

EIE GROUP DIGEST

Issue #1

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Tommaso Marchionni - EIE GROUP



Tommaso Marchiori - EIE GROUP Srl

Gianpietro Marchiori, CEO & President

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**To all those who have
believed and still believe in
our wonderful adventure**

Gianpietro Marchiori

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PRESIDENT'S GREETINGS

There are many contracts in progress, at different levels of maturation, which have involved us at all levels: in search of innovative but reliable and lasting engineering solutions, to the constant and constant challenge to extreme requirements; to the quality tested and documented in the factories; to complex assembly in areas with demanding climatic conditions. Many international relations have allowed the group to expand its markets and acquire new and interesting orders. Many investments made: participation in fairs, conferences, conferences in exhibitions; development of new telescopes, radio telescopes, new facilities for space, information technology for the control of telescope axes, new instruments. None of this would have been possible without "the team": our management, engineering, process, administrative/

financial divisions, the Purchase, the logistics, our teams scattered around the world's construction sites. To them goes my constant thought, my thanks, to them goes my warning, we pay attention, professional ethics, ethics, morality, the correctness of relationships, contracts ... are not imposed by law! Unfortunately, we are in a world in which all illicit activity is represented as "great industrial strategy", prevarications as "great manageriality". We fight this rot with wisdom, our deep cultural roots, our professionalism and as our motto suggests: with the power of creativity. These are the foundations from which to build 2019, the 30th year of our long and glorious corporate history. It will be an important year on a planetary level, in fact the 500 years since the death of Leonardo Da Vinci, absolute genius.

Thanks to all of us! Greetings, serenity and peace.

LSST PROJECT REACHING NEW HEIGHTS

Alvise Tosi, Site Project Manager

EIE GROUP participates in the LSST Project since 2015, having acquired the contract for Design, Manufacturing, Shipping, Assembly On-Site and Testing of the Rotating Enclosure. The Large Synoptic Survey Telescope (LSST) is a wide-field ground-based telescope, designed to image a substantial fraction of the sky in six optical bands every few nights. The telescope is located on El Peñón (Cerro Pachon), 2682m asl ridge in Vicuña Region, in Northern Chile. 2018 was the year of the assembly at the Summit of Cerro Pachon of the Dome Steel Structures, 150 tons of complex pre-welded steel profiles. A very light scheleton able to withstand all extreme environmental conditions (temperature and

sun radiation, wind, snow and rain, and earthquake) and of operation and durability as required by the demanding specifications. The 2019 will be the year of the completion of all the systems that contribute to the functionality of this complex Enclosure: its Dome Rotation System, the Aperture Shutters, the Louvers and the relevant Light Baffles, the Light Windscreen, all the Electrical, Cooling and Plant Systems, the Safety System, the Calibration Screen, the Control System and the Auxiliary Systems.

Thanks to all the EIE Teams involved in this exciting project, thanks to the LSST Project Office for the collaboration and support granted us at all different levels.



Tommaso Marchiori - EIE GROUP Srl



Marchiori - EIE GROUP Srl



Enrico Ferrazzi - EIE GROUP Srl

DAG Project

the evolution of high-technology

Enrico Ferrazzi, Site Project Manager

Since 2015 the DAG Project (Dogu Anadolu Gözlemevi), the largest telescope in Turkey, managed by ATASAM (Atatürk University of Astrophysics Research Telescope) engages us with enthusiasm. This project represents for EIE GROUP the forerunner of an "EIE self-made" Project called TBO for worldwide supply of telescopes, radio telescopes and rotating buildings.

2018 was by far the year of concretization. The on-site assembly of Enclosure came alive, we have completely installed the Dome rotation system with the circular rail and its trolleys and all the vertical Steel Structure. We closed the construction site in early

"Numbers rules the Universe"

Pythagoras

November due to adverse weather conditions. We will resume in the spring of next year.

The Telescope, realized on behalf of AMOS, is instead in the acceptance Test Phase at the EIE Integration Facility in Galbiati (our industrial partner). A long and passionate work of structural, mechatronic, electrician, thermo-technician, controller engineers to obtain performances well beyond what is required by the demanding specifications. With the beginning of the new year we will complete the tests and we will provide the disassembly for forwarding in Turkey to Karakaya Ridge at ...m asl where we will remount it within the Dome described above.

Goodbye Riccardo Giacconi Nobel Prize for Physics

Dear Riccardo, as if it were yesterday, that magic combination of numbers: 11.11.2011.

To remember the 100th Anniversary of the birth of another great Italian, prof. Luigi Broglio. The father of the Italian space, the one who gave Italy the third space base after the USSR and the US. Pride of an Italianity full of hope! Now we wish to remind you, the years spent together in order to create the most



Tommaso Marchiori - EIE GROUP Srl

powerful existing observatory: the VLT (Very Large Telescope), the star of the project ALMA (Atacama Large Millimeter Array) and much more until your deserved Nobel. I remember you with affection and absolute esteem. My wife reminds you during Australian evenings, and my son Tommaso in that incredible interview in Washington, and also all the staff of EIE GROUP. We learned a lot from your years in ESO. The Universe unites us...goodbye!

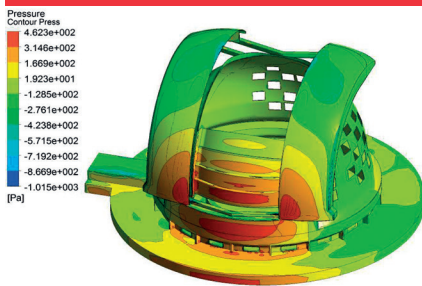
Gianpietro Marchiori

ELT Project

A life devoted to Giant Telescopes

EIE GROUP presented at SPIE Astronomical Telescopes + Instrumentation in Austin, Texas (10-15 June 2018) the results of the long work carried out on the ELT project.

The PDR of the Dome, of the Telescope Main Structure, of the Auxiliary Buildings and of the Civil Works demonstrated the consistency of the solutions adopted and the maintenance of the specific

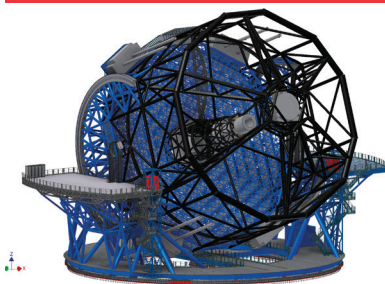


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and project Requirements. Results obtained only thanks to the long preparation work started again in 2007. But not only.

The experiences of the past from the NTT, to the 4 VLT but also the LBT and ALMA, to name just a few, have allowed EIE to offer its partners and ESO the engineering, technological and construction solutions thanks to which they can move important steps towards the next construction phases.

An unexpected success obtained thanks to strong professionalism, long experience in the field, but above all through a company policy of dedication to the projects and a guarantee of keeping performances and functionality for the entire life span of the work provided.



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MROI PROJECT: THE G

Andrea Busatta, Project Engineer

The Magdalena Ridge Observatory Interferometer (MROI) project's mission is to develop a ten-element imaging interferometer to operate at wavelengths between 0.6 and 2.4 microns with baselines from 7.8 to 340 meters.

The Magdalena Ridge Observatory is sited on South Baldy, part of the Magdalena Ranger District of the Cibola National Forest in central New Mexico. A part of the observatory is the Magdalena Ridge Observatory Interferometer (MROI) which comprises an array of up to ten (10) 1.4-m diameter mirror telescopes arranged in a "Y" configuration.

The close-pack array of the MROI necessitated an original design for the Unit Telescope Enclosure (UTE) at Magdalena Ridge Observatory. Each of these telescopes will be housed inside a Unit Telescope Enclosure (UTE) which are relocatable

onto any of 28 stations. The most compact configuration includes all ten telescopes, several of which are at a relative distance of less than 8m center to center from each other. Since the minimum angle of the field of regard is 30° with respect to the horizon, it is difficult to prevent optical blockage caused by adjacent UTEs in this compact array.

The first Unit Telescope Enclosure has been recently completed and installed on site on last October. This machine cannot be confused with a standard dome for many reasons: a) it must be literally tailored on the telescope to do not obscure the adjacent telescopes

ASTRI PROJECT: THE D

"The eternal mystery of the World is its comprehensibility"

Albert Einstein

Modern astronomy is definitely becoming strategic for the future of the humanity.

Modern infrastructures under construction are prone to reveal the ultimate secrets of the Universe, and very soon might provide convincing evidence of life and perhaps other civilizations in the Universe. Furthermore, modern astronomy generates innovation and creates a stimulating development context. Italy plays a leading role in this research field. Indeed, the Italian

industry is deeply involved since many years into the construction of the most advanced astronomical infrastructures: some of the most astonishing and productive facilities in the world, like the Very Large Telescopes in Paranal, the Large Binocular Telescope in Arizona and the Atacama Large Millimeter Array in Chile, could not even be realized without the fundamental contribution of the Italian industry. Reading the correspondence between Guido Horn d'Arturo

GOAL OF THE YEAR 2018



with large use of composite materials (e.g. Glass and Carbon Fibres reinforced plastics), b) it needs to be able to transport safely the telescope from a station of the array to any other station in the quickest way possible in order to do not have observation downtime, c) it requires to provide to the telescope an optimal observing and maintenance environment (e.g. thermal equilibrium, no vibrations, correct air recirculation), d) it provides the supply of power and cooling lines to make the telescope work properly, e) it grants safe condition to the telescope in survival environmental conditions. For what mentioned above, it is easy to realize that this dome is highly integrated with the telescope and basically they work as a unique piece, more than in other "standard" observatories. In particular,

the effort carried out to commission this first unit, which can be considered as a prototype, was very challenging, because it involved many unique and innovative subsystems made of

In the near imminent future, there will be the production of the second and subsequent units, which will be obviously the result of the design and construction experience gained

"Unite to show how inspiration and genius walk in step with the progress of the machine"

Filippo Tommaso Marinetti

structures, mechanisms, electrical equipment, fluid plants and software. In particular, the factory and site work were intense with the raise of some unexpected issues that were promptly faced with solution capable, at the end, to improve the overall performance.

during these months of hard work made on the prototype. We would like to thank all the people involved in this Unit Telescope Enclosure Project and especially all MRO people who were sharing the effort, supporting us in all the situations.

DOWEL'S MIRROR



and the representatives of the companies, contacted for the realization of its segmented mirror, casts a bright light in how relationships between industry and research institutes can be built for the development of new, brilliant ideas.

In this scenario, we can only be delighted that segmented mirrors for astronomical telescopes, largely applied in modern optical telescopes, and at the basis of the "ASTRI" prototype of the Cherenkov Telescope Array (CTA), derive from an intuition by Guido Horn d'Arturo, Director of the Astronomical Observatory of Bologna during the first half of the XXth Century.

Unexpectedly the first science-grade segmented mirror telescope built in Italy by Italian industry is not an optical-infrared telescope but is the prototype of the ASTRI-SST-2M Cherenkov Telescope at the Serra la Nave Observatory in Sicily. Hexagonal segmented mirror technology perfectly match the needs of Cherenkov telescope particularly in view of the expected large number of telescope (more than 120) that will be part of the Cherenkov Telescope Array (CTA). Italy nowadays has a recognized leading role in some of the most relevant technologies for modern astrophysics.

The present collection "*HORN and the Giant Telescopes*" represents a due tribute to Guido Horn.

It proves that innovation is indeed a substantial intrinsic character of Italian culture; it shows that the present involvement of Italian Institutions and Italian industries into the charming context of modern astronomy, and in general modern science, reflects long lasted traditions.

GUIDO HORN D'ARTURO AND THE GIANT TELESCOPES

F. Bonoli, R. Ragazzoni, G. Pareschi, G. Marchiori

EIE Cultura, Mestre-Venezia, 160pp., € 20

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