org or martina.vicinanza@inaf.it. The LBT Science Archive is being continuously enhanced by IA2 in collaboration with staff members at LBTO.

Fire Alarm Status

The fire alarm system at the LBT has reached end-of-life and work recently started on its replacement. The new system will include additional panels for monitoring and control, audio alarms, a public address system, and digital signboards.

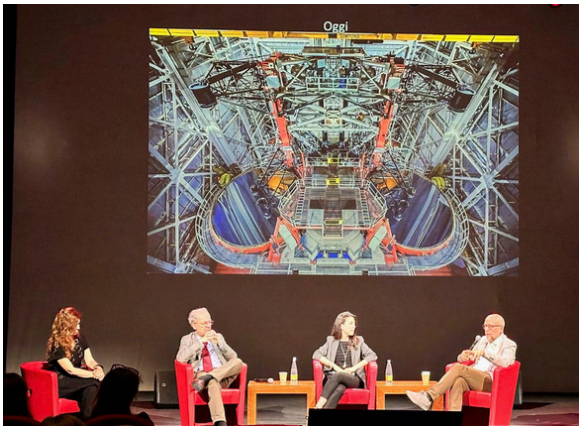
New fire safety control panel installed in the LBT lobby. Photo Credit: T. Castro

LBT staff have worked closely with University of Arizona Fire Safety & Maintenance office and Johnson Controls personnel for the design of the system. Work sessions for installation are underway and will continue in fall 2026, with completion anticipated in 2027.



LBT at the Rome Science Festival

The Large Binocular Telescope was prominently featured at the 21st Festival of Sciences of Rome. The Festival, organized this year around the theme *Chaos and Harmony*, attracted thousands of visitors over multiple sessions held April 15-19, 2026.



Panelists discussing the Large Binocular Telescope (l to r): moderator Rossella Spiga with Roberto Ragazzoni, Adriana Gargiulo, and Adriano Fontana. Photo Credit: A. Fontana

Representatives of INAF convened a panel discussion on the theme *Mirrors of Stars*, entitled "LBT: The Technology that Reveals the Harmony of the Universe." The conversation focused on illustrating how the telescope was conceived and built, and how it is used on a daily basis by astronomers worldwide. The Festival also featured a display of photos by photographer Renato Cerisola illustrating the telescope and its dedicated staff.

LBT photo display at the Rome Festival. Photo Credit: A. Fontana

Festival participants view the LBTO display. Photo Credit: A. Fontana

Closet Dedication

Individuals who have worked at the LBT are familiar with the dorm rooms that provide on-site accommodations. The building is equipped with twelve dorm rooms, but during busy periods this number is not sufficient to meet demand from visitors.

John Hill at Storage Room 235.

For some time sleeping space has been augmented when needed through use of two storage rooms in close proximity to the dorm rooms, equipped with beds. While these closets are more rudimentary than regular dorm rooms, most users find them acceptable, and some individuals prefer these accommodations since they are relatively quiet and, lacking windows, consistently dark for sleeping.

A grateful Observatory recognizes its founding Director.

Astronomer Emeritus and former Director/Technical Director John Hill has spent many nights at the LBT and is one of the individuals with a preference for the closets for sleeping. Following John's retirement last year, the Observatory named Storage Room 235 in John's honor, with a dedication inscribed in a plaque on the door.

John relaxing in his favorite LBT accommodation.

John Hill Recognized at LBT Conference

John Hill's many contributions to the development of the Large Binocular Telescope were recognized at a conference entitled, *LBT, Past, Present, and Future* held in Rapolano Terme, Italy on May 27-29, 2026.

The conference brought together an international group of colleagues who have participated in the development and use of the LBT, along with others whose work in forefront astronomical technology has been influenced by the LBT and the results of John's activities over many decades. Talks focused on the history of the telescope, current and future instruments, adaptive optics at the LBT, and the future landscape of Extremely Large Telescopes.

John holds his commemorative award at the conference, which reads, "Because Giant Telescopes Don't Build Themselves".

The conference provided an opportunity to thank John for his many contributions to the LBT and astronomy at large, as well as an opportunity to reminisce while also

anticipating what's next for the Observatory. The presentations and discussion evinced substantial optimism about the Large Binocular Telescope Observatory and its role going forward in astronomical research.

Thanks are due to the Scientific Organizing Committee: Simone Esposito (Chair), Maria Bergomi, Tom Herbst, Rick Pogge, and Joe Shields, as well as to Arcetri Astrophysical Observatory for organizational support.

A Remembrance of Piero Salinari
Simone Esposito

Piero Salinari, who had a key role in the development of the Large Binocular Telescope, passed away on September 2, 2025.

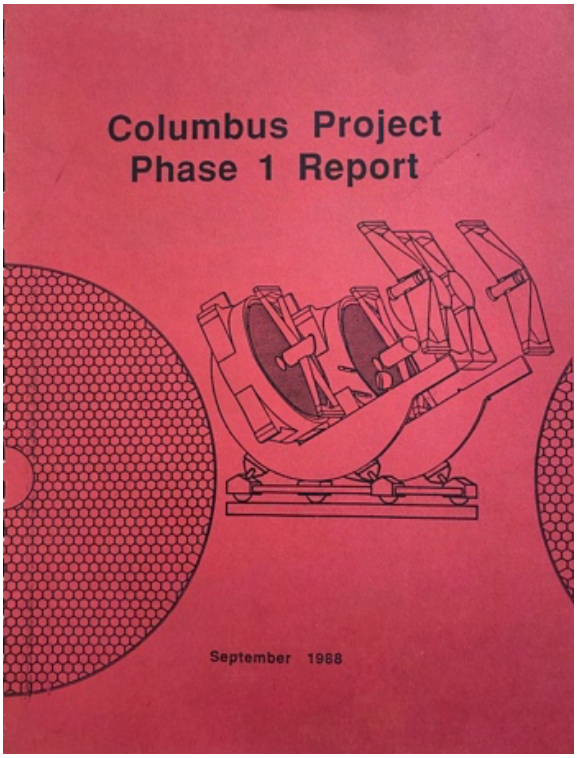
It's a pleasure and an honor to write this note as a remembrance of Piero Salinari. I would like to remember his contributions to ground based astronomical telescopes and at the same time the kind of person he was and how greatly he was appreciated for his firm but gentle temper that always was behind his ideas and discussions in the astronomical international community. It's remarkable that many colleagues from different Institutes remember him as a key person for many discussions and decisions even when they did not share his conclusions. This, I think, is a point to be highlighted first. Piero was always well perceived for the scientifically unbiased and objective open behavior he exercised while arguing with colleagues. I will try to be unbiased and objective in the next lines, as he would probably appreciate, despite the fact that I owe to Piero so much.

As a quick introductory line Piero arrived in Arcetri Observatory in 1980 after F. Pacini called him as full professor to work on infrared astronomy. He was responsible from 1980 to 1986 for the 1.5m National Infrared Telescope TIRGO. Later, he was appointed national coordinator for the LBT (formerly Columbus) project from 1986 to 2006 where he shared many responsibilities and decisions about the LBT developments with R. Angel, J. Hill and P. Strittmatter [Reference 5,6,7]. In 2006 he left the charge to A. Fontana (currently President of the LBT corporation) while still working on many different aspects of the LBT design.

Piero was the father of the Astronomical Adaptive Optics (AO) development in Italy. He created in 1992 the Arcetri AO group, which remained under his guidance until 2010, and became heavily involved in the international AO field. It is worth mentioning here that Piero called to Arcetri R. Ragazzoni as full professor to work on different aspects of LBT including AO. Piero was among the first, together with R. Angel, to recognize the potential of AO already at the end of the 1980s.

The Columbus project report of 1988 states that adaptive optics is mandatory to use the two 8.4m mirrors of the Columbus telescope as an interferometer achieving the angular resolution of a 23m single dish telescope. This viewpoint expressed in 1988, about the absolute needs for AO on large and extremely large telescopes, is the internationally shared viewpoint today in 2026, 38 years later! This was one of Piero's

notable talents, the ability to identify the need for technology advancements well before many others.

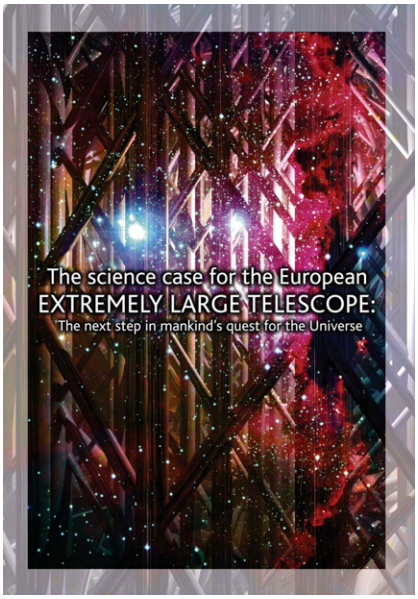


The Columbus Project Phase 1 Report from 1988, outlining the telescope design, technical requirements, and example science programs.

The main example here is Piero's invention of adaptive secondary mirrors. We cannot skip some historical notes about this point. The adaptive secondary initial concept and design was presented in 1993 [Reference 1]. This concept is mostly identical in so many key features to all adaptive secondaries developed to different degrees for MMT, LBT, VLTs, E-ELT and GMT. From 1993 Piero worked together with some other people on the development of voice coil actuator based adaptive secondary mirrors. His main collaborators in this endeavor where G. Brusa, A. Riccardi, R. Biasi, D. Gallieni, C. Del Vecchio, P. Stefanini and V. Biliotti. It was in June 2003, ten years later, that the MMT telescope adaptive secondary unit of 600mm diameter and 336 actuators had a successful first light.

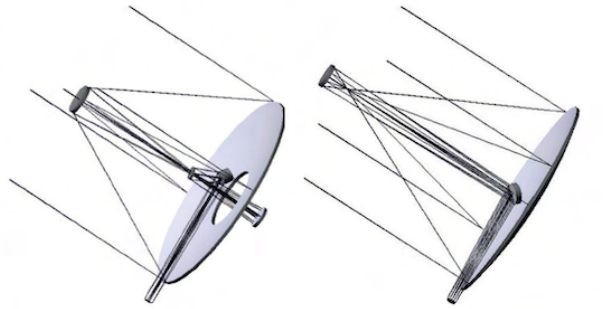
The adaptive secondary mirror at the MMT.

At this point the MMT project was mostly over for Piero. He was never interested in engineering the units he designed and prototyped toward industrial standards. He dedicated his time to start and follow the development of two adaptive secondary mirrors for LBT, the LBT672a and LBT672b, together with two Natural Guide Star AO systems for LBT. These systems were based on two newly born components, namely the adaptive secondary mirror and the pyramid wavefront sensor, a device invented by R. Ragazzoni [Reference 2]. This system had its first light on sky in 2010, 7 years later.



The 2005 report presenting the science case for the ELT.

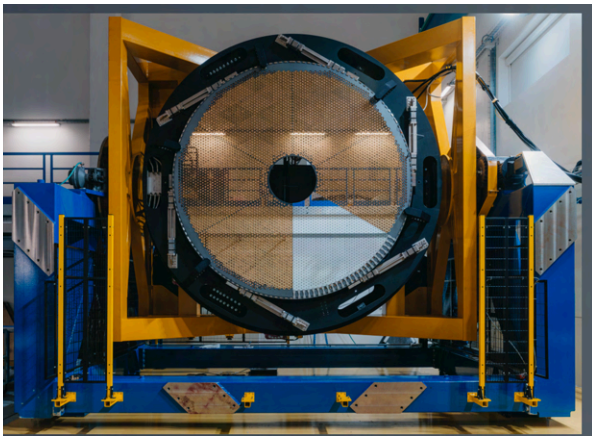
In the years 2004-2007 Piero was serving as Project Scientist of the E-ELT, the new project for a European extremely large telescope managed by ESO after the closure of the 100m telescope OWL development. His work here is testified by several documents including the ELT science book, a deliverable to the EU FP7 programme, where Piero contributed to various sections in particular to the AO system considerations and to the telescope optical design where he was in favor of the Gregorian design shown below.



Two optical designs under consideration for the ELT in 2007, with the Gregorian design shown on the right.

In 2007 Piero resigned from the Project Scientist position for the ELT. He claimed to me he was not heard on the idea of having adaptive primary segments! In any case the current E-ELT telescope does not have a Gregorian design, but carries Piero's bold signature because its M4 mirror is a 2.4m flat adaptive secondary mirror unit with more than 5352 actuators [Reference 3]. It is the largest unit of this kind ever built and it's the key element for adaptive optics operation at the ELT, the largest optical infrared telescope on earth.

After resigning from the E-ELT working group he dedicated himself to thermal solar plants. He changed to this subject quite abruptly and somewhat at the same time as his friend and colleague R. Angel in Tucson!



The ELT M4 mirror awaiting shipment to Chile.

From my experience they have been in contact on this subject too and they discussed and reviewed their different developments as they did so many times for the LBT design and prototyping phase.

CRONACHE

METROPOLI 11

Venerdì 15 giugno 2007

Con Star via al solare dinamico

Un progetto del Cnr e dell'Inoa finanziato dalla Regione per l'energia solare

RICERCA E OPPORTUNITÀ

BARBARA GUASTELLA

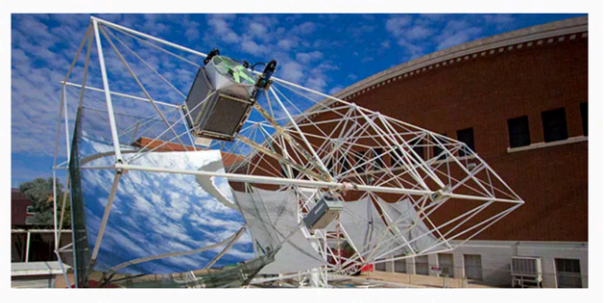
L'ÉQUIPE

Il prototipo verrà realizzato con la tecnologia degli specchi sottili deformabili, oggi impiegati in campo astronomico

News story from 2007 describing a solar energy project led by the team in the photograph, with Piero 3rd from left. The large print callout in the lower left translates, "The prototype will be built using thin deformable mirror technology, currently employed in astronomy."

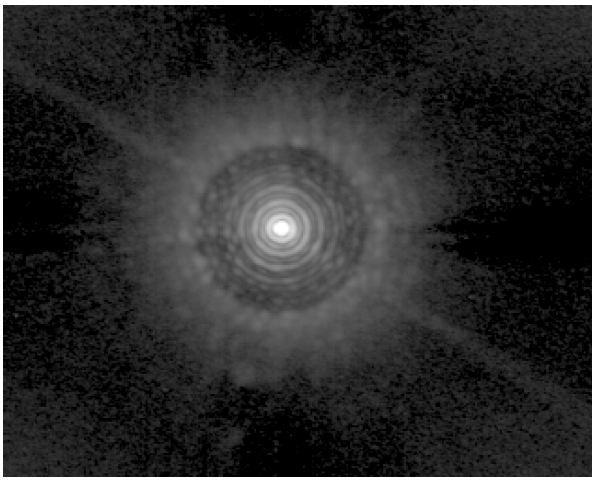
Solar power testbed in Italy.

Piero's friend and colleague Roger Angel at Steward Observatory.



From a University of Arizona news release: "Astronomer Roger Angel is trying to harness the sun with new technology developed for telescopes. The solar tracker pictured currently makes 2 kW of electric power."

In June 2010 the so-called First Light AO system (FLAO) had its first light at LBT reaching, thanks to the adaptive secondary and pyramid sensors, images of unprecedented quality [Reference 4].



H-band image of a star demonstrating diffraction-limited resolution with the FLAO system at the LBT [Reference 4].

As reported from R. Davies and M. Kasper in Annual Review of Astronomy & Astrophysics (2012) "*…The current state of the art is shown in Fig. 1. Here, the adaptive secondary AO system of the Large Binocular Telescope (LBT), which has 8.4-m primary mirrors, recorded a phenomenal 85% Strehl ratio in the H-band (1.65 μm)*".

Right after that Piero retired, leaving the office on exactly his first formal day of retirement, namely the 1st of September 2010. He did not come back a single day to work at the observatory officially. It was as if his duty was over and he passed that on to others from the very first day of his retirement! Despite that I have been calling him many, many times at Arcetri to review LBT and other telescope programs. He was always ready to come up in a matter of hours! He never refused to come to help.

That's how the time passed from September 2010 to September 2025. Many coffees and cigarettes outside the TIRGO building discussing future instrumentation! I saw him for the last time on the 9th of August 2025 when we discussed outside in front of the observatory about different duties of the director, like watering lemons in summer! He was interested as always in the latest events and the questions I had as usual for him. It was a terrible surprise to hear he passed away the 2nd of September 2025.

I hope I have conveyed in these few lines that Piero's contribution to ground based astronomical telescopes was impressive and essential, to how adaptive secondaries and their technology have shaped the design of large and extremely large telescopes, including the ELT - the largest optical facility for the next (?) >30 years. Adaptive secondaries are currently the state of the art for AO on all 8m class telescope like the VLTs where a second adaptive secondary contract is being signed at this time.

From the day he left us I have been receiving only positive comments about Piero's activity from so many different colleagues, even those who did not share his ideas. Piero's competencies and insight were never in doubt; the scientist was never in question! Coming back to Italy, it has already been stated he was the father of the Italian Adaptive Optics school and community, and Italy surely deeply owes him and his leadership for the international recognition that has resulted in Italian AO groups having a primary position in so many forefront international Adaptive Optics projects. Coming to me, personally, I owe him so much, in terms of support through all my career that I think would not have been possible without him. Thank you, Piero, for believing in me all these years and for assuaging, so many times, my doubts about the basic fact that we will succeed in the end.

Farewell Piero, wherever you are, from all of us!

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Personnel Update: Oct 2025 – June 2026

Arrivals:

Gilbert Esquerdo	Obs Support Associate
Amor Felix	Sr Fin/Admin Coordinator
Chandler Hunter	Technician Intern
Michael Sanders	Staff Technician

Departures:

Peter DeMars	Pr Mechanical Engineer
Richard Hansen	Assoc Obs Manager
Michael Lefebvre	Senior AO Technician
Manu Singh	Software Engineer