International Summer School on

HISTORIC MASONRY STRUCTURES

7th Edition

August 31 – September 14, 2025

Oristano, Italy

Supporting institutions: Università del Sannio-Benevento, Universitá di Salerno, Universitá Roma Tre, Universidad Politecnica de Madrid, Municipality of Oristano, KEIKO non-profit Association

historicmasonrystructures@gmail.com – www.himass.org

PROGRAM BOOKLET

International Summer School on
HISTORIC MASONRY STRUCTURES
7th Edition

Event Organization:
KEIKO Non-Profit Association

August 31 – September 14, 2025
Seminario Arcivescovile & Convento di San Francesco
Oristano, Italy

PARTNER UNIVERSITIES

Event under the Patronage of the
Municipality of Oristano

PROGRAM BOOKLET

HIPPOCRATICA CIVITAS STUDIUM SALERNI

ROMA TRE UNIVERSITÀ DEGLI STUDI

UNIVERSIDAD POLITÉCNICA MADRID

UNIVERSITÀ DEGLI STUDI DEL SANNIO 25 1998 2023

International Summer School historic masonry KEIKO ets

Topics

Structural Analysis of Historic Masonry Structures
Historic Masonry Case Studies
Limit Analysis and Heyman's Theory
Graphic Statics of Arches, Vaults, Domes
Membrane Equilibrium Analysis for Vaults
Numerical Methods for Masonry Assessment
Seismic Response and Assessment of Masonry Structures
The "Tile Vault Workshop"

Teachers

Maurizio Angelillo
Gianmarco de Felice
Santiago Huerta
Alessio Bortot, Paolo Borin, Giulia Piccinin
Alessandro Dell'Endice, Ricardo Maya Avelino
Paula Fuentes
Antonino Iannuzzo
Carlos Martin
Pietro Meriggi
Andrea Montanino
Fabian Bernal Orozco Barrera
Vittorio Paris
Esther Redondo
Felix Rodriguez
Marilù Sangirardi
Anjo Weichbrodt
Philippe Block (online)
John Ochsendorf (online)

Host Teachers

Antonio Cazzani
Maria Cristina Porcu
Emanuele Reccia

Guest Lecturers

Aguinaldo Fraddosio
José Lemos
Paulo Lourenco
Gabriele Milani
Giulio Mirabella
Nicola Nodargi
Francesco Portioli
Eugenio Ruocco
Marianne Saba
Jane Burry (online)
Matt DeJong (online)

Joung Teachers

Alvaro Diaz
Habib Katouli
Natalia Pingaro
Tvrtko Renic
Ilaria Scarcelli

Activities

Theoretical lectures
Field work (case studies in the city of Oristano)
Guided tours
Building workshop
Guest Lectures

Venue & Accommodation

Seminario Arcivescovile & Convento di San Francesco-
Diócesis of Oristano

Programme

This International Summer School aims to provide the fundamental theoretical and applied tools to analyse Historic Masonry Structures combining engineering, architecture, restoration and history of construction. The Summer School on Historic Masonry Structures is designed to gather researchers and scholars from the different fields of structural masonry, construction history and restoration to share their experiences on the history, design rules, construction methods and assessment tools of historic masonry structures. At the end of the programme the results of the field-work campaign will be presented by the students.

Course work

Course days will be focused on a general theme and are planned to include morning and afternoon sessions. Several days will end with a keynote lecture dealing with specific problems from the practical or theoretical work of one of the teachers or PhD students.
The morning sessions are devoted to introductory lectures delivered by experts in ancient masonry structures. Each lecture will last for about an hour, allowing enough time for questions and discussion. The afternoon sessions will be mostly be dedicated to workshops, some of which will be exploratory and allow the students to question and develop their understanding. Others will have seminar character, with groups of students giving presentations about selected case studies in the range of the day's main theme.

Field work

Four historic structures in the city of Oristano will be analysed by groups of students. First, they will document the actual state using traditional drawing techniques as well as a variety of more advanced instruments. The information collected will be then used to build the structural model and assess their safety, detect possible damage and propose suitable repairs. This work will be complemented by documentary sources to support the understanding of the structural behaviour of vaults, arches and domes.

Accommodation

The "Convento di San Francesco" is part of a monumental complex of extraordinary historical and artistic importance. This sacred place, second only to the Cathedral in terms of architectural and cultural importance, tells a thousand-year history that is intertwined with the events of the city and the whole of Sardinia. Through centuries of changes, destruction and reconstruction, the Franciscan complex has maintained its central role in the spiritual and social life of Oristano, preserving priceless art treasures and memories of a glorious past.
Unfortunately, after almost six centuries, the vast complex, due to a disgraceful intervention, lost cohesion and consistency and disappeared almost entirely with the complete transformation, due to the new construction between 1835 and 1838.
In January 1875, after the "law of suppression" of religious orders of 1855 had confiscated part of the convent and its furnishings, the Franciscans redeemed the small infirmary of the convent and settled there.

Meals

Everyday breakfast (8:30-9:15 a.m.), lunch (13:00-14:00 a.m.) and dinner (20:00-21:00) will be served in the canteen of the *Convent and* are included in the participation fee.

The City

The territory of Oristano has been inhabited by man since the pre-Nuragic and Nuragic periods. In the 8th century BC, as part of the Phoenician colonization of the coast, the cities of Tharros -in the territory of Cabras- and Othoca -in the territory of Santa Giusta- arose. Aristianis, built near the ancient Phoenician-Punic and Roman city of Othoca, became an important center in 1070, when the Archbishop of Arborea Theoto moved the bishopric there, abandoning the now decayed city of Tharros. The transfer of the capital of the kingdom from Tharros to Oristano was propelled by the Saracen incursions that raged on the western Sardinian coast in those years, and to which the city of Tharros was subject.

The "Giudicati Sardi" were independent state entities that had power in Sardinia between the 9th and 15th centuries. Their political and administrative organization mimicked the typical structure of the territories of the Byzantine Empire, with Roman-Byzantine legal institutions. The Judicate of Arborea lasted more than four centuries. Among the many judges that ruled, two are particularly famous: Mariano IV of Arborea and his daughter Eleonora of Arborea. Under Mariano IV the judicate extended to include almost all the Sardinian territory. The well-conserved monumental tower, that today stands isolated in the middle of Piazza Roma, is an evident trace of the town boundary walls and towers, erected by Mariano IV of Arborea, that were unfortunately lost. Mariano's daughter Eleonora was one of the most powerful and important, and one of the last, judges of the Judicate of Arborea, and Sardinia's most famous heroine. She is also famous for updating the legal code "Carta de Logu", promulgated by his father, which was a work of great importance in European Juridic history.
Oristano conserves a significant architectural heritage that reflects the history and culture of the city through monuments and religious buildings of great value.

There are many interesting places to be seen in Sardinia and especially in the vicinity of Oristano, such as the archeological area of Tharros and some examples of the Nuraghi Architectures. We will organize visits there.

Tharros

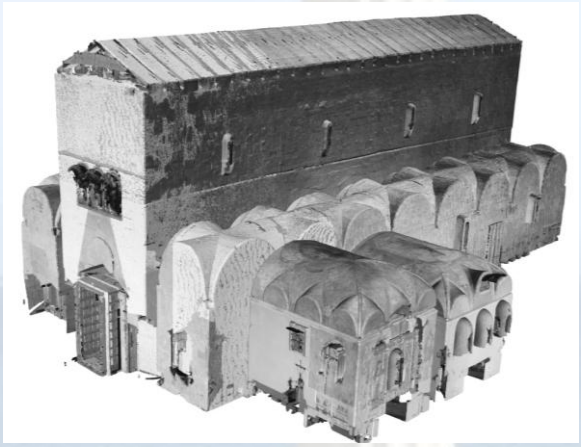
A Nuragic settlement, a Phoenician centre of commerce, a Carthaginian fortress, a Roman urbs, a Byzantine administrative centre and capital of Arborea: in Tharros, you will find more than two thousand years of history. The ruins of the ancient city, founded in the 8th century BC and abandoned in the 11th century AD, are located on the southern extremity of the Sinis peninsula, in the territory of Cabras. The 'outdoor museum' is a natural amphitheatre overlooking the sea. On its borders, there is the isthmus of Capo San Marco as well as the hills of the village of San Giovanni di Sinis and su Murru Mannu (big face), on top of which you will find the oldest historical evidence: the remains of the Nuragic village, abandoned before the arrival of the Phoenicians

Nuraghe Losa and pozzo sacro di Santa Cristina

The nuraghe Losa (30 km NE of Oristano, close to the village of Abbasanta) is a complex prehistoric building in the shape of a tholos tomb. Its central structure has a triangular shape. On the west side, a turreted wall is linked to it. The whole built complex is surrounded by a wider wall, which encloses the settlement of the original village of huts and other additional buildings constructed in the late Punic, imperial Roman, late Roman and high Middle Ages periods. The central tower was built in the 14th century BC, while the surrounding walls and towers were built in the 13th century BC. Very close to nuraghe Losa is the Nuragic Village and the marvelous Sacred Well of Santa Cristina. The well temple is the highest architectural expression of the Nuraghic civilization dating back to around 3000 years ago. However, it seems to be built today with its square boulders perfectly embedded with perfect geometry.

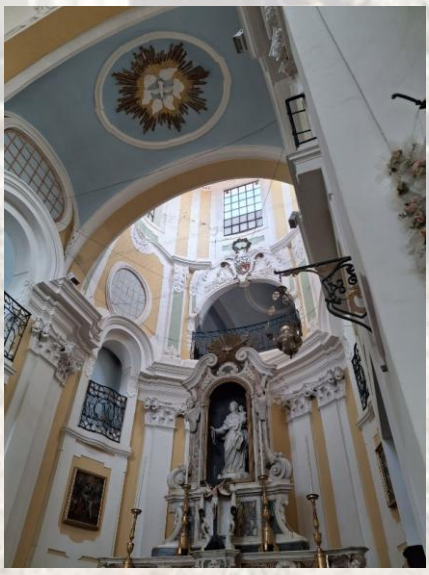
Church of Santa Giusta

The Cathedral of Santa Giusta stands in the northern part of the town of the same name, on a hill a few meters above sea level. The main entrance to the basilica is via a wide staircase. The basilica's façade, like the rest of the structure, features exposed squared sandstone blocks. The façade is divided into three sections, corresponding to the internal division into naves: therefore, here too, the lateral sections are half the width of the central section. The Basilica of Santa Giusta was built in the first half of the 12th century by local craftsmen assisted by Pisan craftsmen who worked on Buscheto's construction site for Pisa Cathedral. 1118 has been proposed as the date preceding the construction of the basilica, the year in which Pope Gelasius II consecrated the cathedral of Pisa, while it is to be assumed that the construction of the Santa Giusta building was completed before the middle of the century, since 1144 is the certain completion date of the church of Santa Maria a Terralba, which, together with the first structure of the Cathedral of Santa Maria di Oristano, was contemporary with the cathedral of Santa Giusta.



Carmine Church

Located in the heart of the historic center of Oristano, the “Chiesa del Carmine”, considered the most complete example of Rococo architecture in Sardinia, is part of a complex that also includes the former monastery, held by Carmelite friars from 1782 to 1866. The bell tower and the dome, decorated with multicolored majolica tiles, are set back from the facade. The plan has a single nave with four identical side chapels. The main altar and the pulpit are made of marble and house the statue of the Madonna del Carmine, surrounded by an elevated gallery. The elliptical dome in Rococo style, supported by a lantern illuminated by large windows, adds a touch of magnificence to the interior of the church..

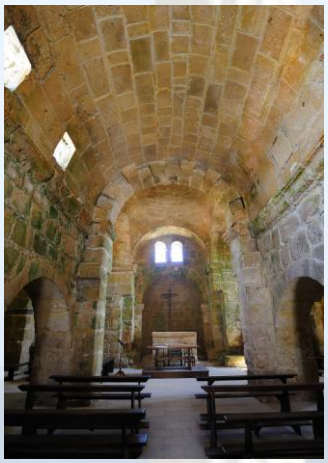


Church of San Giovanni di Sinis

The early Christian church of San Giovanni di Sinis, a rare example of perfectly conserved Romanesque Architecture, stands on a cemetery site originally pagan and later Christian. Oriented with the apse facing east, it is constructed of golden sandstone blocks. The rectangular hall is divided into three naves, covered by barrel vaults and ending in a similarly vaulted transept. A small dome, supported by large hollow-core pillars, appears above the central nave and the single apse.

The central core of the church, consisting of the domed space and based on an original building in the shape of a Greek cross within a square, was probably built in the sixth century AD.

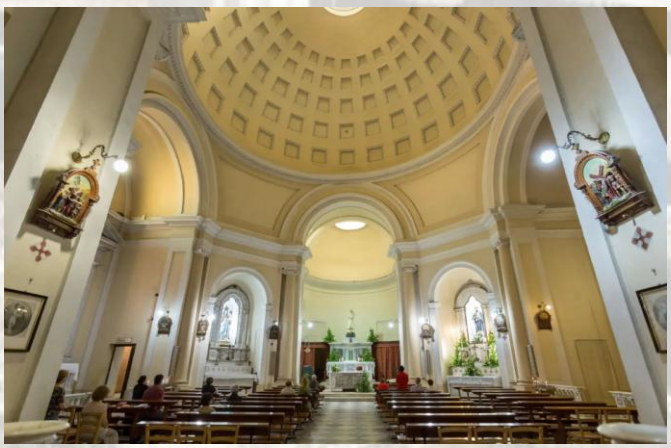
During the Giudicati period, between the ninth and eleventh centuries, the structure underwent a radical transformation which involved the addition of the apse and the three-aisled hall, replacing the eastern and western arms, and the opening of the mullioned windows.



Church of San Francesco

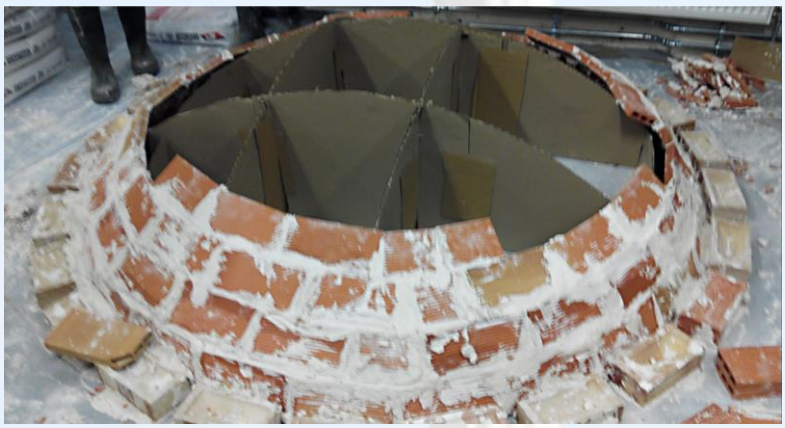
Towards the end of the 13th century, the construction of the Gothic church of San Francesco began on the foundations of pre-existing structures. The project, contemporary with that of San Francesco di Stampace in Cagliari, represents a unicum in the Sardinian architectural panorama. Workers of French origin, trained in the Cistercian construction sites, built a single nave church with a transept, of which impressive remains are still visible today along Via Sant'Antonio.

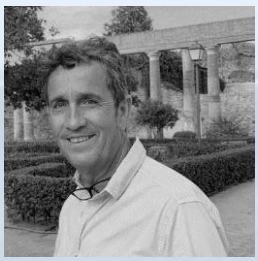
The beginning of the nineteenth century marked a dramatic turning point for San Francesco. An ambitious renovation project of the Gothic church turned into a catastrophe: on September 8, 1838, the elliptical dome designed by Antonio Cano collapsed, destroying a large part of the ancient walls. The architect Gaetano Cima was called in to remedy the disaster, and in ten years he managed to complete a new church. Cima's project, inspired by the model of the Pantheon, envisages a centrally planned building with a large hemispherical dome. The main facade, with an elegant pronaos supported by Ionic columns, opens onto Piazza Eleonora.



Tile vault construction workshop

Under the guidance of the "Maestro" Carlos Martin, we will build together with the students a vaulted structure. The workshop will consist in preparation (scaffolding, formwork, etc.), plaster mixing, preparation of lime mortar, cutting bricks, laying bricks. We will then assess its bearing capacity under static loading conditions. The tile vault workshop is sponsored by the "Universidad Politecnica de Madrid"





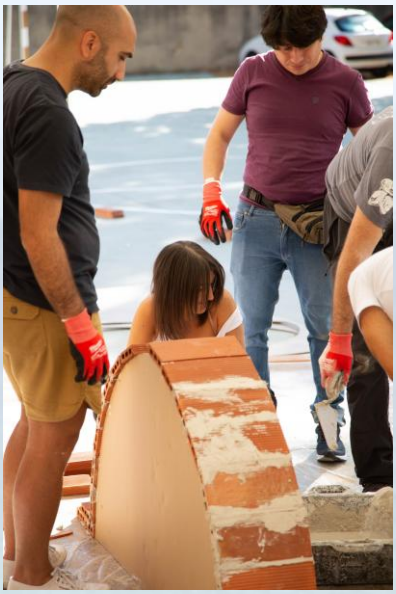
Carlos Martín

Vault builder and master plasterer, he has been involved in the construction and restoration of more than 300 vaults to date. He is the founder of Bóvedas Hispanas, a company specializing in the construction and restoration of vaults, working on numerous projects, including some of the most important in Spain in the last 30 years. He is a Professor of vault workshops at a national and international level and the author of several publications on plaster and vaulted structures.

Outstanding works. Vaulted vault in the Chapel of the Seminary of the Santos Niños Justo y Pastor de Alcalá de Henares (Madrid); Structural vaults of the Aljibe of the castle of Jadraque (Guadalajara) and in the cellar of the Valdemonjas de Quintanilla (Valladolid); Gothic vaults in stone in the Monastery of Pelayos de la Presa (Madrid); Vaults and domes in the Colegio San Basilio Magno de Alcalá de Henares (Madrid), in the Convent of San Juan de la Penitencia de Alcalá de Henares (Madrid), in the sacristy of Loeches (Madrid) and in the Chapel of San Felipe de Novelda (Alicante). He has participated as a builder in the Venice Architecture Biennale of 2016, executing a contemporary vaulted ceiling in collaboration with MIT (Prof. John Ochsendorf), with the design of Sir Norman Foster.

Tile vault workshop

Tile vault construction workshop



Tile vault workshop

Teachers

Maurizio Angelillo

University of Salerno (Italy)

Maurizio Angelillo is professor of Statics and Strength of Materials at the School of Engineering and Architecture of the "Università degli Studi di Salerno". Architect and structural expert with multi-disciplinary research interests including masonry mechanics, and Biomechanics, trained in Architecture at the University of Naples and in Mechanics at the University of Minnesota, Minneapolis, he and his group are actively working on the kinematics and on the equilibrium of masonry buildings. He works on unilateral models for masonry since the early 80s, being the author of more than 50 papers on the application of these models to real masonry structures and masonry elements such as arches, domes, vaults and spiral stairs.

Gianmarco de Felice

Roma Tre University (Italy)

Gianmarco de Felice is professor of structural engineering at the Department of Engineering of Roma Tre University. He is coordinator of the PhD school in Civil Engineering at Roma Tre University, chairmen of the RILEM Technical Committee TC-250 CSM "Composites for Sustainable strengthening of Masonry" and member of the drafting Committee of the Charter of Rome on the Resilience of Art Cities to Natural Catastrophes. He has been the scientific coordinator for the design of engineering projects on heritage conservation and structural rehabilitation, such as the restoration of the Farnese Palace in Ischia di Castro and that of the Abbey of San Clemente in Casauria supported by the World Monuments Fund and awarded by the Domus International Prize for Restoration and Conservation.

Santiago Huerta

Universidad Politecnica de Madrid (Spain)

Santiago Huerta is a professor of Structural Design at Escuela Técnica Superior de Arquitectura de Madrid (ETSAM). President of the Spanish Construction History Society (SEDHC). Work as consultant for Historical Constructions Analysis (Cathedrals of Mallorca; Santiago de Compostela; Lonja de Mallorca; San Juan de los Reyes, etc.). Director of publications of the Juan de Herrera Institute. Author of more than 80 publications: books (editor), articles and papers, mainly on historic masonry structures and Construction History. Prize for the 'Dissemination of Architecture' related to the Exhibition and Catalog Guastavino Co. the Reinvention of the Vault (COAM), 2003. Telford Gold Medal of the British Civil Engineers Association London, 2011.

Antonino Iannuzzo

Università degli Studi del Sannio (Italy)

Antonino Iannuzzo is a structural engineer. He completed his Ph.D. in 2017 with a dissertation on "A new rigid block model for masonry structures". Antonino's research during his Ph.D. work focused on models for the static, kinematic and dynamic analysis of masonry elements and structures modelled as continua composed of Normal Rigid No-Tension material. During the academic year 2017-18 he worked as a post-doctoral researcher on "large scale assessment of ordinary masonry buildings under seismic actions" at the P.LIN.I.V.S. Study Centre for Hydrogeological, Volcanic and Seismic Engineering, whose scientific coordinator is Prof. Giulio Zuccaro, and joined the Block Research Group at ETH Zurich as a post-doctoral researcher, for three years: 2018-21. He is Associate Professor at UniSannio and an Honorary Fellow at Swinburne University Melbourne.

Paolo Borin

University of Brescia (Italy)

Paolo Borin is a Tenure-track Assistant Professor at DICATAM - University of Brescia. He obtained his PhD at the Università IUAV di Venezia, with a thesis which explores the science and stereotomy of Guarino Guarini through digital and computational modeling techniques. He graduated in Architectural Engineering from University of Padua in 2011 with honors. From 2011 he has been exploring theory and practise of BIM and applying it to enhance the building process, particularly for existing buildings. His interests in research involve history of representation methods, application of advanced geometry for AEC industry (e.g., vaulting systems in heritage buildings, architectural façade systems, etc.), open format for BIM management, description of historic transformation with BIM.

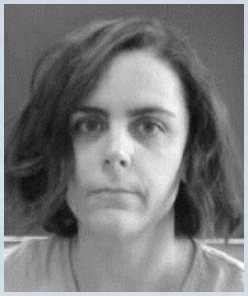
Alessio Bortot

University of Trieste (Italy)

Alessio Bortot, is an Architect and a "Doctor Europaeus" since 2016 in Architecture, City and Design, with a specialization in Representation.
He has been professor for the course of "Descriptive geometry", "Advanced technologies for representation" and "Digital 3D modelling" at the IUAV University of Venezia, at the faculty of Engineering of the University of Padova, at the IED of Venice and at the École National Supérieure des Travaux Publics in Yaoundé (Camerun). He has been research fellow working on topics about History of representation and advanced technologies for Architecture. He has lectured in conferences in academic institutions in Italy and abroad, and participated to national (PRIN 2010-2011) and international research. He is Associate Professor at the Department of Engineering and Architecture in the University of Trieste since 2021

Paula Fuentes Gonzales

University of Alcalá (Spain)



Paula Fuentes Gonzales is an Architect by the Polytechnic University of Madrid and has a Master in Building Structures. In 2013 she finished her PhD Dissertation: "Crossed-arch vaults between 10thand 16thcenturies. Geometry, construction and structural behaviour." From October 2016 to April 2019 she was research associate in the BTU Cottbus-Senftenberg and member of the DFG Research Training Group 1913 "Cultural and Technological Significance of Historic Buildings", where she developed the post-doc research project. Her research interests are focused on history of construction, masonry structures and surveying and drawing of architectural heritage. From 2019 to 2021 she was post-doctoral researcher at the Vrije Uiversiteit Brussels, funded by a Marie Sklodowska-Curie Individual Fellowship under the supervision of Prof. Wouters. Since 2021 she is Professor at the Department of Architecture at University of Alcalá.

Esther Redondo

European University of Madrid (Spain)

Architect, graduated from the School of Architecture, Polytechnic University of Madrid. Working as a structural designer and consultant since 1999, as co-founder of the GV408 Studio, since 2001 she teaches structural design at the School of Architecture of the European University of Madrid, where she has been in charge of several subjects in the area of structures, as well as joint subjects in the area of technology. She also worked as a visiting professor at ETSAM (Madrid), EaT (Toledo), Universidad Rey Juan Carlos (Madrid) and Universidad de Ambato (Ecuador). PhD in 2013 -"Tile vaulting in Sapin in the 19th Century: The transformation of a constructive system"-, her current field of research is the history of construction and structures. In this context, she has written numerous publications and participated in the organization of related congresses in Madrid (2013), Segovia (2015) and Soria (2019).

Invited Lecturers

Aguinaldo Fraddosio

Polytechnic University of Bari (Italy)

Aguinaldo Fraddosio, Ph.D., is a structural engineer and associate professor of "Scienza delle Costruzioni" Polytechnic University of Bari.
His research activity is focused on fundamental and applicative issues of solids, structural, and experimental mechanics. His research interests in historic masonry constructions concern advanced applications of the lower bound theorem of limit analysis for corbelled structures, arches, vaults, and domes; dynamics of curved masonry constructions; strengthening techniques; damage characterization

José Lemos

National Laboratory for Civil Engineering (LNEC) (Portugal)

Dr José Lemos is a Principal Researcher at the National Laboratory for Civil Engineering (LNEC) in Lisbon, Portugal. He holds a Civil Engineering degree from the University of Porto and a PhD in Rock Mechanics from the University of Minnesota, Minneapolis. He has been involved in the development of the discrete element codes UDEC and 3DEC. His research interests include dam foundations in rock, seismic analysis of masonry structures and discrete element modelling.

Paulo Lourenco

University of Minho (Portugal)

Professor at the Department of Civil Engineering, University of Minho, Portugal. Experienced in non-destructive testing, advanced experimental and numerical techniques, innovative repair and strengthening techniques, and earthquake engineering. President of ICOMOS ISCARSAH - International Scientific Committee on the Analysis and Restoration of Structures of Architectural Heritage. Specialist in structural conservation and forensic engineering, with work on 200 monuments, including 20 UNESCO World Heritage Sites. Revision leader of the European masonry code (EN 1996-1-1). Coordinator of the MSc on Structural Analysis of Monuments and Historical Constructions. Editor of the International Journal of Architectural Heritage. Author of "Historic Construction and Conservation" and "Finite Element Analysis for Building Assessment", Routledge (2019 and 2022).

Gabriele Milani

Politecnico di Milano (Italy)

is Full Professor of Structural Mechanics at the Technical University of Milan, Italy. Chair professor at Yangzhou University, PRC (2019-2020). His scientific interests are manyfold and include masonry modelling and experimentation, seismic engineering, preservation of historical constructions, timber, limit analysis, innovative strengthening with composite materials, Structural Health Monitoring, genetic algorithms (GA), rubber vulcanization and elastomeric seismic isolation. He published more than 350 papers in high impact international journals and co-chaired both the International Masonry Conference in 2018 and the International Brick and Block Masonry Conference in 2024. EB member in both high reputation journals and international congresses, he was awarded a Telford Premium and a K.J. Bathe Award. He is Associate Editor of Engineering Failure Analysis and Engineering Structures, both published by Elsevier.

Giulio Mirabella

University of Bergamo (Italy)

Professor of Restoration at the University of Bergamo, he is member of the board of PhD program in History and Preservation of Architecture at the Politecnico di Milano; he also teaches "wood construction strengthening" at the Specializing School in Architectural and Landscape Heritage Preservation. His research interest focus on the study of ancient buildings: damage analysis and building techniques recognition; monitoring and control of historic buildings; tall buildings (bell towers), long-term behaviour; mechanical characterization of traditional building materials; structural analysis of complex masonry structures by Finite Elements Method and by Discontinuous Deformation Analysis.

Nicola Nodargi

University of Rome Tor Vergata (Italy)

Nicola A. Nodargi is an Assistant Professor at the Department of Civil Engineering and Computer Science of the University of Rome Tor Vergata, Italy. He received his M.Sc. degree in Civil Engineering and his M.Sc. degree in Mathematics from the same university, where he earned his Ph.D. in Civil Engineering in 2016. As a Postdoctoral researcher, he was a visiting scholar at the Technical University of Braunschweig, Germany. His research activity, framed in the field of computational mechanics, focuses on the development of computational strategies for the analysis of structures exhibiting material and geometric nonlinearities, with a particular interest in the static and dynamic response of masonry constructions.

Francesco Portioli

University of Naples Federico II (Italy)

is Associate Professor of Structural Engineering. He received his PhD by the University of Chieti Pescara "G. D'Annunzio" in 2004, discussing a thesis on the structural behavior of masonry vaults strengthened with FRP. He is also lecturer at the Specialization School of Architectural Heritage and Landscape in Naples. His main research interests include safety assessment methods and modeling approaches for historical masonry structures and steel structures. He is author of several papers on international journals and conference articles. He is also author of book chapters of books, dealing with life-time structural engineering and seismic retrofitting of historical masonry structures.

Eugenio Ruocco

University of Campania, Luigi Vanvitelli (Italy)

Eugenio Ruocco is a researcher and educator specializing in structural mechanics and computational modeling. His expertise includes structural stability, the Finite Element Method (FEM), the Boundary Element Method (BEM), and isogeometric approaches. His research covers masonry structures, plates, beams, and innovative materials. In recent years, he has focused on integrating artificial intelligence into structural mechanics, developing neural network algorithms for defect detection and structural performance assessment. His findings have been published in international journals. He has collaborated with leading institutions, including Texas A&M University (J.N. Reddy), Graz University of Technology (Gernot Beer), and the University of Queensland (C.M. Wang). He has also been a visiting professor at the National University of Singapore, the University of Newcastle (Australia), Texas A&M, and Middle East Technical University.

Marianne Saba

University of Balamand (Lebanon)

Marianne Saba is an Associate Professor of Civil and Environmental Engineering at the University of Balamand. Her research expertise lies in the development and characterization of advanced materials for civil engineering applications, with a particular focus on geopolymers, eco-construction materials, and sustainable binders. She has led numerous projects on the experimental and numerical evaluation of materials, investigating their chemical, mechanical, microstructural, thermal, and durability properties for innovative engineering use. She leads national and international research collaborations with institutions in France and Greece, and serves as an active member of AUF's Commission d'Internationalisation, contributing to academic exchange and scientific advancement in the region.

Invited Lecturers

Host Teachers

Antonio Cazzani

University of Cagliari (Italy)

M.Sc. CE at Technical University of Milan, Antonio Cazzani is a Full Professor of Structural Mechanics at the University of Cagliari, where he is teaching Structural Mechanics in both school of Architecture and Civil Engineering. Previously he has been for 20 years Assistant Professor and Associate Professor at University of Trento, teaching Structural Mechanics, Structural Dynamics, Structural Stability and Computational Mechanics. He has been involved in several research projects, for some of them acting as PI or Associated PI, and has authored more than 55 papers published in international journals. His research interests span between Computational Mechanics, Masonry Structures, Laminated Plates, Shells, Structural Stability and Dynamics. He has been Visiting Scholar for several times at Georgia Tech, in Atlanta, GA, and more recently in 2018 and in 2020 at Florida Atlantic University in Boca Raton, FL.

Maria Cristina Porcu

University of Cagliari (Italy)

M.Sc. CE in Civil Engineering and Ph.D. in Mechanical Constructions, Maria Cristina Porcu is a Professor of Structural Mechanics at the University of Cagliari, where she teaches Dynamics of Structures and Structural Mechanics. Involved in national and international projects, she has published more than 60 papers on the Post-Elastic Behavior of Concrete and Masonry Structures, the Seismic Assessment of Historical Buildings, the Experimental Dynamic Detection of Structural Damage and the Progressive Collapse of Bridges. She has been Visiting Professor at the Jet Propulsion Laboratory, CALTEC, Cal, USA, in 2017, and at the University of Timisoara in 2018. She is the local coordinator, for the University of Cagliari, of the Italian National Doctorate School "Defense against natural risks and ecological transition of built environment". Eng, M.Sc. in Architectural Engineering at the University of Cagliari, M.Phil. and Ph.D. in Conservation of Architectural Heritage. in Conservation of Historic Architectural Heritage.

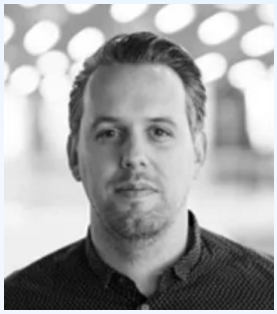
Emanuele Reccia

University of Cagliari (Italy)

Emanuele Reccia is Associate Professor of Solid and Structural Mechanics at the University of Cagliari, where he teaches "Structural Mechanics" and "Structural Analysis for Historic Architecture" at the Faculty of Architecture, and "Analysis of Structural Behaviour and Instability of Historic Buildings" at the School of Specialisation in Architectural and Landscape Heritage (SSBAP) of the University of Cagliari. Previously he was a post-doctoral researcher at the IUAV University of Venice and at the Sapienza University of Rome. He has participated in several research projects and is the author of more than 33 papers published in international journals. His research activity ranges between masonry materials and historical structures, masonry arch bridges, composite materials, shells and micropolar continua.

Philippe Block

ETH Zurich (Switzerland)



Philippe Block is Professor at the Institute of Technology in Architecture at ETH Zurich, where he co-directs the Block Research Group (BRG) together with Dr. Tom Van Mele. He is director of the Swiss National Centre of Competence in Research (NCCR) in Digital Fabrication; founding partner of Ochsendorf DeJong & Block (ODB Engineering). Block studied architecture and structural engineering at the VUB, Belgium, and at MIT, USA, where he earned his PhD in 2009. Research at the BRG focuses on computational form finding, optimisation and construction of curved surface structures, specialising in unreinforced masonry vaults and concrete shells. Within the NCCR, BRG researchers develop innovative structurally informed bespoke prefabrication strategies and novel construction paradigms employing digital fabrication. With the BRG and ODB Engineering, Block applies his research into practice on the structural assessment of historic monuments in unreinforced masonry and the design and engineering of novel shell structures.

Jane Burry

University of Adelaide (Australia)

Jane Burry is an architect, Head of School of Architecture and Civil Engineering at University of Adelaide, Australia, Deputy Director of the Australian Research Council Training Centre for Next Gen Architectural Manufacturing, and President of Australian Deans of the Built Environment and Design. Jane has practiced, researched, and taught internationally, including involvement as a project architect in the technical office at Antoni Gaudí's Sagrada Família Basilica with partner Professor Mark Burry. Her research has spanned computational design, geometrical and environmental design modelling, simulation, optimisation and prototyping in architecture.

Matthew DeJong

Berkeley University of California (USA)

Matthew_DeJong is a Professor in Structural Engineering, Mechanics and Materials at University of California, Berkeley. He was a university lecturer in Structural Engineering and a Fellow and Director of Studies in Engineering at St Catharine's College. He was a Fulbright Scholar at the Technical University of Delft and completed his PhD at the Massachusetts Institute of Technology. He holds an undergraduate degree in Civil Engineering from the University of California, Davis, and worked as a structural design engineer in California. His research interests lie broadly in the field of structural engineering, but are primarily focused in the areas of earthquake and masonry structures.

John Ochsendorf

Massachussets Institute of Technology (USA)

John Ochsendorf is a structural engineer with multi-disciplinary research interests including the history of construction, masonry mechanics, and sustainable design. Trained in structural mechanics at Cornell, Princeton, and the University of Cambridge, he conducts research on the structural safety of historic monuments, and the design of more sustainable infrastructure. His group is actively researching the dynamics of masonry buildings, the safety of cracked masonry vaults and domes, displacement loading of structures and the design of more sustainable infrastructure. Ochsendorf is the author of "Guastavino Vaulting: The Art of Structural Tile" and several dozen journal papers in structural mechanics. He has been awarded a Rome Prize from the American Academy in Rome and a MacArthur Fellowship from the John D. and Catherine T. MacArthur Foundation.

Online Invited Lecturers

Young Teachers

Fabian Bernal Orozco Barrera

National Autonomous University of Mexico (Mexico)

Fabian is an architect specialized in masonry vaults and domes.He studied in the National Autonomous University of Mexico (UNAM) through a master's degree in Restoration during which he did a research stay at the Polytechnic University of Madrid under the Supervision of Professor Santiago Huerta.
Currently he is a Lecturer at the Faculty of Architecture in UNAM, collaborating as an Independent researcher. He has worked as an active consultant on the assessment of Masonry Structures in Mexico since 2020. He has also worked on survey, restoration and retrofitting of masonry buildings.

Pietro Meriggi

Roma Tre University (Italy)

Pietro Meriggi is an Assistant Professor and member of the Structures Research Group at the Department of Civil Engineering, Computer Science and Aeronautical Technologies of Roma Tre University. He got his PhD in Civil Engineering in 2021 at Roma Tre University. His scientific interests and expertise include laboratory and field testing of both traditional and innovative materials and of full-scale masonry structural members (subject to static and dynamic loads), analytical and numerical modelling of masonry structures, and surveying, monitoring, modelling of existing structures. In 2020 he was visiting at Navier Laboratory – IFSTTAR. Since 2022 he is lecturer of the course of Sustainable Structural Design at Roma3 University.

Andrea Montanino

Università di Napoli Federico II (Italy)

Andrea Montanino is Lecturer at the University of Naples "Federico II". He obtained his PhD in Computational Mechanics and Advanced Materials from the University of Pavia in 2015. His thesis was awarded as the Best PhD thesis in Computational Mechanics of Fluids by the Italian Group of Computational Mechanics. Since then, his research has focused on different applications of computational mechanics, including fluid-dynamics, biomechanics and computational methods for masonry structures. From 2015 to 2018 he joined as a Post-Doctoral Researcher, the Research Group of Anna Pandolfi at the "Politecnico of Milano". He is coauthor of about 35 publications on peer-reviewed international journals.

Felix Rodriguez

European University of Madrid (Spain)

Félix Rodríguez is an architect specialized on structural analysis, currently working as a consultant for GV408 studio and as a lecturer on structural design at European University of Madrid. He completed his MSc in 2023 at Escuela Técnica Superior de Madrid, where he specialized on historical masonry structures and thrust line analysis, writing his bachelor thesis on the interventions and structural analysis of San Fernando church in Mexico under the supervision of Santiago Huerta. He has also taken part as an assistant on the tile vaulting workshop at Polytechnic University of Madrid.

Marialuigia Sangirardi

University of Oxford (UK)

Marilù is Lecturer in Structural Failure and Mechanics of Materials at Trinity College and PDRA at the Department of Engineering Science of the University of Oxford, where she is working on the development of new advanced in situ testing methods for historic masonry. She has been involved in many national and international projects regarding experimental characterization of materials, real scale shaking-table testing and numerical modelling of rubblestone masonry structures and low impact seismic retrofitting design, soil-structure interaction and tunnelling induced damage on masonry buildings, risk assessment and damage related to low-magnitude earthquakes correlated to gas extraction.

Ricardo Maya Avelino

ETH Zurich (Switzerland)

Ricardo Maia Avelino is a researcher and structural engineer with interests in historic structures, sustainable design, and XR/AI applications in engineering. In 2023, he completed his PhD at ETH Zurich with the Block Research Group (BRG). His dissertation on Thrust Network Optimization for Masonry Assessment was awarded the ETH Medal for outstanding doctoral thesisLater, he joined Skidmore, Owings & Merrill (SOM) in New York as a structural engineer, contributing to complex international projects and developing AI tools to streamline structural design.In 2025, Ricardo returned to ETH Zurich as the Design++ Postdoctoral Fellow and Research Associate at the BRG, while continuing to serve as a structural engineering consultant at SOM.

Alessandro Dell'Endice

ETH Zurich (Switzerland)

Alessandro is a chartered building engineer and architect with a strong interest in structural design, masonry structures and digital fabrication.. In 2016, he earned a Master of Advanced Studies (MAS) in Architecture and Digital Fabrication at ETH Zurich, led by the Gramazio Kohler Research Group In 2016, he joined the Block Research Group (BRG), where in 2018, he started a PhD focusing on unreinforced masonry structures using the Discrete Element Method. Between 2021 and 2023, Alessandro took part as a structural designer in the realisation of Striatus, an unreinforced masonry 3D-concrete-printed pedestrian bridge built in Venice, during the Biennial Exhibition 2021, and Phoenix. After defending his PhD in June 2022, He currently works at the BRG as a Senior Researcher.

Vittorio Paris

University of Bergamo (Italy)

Vittorio Paris is Lecturer at the Department of Engineering and Applied Science at the University of Bergamo. He received his PhD in 2020 under the supervision of Professor Attilio Pizzigoni. Vittorio's research focuses on masonry self-balanced shells and their equilibrium during the construction, through which he aims to pave a way towards sustainable construction that is inspired by historical techniques. Under this aim, he has conducted extensive research on the unique and long-lost masonry technique: the herringbone technique and the cross-herringbone masonry pattern to construct domes. He is also part of the Form Finding Lab at Princeton University since 2018, lead by Prof. Sigrid Adriaenssens

Giulia Piccinin

University of Padua (Italy)

Giulia Piccinin has a PhD in Architecture, cities and design. She is a teaching assistant and contract professor at the Iuav University and the University of Trieste inrepresentation of architecture and drawing. She is a member of the Imago rerum (Iuav) research unit, coordinated by Prof. De Rosa. She is currently a research fellow at the Department of Civil and Construction Engineering Environmental of the University of Padua. Currently she is researching fellow at the Department of Civil, Environmental and Architectural Engineering of the University of Padua.

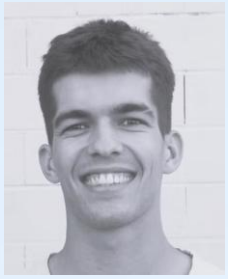
Anjo Weichbrodt

ETH Zurich (Switzerland)

Anjo is a freelance conservator for built heritage based in Basel, Switzerland. He started as an apprentice in wall painting conservation in France, then pursued further studies and work in Rome, Italy. He completed the conservation master's program at SUPSI in Switzerland in 2012 alongside the postgraduate internship program at the Getty Conservation Institute in Los Angeles. He was part of a research group at ETH Zurich working on the Lausanne Cathedral from 2019 to 2025.In 2021, Anjo first attended the HIMASS and then took a sabbatical semester at the Escuela Técnica Superior de Arquitectura de Madrid (ETSAM) with Santiago Huerta.

Young Teachers

Young Teachers



Alvaro Diaz

University of Madrid (Spain)

Álvaro Díaz graduated in Architecture in June, presenting his final on masonry structures. His strongest interest in the field of architecture is precisely the study of Historic Masonry Structures, as well as general Structural Calculation and Design of any other kind of structure. He has collaborated with the Department of Structures of his University in the assessment of the structural safety of a damaged building. He has taken courses in Masonry Structures and Tile Vaults under the teaching of Prof. Huerta, who also tutored his final thesis. He has also participated in various Construction Workshops. He attended the 2024 edition of the HIMASS.

Habib Katouli

University of Naples Federico II (Italy)

Habib is a second-year PhD student in Structural and Seismic Engineering at the University of Naples Federico II. His research focuses on the dynamics of masonry structures, their monitoring, and strategies for seismic and static interventions. He completed a second MSc in Italy, concentrating on the structural assessment of historic masonry vaults using TNA. With over five years of professional experience in the retrofitting and rehabilitation of different historic buildings in Iran, Habib is currently engaged in the assessment, design, and intervention of existing masonry structures. He attended the 2022 edition of the HIMASS.

Natalia Pingaro

Politecnico di Milano

Natalia Pingaro is a PhD student at the Department of Architecture, Built Environment, and Construction Engineering. Her interest in architecture and the restoration of historical buildings began during her undergraduate studies at the Politecnico di Milano School of Architecture, where she completed a BSc thesis on the seismic vulnerability of historical masonry towers.. Her PhD thesis combines numerical models with experimental validation considering retrofitting interventions. She attended the 2023 edition of the HIMASS.

Tvrtko Renic

University of Zagreb (Croatia)

He is a postdoctoral researcher at University of Zagreb, Faculty of Civil engineering where he has been working at the department for structures since 2017 on research and teaching in the field of new and existing concrete and masonry structures. He received his PhD in structural engineering at University of Zagreb in 2022. His main fields of interest are seismic analysis and design, existing masonry structures, strengthening methods, graphical methods of analysis and design and use of non-metallic reinforcement. He is part of a research project that aims to study typical unreinforced masonry buildings in Zagreb with emphasis of their assessment and post-earthquake retrofitting. He attended the 2024 edition of the HIMASS.

Ilaria Scarcelli

Polytechnic University of Bari (Italy)

Ilaria Scarcelli is a PhD student in Structural Mechanics at the Department of Architecture, Construction and Design of the Polytechnic University of Bari.She obtained her Bachelor's degree in Building Engineering and her Master's degree in Civil Engineering. During her Master's thesis, she focused on the field of masonry structures and membrane analysis, particularly on the case study of star vaults the Thrust Surface Method. She is currently pursuing her doctoral research on masonry, with a specific focus on the study of masonry dynamics. She attended the 2024 edition of the HIMASS.

Giovanna Conte

President of Keiko non-profit Association

"The association pursues, on a non-profit basis, civic, solidarity and socially useful purposes through the exercise, exclusively or principally, of the following activities of general interest:

- The promotion of scientific knowledge, mainly in the sector of construction science;
- The defense of the historical, cultural and identity value of the historic Italian building heritage."

This activities are carried out in the organization of the International Summer School on Historic Masonry Structures (HIMASS) and recently in the preparation, with the group of partner International University Institutions with which KEIKO collaborates, of a funding application regarding a possible expansion of the Summer School experience in an International Joint Master funded by the European Community.

Keiko non-profit Association

historicmasonrystructures@gmail.com – www.himass.org

SUNDAY AUG 31

Time	Location	Course/Event
14.30 – 20.00 h	Hall of the Convent of San Francis	Informal get together
20.00 – 21.00 h	Dinner	

DAY 1 | MONDAY SEPT 1

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
10.00 h	Course Opening (Lecture Room of the "Museo Diocesano")	
10.00– 11.00 h	Welcome greetings and Course Overview. The City of Oristano	A.Cazzani, M.C. Porcu
11.00 – 11.30 h	Historic masonry architecture: geometry and equilibrium	S. Huerta
11.30 – 12.00 h	New tools for masonry reviving the old approach	M. Angelillo
12.00 – 12.30 h	Historic masonry structures facing earthquakes	G. De Felice
12.00 – 12.30 h	Introduction to Field Work Presentation of the case studies	Tutors
13.00 – 14.00 h	Lunch	
14.30 – 15.30 h	Lecture The Theory of Survey 1	P. Borin, G. Picccinin
15.30 – 19.00 h	Field work Visit to case studies.	All Teachers and Tutors
19.00 – 20.00 h	Introductory Lecture (online) The art of Masonry Construction	J. Ochsendorf
20.00 – 21.00 h	Dinner	
21.00 – 22.30 h	Field work Group work on case studies	

Program

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
9.30 – 11.00 h	Basic Theory Material masonry. Heyman's Principles of Limit Analysis. Equilibrium and thrust lines.	S. Huerta
11.00 – 11.30 h	Coffee Break	
11.30 – 13.00 h	Basic Theory Arches. Cracks. Collapse of arches. Limit analysis, safety. Buttresses. Case Study: The Church of Guimarei.	S. Huerta
13.00 – 14.00 h	Lunch	
15.00 – 16.30 h	Lecture Digital Drawing 1	P. Borin, G. Piccinin
16.30 – 17.00 h	Coffee Break	
17.00 – 18.00 h	Invited Lecture Materials of masonry	Marianne Saba
18.00 – 19.00 h	Invited Lecture TBA	Gabriele Milani
19.00 – 20.00 h	Lecture Case studies: post-seismic interventions in Mexico	F. Orozco
20.00 – 21.00 h	Dinner	
21.00 – 22.30 h	Field work Group work on case studies	

DAY 3 | WEDNESDAY SEPT 3

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
9.30 – 11.00 h	Basic Theory The Gothic Structure. Flying buttresses and cross vaults. Case Study: The stability of the Cathedral of Palma de Mallorca	S. Huerta
11.00 – 11.30 h	Coffee Break	
11.30 – 13.00 h	Basic Theory Towers & Spires. Rose windows. Flat vaults. Case Studies: The Towers of the Obradoiro (Cathedral of Santiago de Compostela), Flat vaults of the Convent of Llucmajor	S. Huerta
13.00 – 14.00 h	Lunch	
15.00 – 16.30 h	Field work Visit to case studies	Teachers and Tutors
16.30 – 17.00 h	Coffee Break	
17.00 – 18.00 h	Invited Lecture Session 1: Principles for the conservation of historic structures	Paulo Lourenco
18.00 – 19.00 h	Lecture Ribbed Vaults 1	P. Fuentes
19.00 – 20.00 h	Lecture Ribbed Vaults 2	P. Fuentes
20.00 – 21.00 h	Dinner	
21.00 – 22.30 h	Field work Group work on case studies	

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
9.30 – 11.00 h	From Basic to Advanced Theory The Masonry Challenge: Heyman's No Tension material Heyman's material: the arch	M. Angelillo
11.00 – 11.30 h	Coffee Break	
11.30 – 13.00 h	Advanced Theory Heyman's material: Continuum Models 1	M. Angelillo
13.00 – 14.00 h	Lunch	
15.00 – 16.30 h	Field work Group work on digital restitution	Teachers and Tutors
16.30 – 17.00 h	Coffee Break	
17.00 – 18.00 h	Invited Lecture Discrete Element Modelling: modeling masonry with 3DEC	José Lemos
17.00 – 18.00 h	Invited Lecture Session 2: Inspection, diagnosis and advanced material data	Paulo Lourenco
19.00 – 20.00 h	Lecture Digital Drawing 2	A. Bortot
20.00 – 21.00 h	Dinner	
21.00 – 22.30 h	Field work Group work on digital restitution and drawing	

DAY 5 | FRIDAY SEPT 5

Time	Course/Event	Lecturers
8,30 9.15 h	Breakfast	
9.30 – 11.30 h	Advanced Theory Heyman's material: Continuum Models 2. Rigid Blocks for masonry. Numerics: the "displacement (kinematic) approach" PRD, CDF.	M. Angelillo A. Iannuzzo
11.30 – 12.00 h	Coffee Break	
12.00 – 13.00 h	Advanced Theory Numerics: the "force (equilibrium)" approach. Identifying singular stresses with a computer: CASS, Lumped Force Networks	A. Montanino
13.00 – 14.00 h	Lunch	
15.00 – 16.15 h	Invited Lecture Modeling masonry with 3DEC - Application topics	José Lemos
16.15 – 17.30 h	Tile vaulting: actual possible uses both in restauration and new buildings	C. Martin
17.30 – 18.00 h	Coffee Break	
18.00 – 19.00 h	Invited Lecture (online) TBA	Philippe Block
19.00 – 20.00 h	Tile vaulting: the workshop	C. Martin, E. Redondo
20.00 – 21.00 h	Dinner	
21.00 – 22.30 h	Field Work Group work on digital restitution and drawing	E. Redondo C. Martin

Program

DAY 6 | SATURDAY SEPT 6

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
9.30 – 13.00 h	Tile vaulting workshop	E. Redondo C. Martin Teachers and Tutors
13.00 – 14.00 h	Lunch	
14.30 – 19.30 h	Visit: Tharros and "San Giovanni di Sinis"	Teachers and Tutors
20.00 – 21.00 h	Dinner	

DAY 7 | SUNDAY SEPT 7

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
9.30 – 13.00 h	Tile vaulting workshop	E. Redondo C. Martin Teachers and Tutors
13.00 – 14.00 h	Lunch	
14.30 – 19.00 h	Visit: "Nuraghe Losa" and "Pozzo Sacro di Santa Cristina"	Teachers and Tutors
20.30 – 21.00 h	Dinner	

DAY 8 | MONDAY SEPT 8

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
9.30 – 11.00 h	Advanced Theory: Applications of PRD and CDF Centrifuge testing	A. Iannuzzo
11.00 – 11.30 h	Coffee Break	
11.30 – 13.00 h	Field Work Group work on structural Analysis	Teachers and Tutors
13.00 – 14.00 h	Lunch	
15.00 – 16.30 h	Field Work Group work on structural Analysis	Teachers and Tutors
16.30 – 17.00 h	Coffee Break	
17.00 – 20.00 h	Field Work Group work on structural analysis	Teachers and Tutors
20.00 – 21.00 h	Dinner	
21.00 – 22.30 h	Field work Group work on case studies	

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
9.30 – 10.30 h	Advanced theory Blocky Structures Applications to the Case Studies	P. Meriggi
10.30 – 11.00 h	Coffee Break	
11.00 – 12.00 h	Invited Lecture (online) Masonry Dynamics in Architectural Design - in the footsteps of Antoni Gaudí	Jane Burry
12.00 – 13.00 h	Field work Group work on case studies	Teachers and Tutors
13.00 – 14.00 h	Lunch	
14.30 – 15.15 h	Field work Group work on case studies	Teachers and Tutors
15.15 – 16.00 h	Field work Group work on case studies	Teachers and Tutors
16.00 – 17.00 h	Invited Lecture Dynamics of rocking structures	Nicola Nodargi
17.00 – 17.30 h	Coffee Break	
17.30 – 19.00 h	Computational masonry through COMPAS	A.Dell'Endice R. Maya Avelino
19.00 – 20.00h	Invited Lecture Rigid block models	Francesco Portioli
20.00 – 21.00h	Dinner	
21.00 – 22.30 h	Field work Group work on case studies	

DAY 10 | WEDNESDAY SEPT 10

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
9.30 – 11.00 h	Field work Group work on case studies	Teachers and Tutors
11.00 – 11.30 h	Coffee Break	
11.30 – 13.00 h	Advanced Theory Soil-structure interaction	M. Sangirardi
13.00 – 14.00 h	Lunch	
15.00 – 16.30 h	Field Work Group work on Structural Analysis	Teachers and Tutors
16.30 – 17.00 h	Coffee Break	
17.00 – 18.00 h	Computational Masonry through COMPAS: Digital Graphic Statics	A.Dell'Endice R. Maya Avelino
18.00 – 19.00 h	Computational Masonry through COMPAS: TNA & TNO	A.Dell'Endice R. Maya Avelino
19.00 – 20.00 h	Invited Lecture TBA	Aguinaldo Fraddosio
20.00 – 21.00 h	Dinner	
20.30 – 22.00 h	Field work Group work on Structural Analysis	

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
9.30 – 11.00 h	Advanced Theory Seismic assessment and retrofitting	G. de Felice
11.00 – 11.30 h	Coffee Break	
11.30 – 13.00 h	Advanced Theory Experiments and Applications to Case Studies	G. de Felice
13.00 – 14.00 h	Lunch	
15.00 – 16.30 h	Field Work Group work on Structural Analysis	Teachers and Tutors
16.30 – 17.00 h	Coffee Break	
17.00 – 19.00 h	Field Work Group work on Structural Analysis	Teachers and Tutors
19.00 – 20.00 h	Invited Lecture TBA	M. DeJong
20.00 – 21.00 h	Dinner	
21.00 – 22.30 h	Field Work Group work on Structural Analysis	

DAY 12 | FRIDAY SEPT 12

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
9.30 – 11.00 h	Field Work Group work on Structural Analysis	Teachers and Tutors
11.00 – 11.30 h	Coffee Break	
11.30 – 13.00 h	Field Work Group work on Structural Analysis	Teachers and Tutors
13.00 – 14.00 h	Lunch	
15.00 – 16.30 h	Field Work Group work on Structural Analysis	Teachers and Tutors
16.30 – 17.00 h	Coffee Break	
17.00 – 19.00 h	Field Work Group work on Structural Analysis	Teachers and Tutors
19.00 – 20.00 h	Invited Lecture Artificial Intelligence in Structural Mechanics	Eugenio Ruocco
20.00 – 21.00 h	Dinner	
21.00 – 22.30 h	Field work Group work on case studies	

DAY 13 | SATURDAY SEPT 13

Time	Course/Event	Lecturers
8.30 – 9.15 h	Breakfast	
10.00 – 11.00 h	Students' Final Presentations	Teachers and Tutors
11.00 – 11.30 h	Coffee Break	
11.30 – 12.30 h	Students' Final Presentations	Teachers and Tutors
12.30 – 13.00 h	Proclamation and Diplomas	Teachers and Tutors
13.00 – 14.00 h	Lunch	
16.30 – 17.00 h	Coffee Break	
17.00 – 19.00 h	Tile vaulting workshop Vault tested to collapse. "Rubble beer party" (to dispose the resulting materials)	
20.00 – 23.00 h	Social Dinner	

DAY 14 | SUNDAY SEPT 14

Time	Course/Event
8.30 – 9.15 h	Breakfast
9.15 – 13.00 h	Farewell and Departures

Further information and acknowledgments

The School is partly supported by UNISANNIO Università di Benevento and organized in cooperation with KEIKO non-profit Association

The vauable support of Dr. Giovanna Conte is gratefully acknowledged.