THE TOMB OF CHRIST
THE MONUMENT AND THE PROJECT

DIGITAL EXHIBITION OF ADVANCED TECHNOLOGY

UNDER THE AUSPICES OF H.E., THE PRESIDENT OF THE HELLENIC REPUBLIC, MISTER PROKOPIOS PAVLOPOULOS

EXHIBITION CURATORS
NATIONAL TECHNICAL UNIVERSITY OF ATHENS INTERDISCIPLINARY TEAM
NATIONAL GEOGRAPHIC SOCIETY


WITH THE SUPPORT OF THE HELLENIC PARLIAMENT

Hellenic Ministry of Culture and Sports
BYZANTINE & CHRISTIAN MUSEUM

NATIONAL GEOGRAPHIC

EPA AΦΕΝΙΣΙΑ ΑΝΗΡΙΩΝ
WITH THE BLESSINGS OF HIS BEATITUDE, ARCHBISHOP IERONYMOS II OF ATHENS AND ALL GREECE, AND OF THE HOLY SYNOD OF THE CHURCH OF GREECE
**WELCOME!**

Together with 70 Greek scientists, restorers, conservators and masons, we worked day and night, so that in less than 9 months the Holy Aedicule was delivered to the three Christian communities and to the whole World.

National Geographic presented the monument and the rehabilitation project accomplished by the National Technical University of Athens Interdisciplinary Team, at the first virtual exhibition, “Tomb of Christ”, in its museum in Washington, opening its doors on 15 November 2017, with high global impact. Today, Greeks, as well as those who visit our country, benefiting from the capabilities of 3D digital technology, interdisciplinarity and interactive modeling will be able to follow the journey of the Church of Resurrection, the Holy Aedicule and the Tomb of Christ over the centuries, as well as the fascinating rehabilitation project. The project is over. The exhibition is a reality. However, the journey of the Tomb of Christ into time continues. The Tomb of Christ is alive for all mankind. When, after five centuries, on 26 October 2016, we opened the Tomb of Christ and National Geographic transmitted the news all over the world, more than two billion people stood in awe with us and kneeled, in spirit, in front of the Tomb of Christ. The exhibition, as well as the project, is the result of a collective work. We are grateful to all creators, members of the exhibition team, sponsors and organizers, to the Interdisciplinary Team and the Rector of NTUA, to the Prime Minister of Greece, Mr Alexis Tsipras, who stood next to us during the difficult times of the project and the organization of the exhibition, to the President of the Hellenic Parliament for the warm support of the Parliament, to the Ministry of Culture and Sports, for the substantial support and cooperation, as well as to the Ministry of Digital Policy, Telecommunications and Media. Primarily, though, we express our gratitude: To His Excellency, the President of the Hellenic Republic, Mr. Prokopios Pavlopoulos, who, under his auspices, “seals” the Greek passport of the exhibition. To His Beatitude, the Archbishop of Athens and All Greece, Ieronymos II, as well as to the Holy Synod of the Church of Greece, for, with their blessings this exhibition is being held. To the leaders of the three Christian communities, Guardians of the Holy Sepulchre, who honored us by entrusting us with the project and blessing this exhibition. To all the people of the Byzantine and Christian Museum who will work next to you for more than 8 months. We are looking forward to your response, your interaction and your impact on the exhibition.

For the Interdisciplinary Team of the National Technical University of Athens, Curators of the Exhibition.

**National Geographic was honored to provide coverage for this unique conservation project. Through this exhibition, we are pleased to tell the world about the preservation of this sacred and historic site - keeping the story alive for many years to come.**

Kathryn Keane
Vice President of National Geographic Society

Fredrik Hiebert.
Archaeologist of National Geographic Society
Curator of the Exhibition “Tomb of Christ”

Tonia Moropoulou
Professor of NTUA
Scientific Responsible for the rehabilitation of the Holy Aedicule

Dr. Aikaterini Delaporta
Director of the Byzantine and Christian Museum

The Byzantine and Christian Museum must fulfill what it is implied by its name; thus, it is extremely pleased to host an exhibition, on a Monument of global significance. Beyond the religious aspect of the monument itself, it is important that the public, as well as the scientific world, learns about the project that was implemented there. In particular, I would like to emphasize the manner in which the exhibition is presented, which is pioneering in relation to museum practices up to today. I hope that visitors will emerge benefited in many aspects from this impressive digital representation of the rehabilitation of the Holy Sepulchre.

**THE TOMB OF CHRIST | THE MONUMENT AND THE PROJECT **
TECHNOLOGY AS A PARAMETER HIGHLIGHTING THE ECUMENICAL VALUES
ADDRESS OF THE RECTOR OF THE NATIONAL TECHNICAL UNIVERSITY OF ATHENS

The National Technical University of Athens, in its historical course of 180 years, has recorded significant milestones in its contribution to Education, Research and Society. The rehabilitation project of the Holy Aedicule of the Holy Sepulchre holds its place in this course, along with other recent significant NTUA acts of contribution, such as the Bridge of Plaka in Epirus, the birthplace of NTUA’s great benefactors. NTUA justifiably prides itself that its high expertise coupled with innovation and the new technologies applied on the demanding project of the Holy Aedicule rehabilitation, allowed for the Holy Aedicule to be delivered to the three Christian Communities that entrusted it to the NTUA Interdisciplinary Team, with structural integrity and highlighted values. It should be stressed out that the applied methodology has a significant impact on the future trends in the Protection of Monuments, and consequently the rehabilitation of the Holy Aedicule being acknowledged as an emblematic project, esteemed worldwide and in the framework of the European Year of Cultural Heritage 2018 by the relevant Directorates General of the European Commission. Scientists from NTUA worked collectively, approaching the project with utmost respect, but also through a productive dialogue with the Christian Communities, Guardians of the Holy Sepulchre, applying in practice the vast expertise and knowhow of NTUA in the field of protection of monuments. Obviously, the preservation of the Ecumenical values of the Holy Sepulchre, that unite the Christian World, does not rely only on technical expertise. The role of Society is decisive, becoming more important with increasing participation. The present exhibition is an effort towards enhancing this role. An effort, which, by utilizing the highly dynamic aspect of technology at an interdisciplinary level, contributes to the enhancement of social access to a monument of unique significance for Christianity and Hellenism, with the aim to highlight the Ecumenical values of this world heritage.

Rector of the National Technical University of Athens
Professor John K. Galias

THE RESTORATION OF THE HOLY AEDICULE: AN ECUMENICAL HERITAGE OF HELLENISM
ADDRESS OF THE MINISTER OF CULTURE AND SPORTS OF THE HELLENIC REPUBLIC

The innovative expertise applied by the Interdisciplinary Team of the National Technical University of Athens in the rehabilitation of the Holy Aedicule of the Holy Sepulchre, as emphasized by the Prime Minister of Greece during the project’s Completion Ceremony on 22 March 2017 in Jerusalem, is indicative of the great potential of Greece in the protection of Cultural Heritage. We express our gratitude to the three Christian Communities, and especially to the Greek Orthodox Patriarchate of Jerusalem, for guarding the Tomb of Christ over the centuries, but also for the trust they showed us, providing the NTUA Interdisciplinary Team with the unique opportunity to rehabilitate the Holy Aedicule and to continue the Ecumenical Heritage of Hellenism. We acknowledge the valuable contribution of the Greek scientists, Greek restorers and conservators, two of whom were disposed from the Ministry of Culture and Sports of the Hellenic Republic to NTUA for the project, and all who gave their soul to this purpose.

The homologous exhibition at the National Geographic Museum in Washington had a great international impact. This unique monument of world cultural heritage, of the Christian world and beyond, along with the awe-inspiring NTUA project, is today available to you, thanks to the great potential of new technologies. We appreciate the contribution of National Geographic to the dissemination of news and findings regarding the Tomb of Christ, communicating the values of the monument to all humanity.

We are in 2018, the European Year of Cultural Heritage. By conceding the Byzantine and Christian Museum of Athens for the organization of this exhibition in collaboration with the National Technical University of Athens, we give all of you the opportunity to live the experience of this unique monument and project.

The Minister of Culture and Sports
Lydia Koniordou
Jerusalem has always been a crossroad for people and civilizations: coming east from Europe, by sea through Rhodes and Cyprus, north from Africa, west from Asia, it is located at the center of the tumultuous Middle East. In the Holy City of Jerusalem, two populations and three religions coexist. In the Church of Resurrection, however, the Status Quo is respected, according to which three Christian communities (the Greek Orthodox Patriarchate of Jerusalem, the Custody of the Holy Land of the Franciscan Order and the Armenian Patriarchate of Jerusalem) guard the most holy pilgrimage sites of Christianity.

The Holy Light, which the Patriarch of Jerusalem transmits on Holy Saturday, illuminates their coexistence, which, more than two centuries later, was expressed through their common agreement regarding the rehabilitation project of the Holy Aedicule of the Holy Sepulchre.

Within the walls, in the Old City of Jerusalem, the Church of Resurrection was built by Constantine the Great and Saint Helena in 325 AD, enclosing the Tomb of Christ and the site of Crucifixion at Golgotha (Calvary).
IN THE CENTER OF THE ROTUNDA of the Church of Resurrection, stands the Holy Aedicule, with an area of approximately 70m², and a height up to its terrace corresponding to a typical two-storey residence. A dome, supported on 12 small columns, reaches even higher.

The interior of the Holy Aedicule is divided into an antechamber, at its eastern part, and a tomb chamber at the west, which corresponds to the original tomb chamber, hewn in the natural rock, a significant part of which has been preserved to this day. This is actually the only preserved part of a much larger rock mass, in which the original tomb was hewn. At its exterior, the monument adopts the architectural style of classicism, however, with elements of Central European architecture, as well as of typical Constantinople architecture of the era.

At the exterior, the facades consist mainly of local compact red-hued stones. At the interior a corresponding configuration is observed, with the exception of the domes, however, with white marble from Prokonnesos prevailing. This architectural complex carries the signature by the talented Constantinopolitan architect Komnenos, responsible for the restoration of the Holy Aedicule of the Tomb of Christ, after the devastating fire of 1808.

THIS EXCEPTIONAL AND EMBLEMATIC PROJECT, CONCERNS NOT ONLY A RELIGIOUS MONUMENT, BUT ALSO A MONUMENT OF THE EXPERTISE OF GREEK SCIENTISTS, A MONUMENT OF EXEMPLARY INTERDISCIPLINARY COOPERATION WORLDWIDE. IT IS OF UTMOST HONOR TO HAVE PARTICIPATED IN THIS PROJECT, COOPERATING WITH ESTEEMED COLLEAGUES, CONTRIBUTING TO ITS SUCCESS.

The history of the Church of Resurrection begins with the Crucifixion and Resurrection of Jesus Christ. According to the ancient scriptures, both Golgotha and the Tomb of Joseph Arimathea, where Christ was buried and resurrected, were just outside the walls of Jerusalem. When the city walls were later expanded, these great landmarks were found within the walls where the Church of Resurrection was erected. Constantine the Great and Saint Helena, excavating the Temple of Aphrodite built two centuries earlier by the Roman Emperor Hadrian, revealed the tomb that was recognized as the Tomb of Christ, as well as the site of the Crucifixion, and built the Church of Resurrection. The Holy Aedicule, enclosing the Tomb of Christ, evolved over the centuries, the result of successive interventions, disasters and restorations. Its current form dates back to the restoration of 1810 by Kalfa Komnenos from Mytilene.

The Roman Emperor Hadrian builds a Capitol (Capitolium) in front of the Tomb of Christ, dedicated to four divinities (Jupiter, Juno, Minerva, Venus), as a statement of domination and power.

Constantine the Great and Saint Helena discover the Tomb of Christ, which they enclose in an octagonal structure, known as the Holy Aedicule.

The Persians conquer the city of Jerusalem and the severe damages on the Church of Resurrection.

The Fatimid Caliph, al-Hakim bi-Amr Allah, conquers Jerusalem and nearly destroys the Holy Pilgrimage Sites.

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The Crusaders add an antechamber to the Holy Aedicule, known as the Chapel of the Angel, at the spot where the Angel appeared after the burial of Jesus Christ, according to the Gospels.

The Mamluks occupy Jerusalem in the name of the Sultan of Egypt and desecrate the Tomb of Christ.


The architect Kalfa Komnenos restores the Holy Aedicule, giving it its present form.

The NTUA Interdisciplinary Team, under the supervision of Professor Antonia Moropoulou as scientific responsible, undertakes the rehabilitation of the Holy Aedicule of the Holy Sepulchre, based on the common agreement of the three Christian Communities, Guardians of the Holy Sepulchre.
It is an utmost honor, exceeding life and science, to contribute as a civil engineer in the NTUA interdisciplinary study, as well as in the Holy Aedicule rehabilitation project, a monument of global significance, timeless value and multidimensional symbolism.

Constantine Spyroukas
Professor, NTUA, School of Civil Engineering
Member of the NTUA Interdisciplinary Team

FAITHFUL REHABILITATION WITH COMPATIBLE MATERIALS AND CONSERVATION INTERVENTIONS ENSURING THE STRUCTURAL INTEGRITY OF THE HOLY AEDICULE, PRESERVING AND HIGHLIGHTING ITS VALUES

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The rehabilitation of this monument, a monument of the utmost importance to Christianity, demanded our interdisciplinary cooperation and the use of our hands for its completion, validating the ancient Greek saying Εἰς Αθήναν καὶ χείρα κίνει (Along with your prayer to the Goddess Athena, also move your hands), along with your prayers act as well.

Charis Mouzakis
Assistant Professor NTUA, School of Civil Engineering
Member of the NTUA Interdisciplinary Team, Deputy Construction Site Manager

MAIN STAGES OF THE REHABILITATION PROCESS

Dismantling and removal of the stone panels, removal of disintegrated and incompatible mortars from the revealed masonry, repointing of the masonry, repair and partial reconstruction of part of the masonry, injection of grouts up to 3m, resetting and anchoring of exterior columns, reassembly of stone panels, resetting and anchoring of stone column railing, grouting of top zone and terrace, anchoring of interior marbles, conservation interventions on the Onion Dome, the Dome of the Chapel of the Angel and the Dome of the Burial Chamber, final mortar application, pointing and finishing, cleaning and protection of interior and exterior architectural surfaces and conservation of decorative elements.
"When, after five centuries, on 26 October 2016, we opened the Tomb of Christ and National Geographic transmitted the news and the image to the world, over two billion people kneeled with us, in spirit, before it. The Tomb of Christ is alive for all humanity."
The advanced technologies of non-destructive testing, telematics, multi-sensors and robotics, allowed us to “see” through the stone facades enveloping the Holy Aedicule and reveal its secrets. They also allowed us to design and assess the effectiveness of the compatible and performing conservation materials and minimum invasive restoration interventions.”

Finite Element Model:
After the rehabilitation, the Holy Aedicule bears maximum principal stresses efficiently and homogeneously.
The project has finished. Research continues. Historians, Archeologists, theologians, sociologists from around the world, based on the data of the project, will have a lot to say in the future about the values and the history of the Holy Aedicule and the Tomb of Christ. We have highlighted its values and we have scientifically confirmed its history.
The advanced technologies of non-destructive testing allowed us to deliver the Holy Aedicule with its structural integrity ensured, with its values preserved and highlighted, and furthermore, it enabled us to deliver the study proposal for the completion of the project throughout the Church of Resurrection to ensure its preservation for the centuries to come.
Thanks to the generous donation of Mica Ertegun, through the World Monuments Fund, as well as the donation of Jack Shear, thanks to the airbridge established by Aegean connecting the National Technical University of Athens and the Tomb of Christ, but also thanks to the contributions of the three Christian Communities and the small and large donations from Greece and around the world.

**PROJECT FUNDING**

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<th>SOURCE OF FUNDS</th>
<th>AMOUNT (EUR)</th>
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<td>Donors (see detailed table below)</td>
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<td>World Monuments Fund</td>
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<td>Contributions of the three Christian Communities in kind</td>
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<td>Contributions of the three Christian Communities in cash</td>
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<td>Aegean Airlines: contributions in kind</td>
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With the blessings of Father Alex Karloutsos from the Greek Orthodox Archdiocese of America and the active participation of World Monuments Fund (WMF) and the National Technical University of Athens Interdisciplinary Team, the members of the NTUA Interdisciplinary Team offered their scientific expertise and services throughout the study and the project.

**EXHIBITION SPONSORS**

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- AEGEAS AMKE
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The data presented in the exhibition “Tomb of Christ. The monument and the project” are provided by the National Technical University of Athens Interdisciplinary Team, acquired during the project and further processed and analyzed, and data that have been bestowed to the NTUA Interdisciplinary Team by National Geographic, deriving from the exhibition ‘Tomb of Christ’ in the NG Museum, Washington DC, where the NTUA Interdisciplinary Team provided project data.

The Greek Ministry of Cultural and Sports contributed two conservators to the project.
INTRODUCTION TO THE EXHIBITION / GUIDE

ROOM 1
Exploring the history of the city of Jerusalem and introduction to the National Technical University of Athens (NTUA) rehabilitation project

ROOM 2
Three-dimensional historical tour of the Church of Resurrection

ROOM 3
The rehabilitation project of the Holy Aedicule of the Holy Sepulchre by the NTUA Interdisciplinary Team

ROOM 4
Preserving and highlighting the values of the Monument

THE REHABILITATION PROJECT OF THE HOLY AEDICULE OF THE HOLY SEPULCHRE

THE NTUA PROJECT: PRESERVING AND HIGHLIGHTING THE VALUES OF THE TOMB OF CHRIST

INTERIOR LAYOUT

ROOMS 1 + 2 NATIONAL GEOGRAPHIC

ROOMS 3 + 4 NATIONAL TECHNICAL UNIVERSITY OF ATHENS

The NTUA project. Preserving and highlighting the values of the Tomb of Christ
Opening the Tomb of Christ

INTERACTIVE KNOWLEDGE PLATFORM

VISIBILITY THRESHOLD

QUEUING

Introduction to the exhibition / Guide / Exhibition Team / International impact of the project
Address:
22 Vasilissis Sofias Avenue, 106 75 Athens

Information:
213 2139572, 213 2139500

Opening hours:
Monday-Sunday: 08.00-20.00

For security reasons, the last visitors may enter 15 min before the Museum closes.

BYZANTINE & CHRISTIAN MUSEUM
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INFORMATION AND BOOKING
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