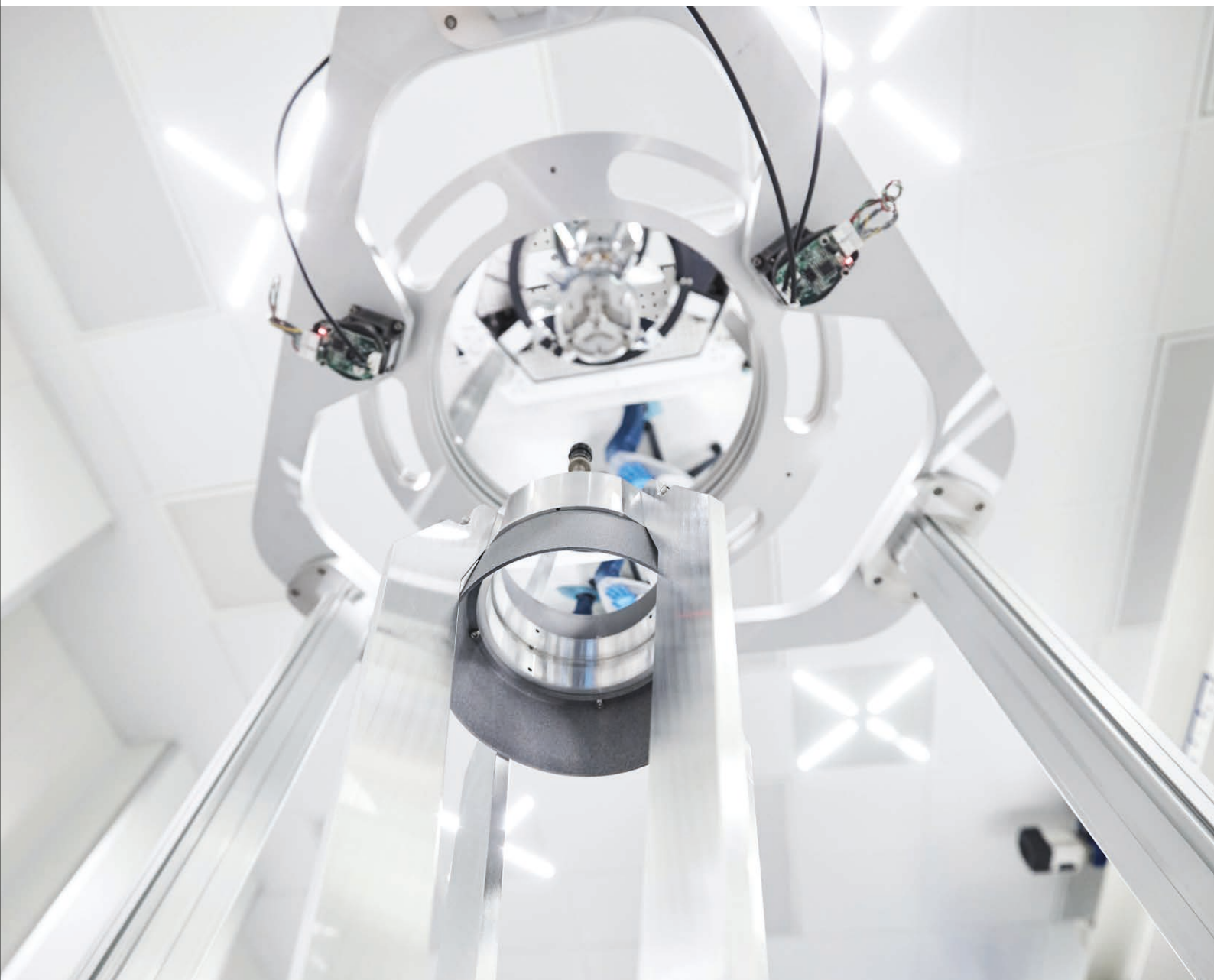
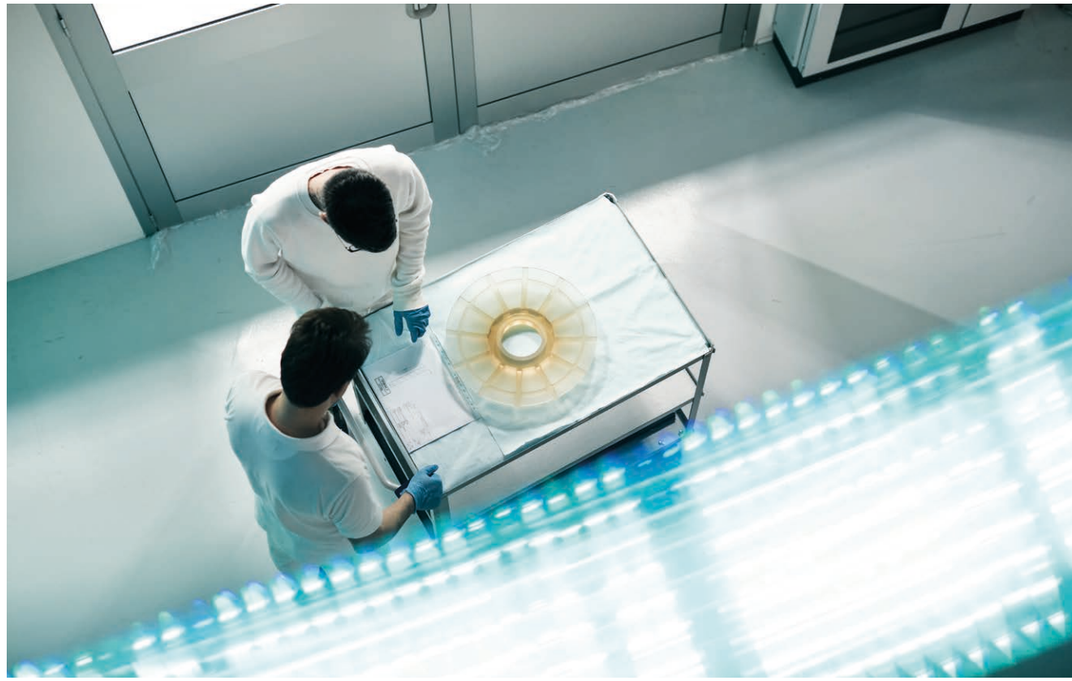
OFFICINASTELLARE
OUR WORLD. YOUR SPACE

Responding to the needs of tomorrow's space



Space payloads for Earth Observation during integration phases at Officna Stellare facilities

Leveraging continuous innovation and research



Officina Stellare designs, manufactures, and delivers integrated, complex opto-electronic systems to accelerate knowledge, enhance defense, and secure communication on Earth.
OS's products and services allow customers worldwide to cost-effectively deploy space assets and infrastructures for Earth Observation and Laser Communications application and services.

The Company aims to respond to the needs of tomorrow's space domain, in terms of quality, scalability and continuous innovation and research.

Space factory

Since its foundation in 2009, Officina Stellare has been a leading name worldwide for its capacity to design and manufacture of high technology opto-mechanical system instrumentation for the Aerospace, Scientific Research and Defense-related end-markets.

Officina Stellare Headquarters - Sarcedo VI

Vertical integration

Precise, state of the art designing, manufacturing, integration, and testing activities are performed in-house with granular accuracy. Thanks to an exceptional opto-mechanical asset availability, the entire value chain is kept in-house with minimum risk and cost-effectiveness for customers.

Continuous innovation

The efficiency improvements driven by the rollout of the “Space Factory”, make OS stand out as an excellence of strategic importance on the international scene; a key enabler for major players both in Ground and Space segments.

Teaming up is key

The acquisition of the subsidiaries Dynamic Optics Srl and ThinkQuantum Srl, respectively offering innovative Adaptive Optics solutions with deformable optical components and wavefront sensing components, ultra-high reflectivity deformable mirrors and solutions for optical metrology, and, the second, operating in the strategic sectors of cybersecurity and quantum-based encrypted communications, have contributed to expanding the Group business lines towards Laser Communication and Cybersecurity.
OS has also established Officina Stellare Corp., based in Virginia, USA, a significant milestone to consolidate its presence in the U.S. Defense and Space market.

Incubation & Acceleration: Sending the elevator back.

In a spirit of creating a broad and inclusive development base for new capabilities and technologies and stimulating the local industrial pattern, Officina Stellare leads ESA BIC Padua, one of the nodes of ESA-BIC Italy, the Business Incubator Centers of the European Space Agency, to facilitate the development of all the enabling technologies functional to achieving a leadership position in the reference sectors, as well as expanding the business lines into other synergistic value-added areas.

esa BUSINESS INCUBATION CENTRE

Your Journey with OS

The complete ground and space value chain at your service

Project Design

Dedicated engineering and management teams at OS, will work closely with you to assess the feasibility and design the optimum solution for your project mission either it be an optical payload, an opto-mechanical component or a ground station for very different ground or space applications.

Manufacturing

With a state-of-the-art manufacturing facility located in Sarcedo - Italy, OS manufactures research grade complex opto-mechanical systems for earth and space applications entirely in-house. Built to range from constellation scale to custom one-off mission systems, OS facilities are certified ISO 9001 and ISO 27001 and are equipped with the most advanced tools and machines to deliver from Optical Ground Stations for Laser Communication, QKD or SSA/SST to Opto-mechanical systems for Astronomy & Research.

Optical payloads
integration phases at
Officina Stellare's facilities

Integration, Testing and Validation

Our products span from Lasercom, Quantum and Laser Ranging Optical Ground Stations to Imaging space payloads:

Officina Stellare owns the in-house capability for executing the full development cycle of custom and series Optical Systems:

- the development, the update and use of design and analysis models and simulation
- the engineering, manufacturing, integration, verification, and validation
- configuration control, management of anomalies, non-conformities, and deviations
- maintenance of the hardware, software, and procedures/manuals

Officina Stellare exclusive and integrated in-house Manufacturing, Testing and Validation Capabilities/Plant unfolds in:

- in-house manufacturing and validation capability allows to manufacture optical components and systems up to 1600 mm diameter
- over 260 m² ISO7 and ISO5 clean rooms for integration of contamination sensitive equipment
- the OGS-Lab allows the verification and testing of optical ground station (sub-)systems and functionalities
- industrial qualification facilities equipped with pull test machine, thermal vacuum chamber and vibration shaker.

Ground

Officina Stellare has been serving the Ground Segment successfully for almost two decades. The internal capabilities gained over the years, allow us to provide custom, cost effective and reliable opto-mechanical system design, development, and delivery up to 1.6 m fully automated telescopes, including very wide field optical systems.
Officina Stellare detains a pivotal position on the international scene for the supply of Optical Ground Stations for Laser Communication, Quantum Key Distribution (QKD), Space Situational Awareness (SSA), Space Surveillance and Laser Tracking (SST) and Laser Ranging applications; the offer is completed with custom and off-the -shelf high-speed mounts/gimbals for astronomical and scientific research.

Ylara laser ranging station - OGT700 multi-mission terminal specifically designed for high performance when fast tracking and optical linking objects in LEO orbit is required. It is equipped with both Nasmyth and Coudé interfaces for application payloads, lasercom, QKD, laser ranging and SSA.

Space

OS operates as vertical integrator of space qualified opto-mechanical systems: in-house design & analysis capabilities are complemented by MAIT facilities, for the full in-house development of optical payloads for Earth Observation and SSA/SDA from space applications. The technology offering of OS is completed through the supply of Adaptive Optics systems and Laser Comm/QKD terminals and equipment.

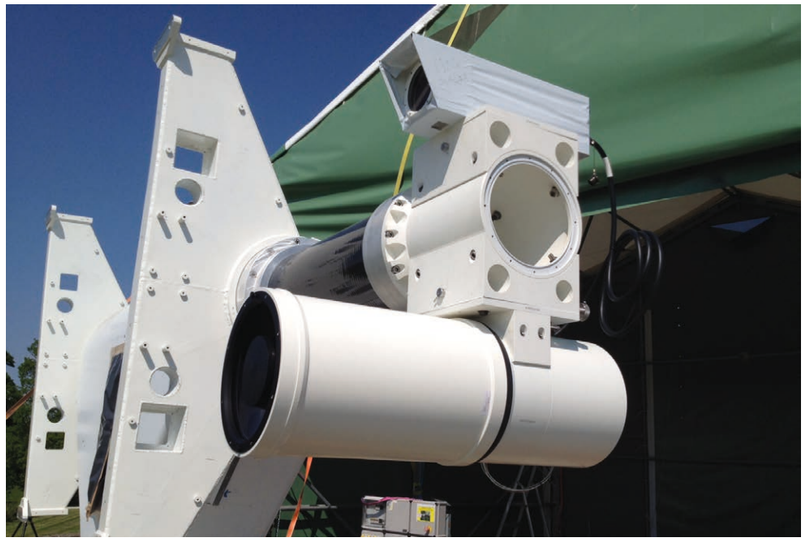
In the field of Earth Observation, Officina Stellare nurtures the trust of its partners with viable and effective solutions. From single optical components up to fully integrated payloads, we can meet the needs of institutional commercial satellite applications and operators.

Officina Stellare in-house manufactured lightweighted space mirror

Defense

Opto-mechanical systems as precision assets for the Defense Industry

The know-how gained in Research and Development of scientific instrumentation has enabled Officina Stellare to deliver high-tech opto-mechanical systems for the Defense industry and specifically for high-speed video-tracking infrastructures at strategic test facilities.
Officina Stellare has long been a qualified supplier of optical systems for the Defense industry.
These systems are employed in testing facilities to provide the flight behavior of supersonic targets through very high frame rate videos. They are extremely precise measuring and calibration instruments, having on one hand a very high optical quality and on the other, a mechanical stiffness capable to survive high dynamic stresses.
This type of instrumentation has multiple uses, from the most classic products used for the characterization and development of ballistic targets, to the most modern applications related to safety and Direct Energy technologies.



Ruggedized optical systems and pedestals for defense applications.

Short- and long-range optical telescopes, operating both in the visible and infrared spectrum, necessary for the execution of the MITS project (Multispectral Imaging and Tracking System) launched in 2019 by the US Army to meet the needs of modern-day DoD ranges.

Scientific research

The WMT (Wide Field Mufara telescope) installed on top of the Mufara Mount, Sicily, will be one of the most advanced telescopes operating in Italy. The WMT is a one meter in diameter, f/2.15 optical telescope, equipped with a large 5-lens corrector and an imaging system based on a cryogenic camera measuring over 90 square centimeters and 100 Mpixel. The WMT has been entirely designed, built and integrated by Officina Stellare for modern wide-field astronomical surveys, for the identification of potentially dangerous NEOs (Near Earth Objects), for Space Situational Awareness programs (tracking of satellites and the " space debris ") and more generally for the research applications of the so-called "transient" phenomena.

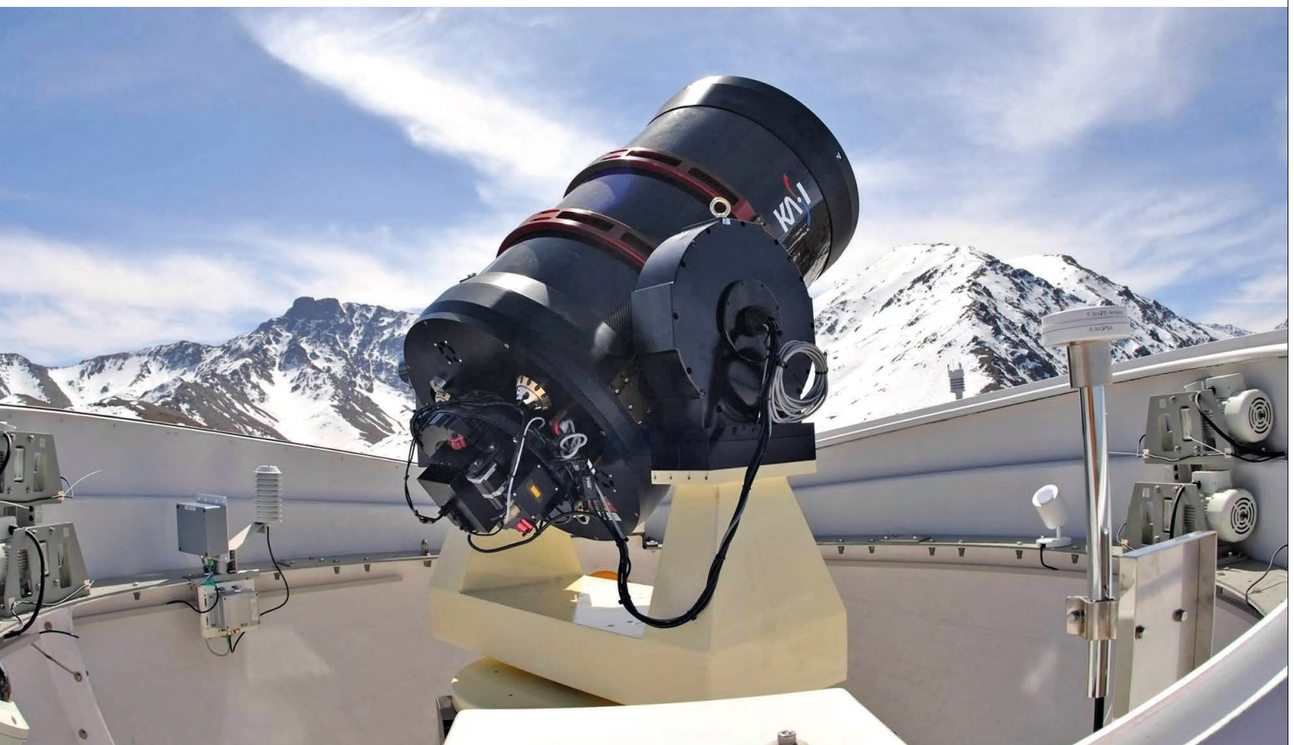
Custom opto-mechanical instruments for scientific research.
Officina Stellare high atmosphere Superpressure Balloon-borne Imaging Telescope (SuperBIT).
Credits: SuperBIT Consortium

SSA/SST

Newer large-aperture survey telescopes, equipped with multi-megapixels CCD cameras, are capable of monitoring wide swatches of the night sky to search for changes.
Increasingly, SSA (Space Situational Awareness) and SST (Space Surveillance and Tracking) play a central and strategic role in every country as it comes to space domain safety. Due to the exponential increase and fast-growing number of assets put in orbit, the identification and tracking of these objects and space debris has a strategic to prevent potential collisions in space and to predict impact areas on the ground.

Officina Stellare offers fully customizable optical ground stations for Space Situational Awareness, the offer allows to:
- Plan measurement/imaging activities along the time;
- Schedule activity plans and de-conflicting overlaps;
- Ingest multiple input source data (remote sensed data, telemetry, images, etc.);
- Automatically process and standardize input data;
- Produce measured orbital position data;
- Propagate orbital position data;
- Evaluate collision probability.

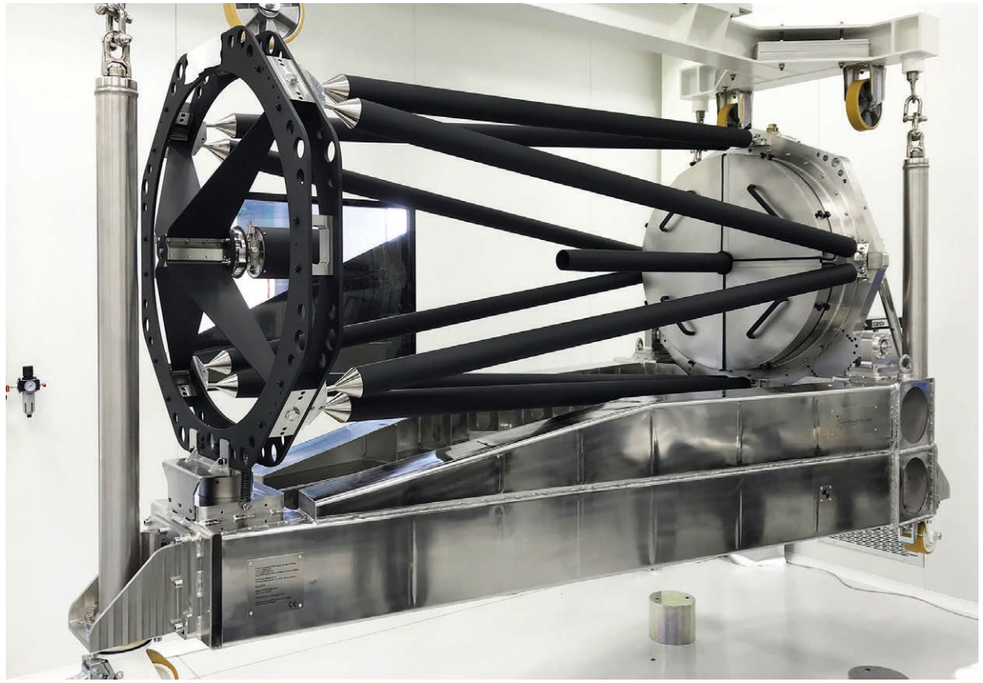
SSA/SST telescopes KASI OWL-Net (Optical wide field patrol Network) LEO orbit tracking infrastructure.



OGSE

The 800 mm Vacuum Reference Collimator OGSE for Space Applications.
The bespoke, 80cm clear aperture, vacuum compliant, Reference Collimator for space products optical quality certification, has been entirely custom designed and manufactured by Officina Stellare to meet the challenging end user's requirements. It definitely reflects our idea of absolute accuracy, reliability, stability and opto-mechanical perfection.
Officina Stellare pushes further its proposal enhancing its integration activities for Optical Ground Support Equipment, thanks to a solid internal expertise in designing, manufacturing, and integration of optical and mechanical parts.

The 800 mm Vacuum Reference Collimator OGSE for Space Applications



ThinkQuantum

Quantum Key Distribution (QKD) and Quantum Random Number Generation (QRNG) rack-mount systems by ThinkQuantum

ThinkQuantum (TQ), is a leading company in the quantum communication landscape.
TQ offers complete solutions for cyber security and communication systems to both private corporations and government bodies worldwide.
ThinkQuantum covers the full value chain, from designing and manufacturing to commissioning of quantum key distribution systems (QKD) and quantum random numbers generation devices (QRNG).

Dynamics Optics

Dynamic Optics (DO) develops, manufactures, and delivers products based on innovative adaptive optics technologies for applications ranging from life sciences to free space optical communication.
DO's products are based on proprietary technologies for which the company holds dedicated patents.
Dynamic Optics is also working to develop deformable mirrors and lenses for use in a low-Earth orbit space environment.

Deformable mirror for adaptive optics wavefront correction in telescope and high power lasers.

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