European Joint Doctorate in Science and Technology for Cultural Heritage (SciTeCH)

European Joint Doctorate in Science and Technology for Cultural Heritage (SciTeCH) is a proposal within the Call H2020-MSCA-ITN-2016 of MARIE Skłodowska-CURIE ACTIONS, Innovative Training Networks (ITN). It is European Joint Doctorate (EJD) project, educating a new generation of creative, entrepreneurial and innovative Early-Stage Researchers (ESR), able to face current and future challenges in the field of Cultural Heritage (CH) protection and management and to convert the knowledge and ideas in the field of CH into products and services needed for economic and social benefit.

This coherent joint doctoral program is designated to overcome national, sectoral and disciplinary boundaries of usual doctoral research in the field of study and protection of CH. It should build highly specialized skills spanning across the Humanities, Technologies and Materials Science research fields, in order to help development of more sophisticated chemical and physical analytical techniques in order to highlight and bridge a knowledge gap between CH studies and modern experimental techniques of today's physics and chemistry, and enhance their understanding and application in this field.

This project has strong multidisciplinary connotation, relating to cultural heritage and memory, archaeology, conservation sciences, technologies designated for CH, and archaeometry, as a new science conceived to make analytical techniques of modern science applicable to objects of CH in more systematical manner.

The universities from six European countries (Sapienza Università di Roma, Universidade de Evora, Université d'Avignon et des Pays de Vaucluse, Universidad de Burgos, Politecnico di Torino, Natational Technical University of Athens, Consejo Superior de Investigaciones Científicas, Institute of Physics Belgrade, Université Bordeaux-Montaigne) and their beneficiaries (Amoroso Waldeis, Ars Mensurae srl, Kocaeli University, Nova Conservação), are taking part in this project to contribute to joint this doctorate program of SciTeCH. They have agreed to accomplish together the procedures in order to train PhD students, award doctoral degrees and provide the experimental and other facilities with the principles of good partnership practice.

The participation of both academic and non-academic partners will provide the research and diagnostics to take place in their usual work setup, helping this way to create a common language between the participants of different background, teaching the candidates the knowledge and skills which could direct their future choices and activities.

This doctoral program has been conceived as vivid interaction within the network of participants and beneficiaries. The duration of program is 3 years, with tutors and supervisors from different institutions assigned to students to facilitate their interactions within the network. Joint monitoring the research progress over the entire period up to the final dissertation will also be provided. Selected group of experts engaged in teaching process will lead the students through this complex interdisciplinary field, covering both CH and experimental techniques, with seminars for all early-stage researchers provided, as well as additional courses in order to recover some background knowledge.

During this project it is expected for successful SciTeCH PhD candidate to acquire specific knowledge and skills related to both Cultural Heritage studies and

protection and the application of modern experimental techniques and technologies in this area. Therefore following areas should will be of particular interest:

- Conservation ethics and history,
- Development of diagnostic and monitoring,
- Conservation materials and methods - characterization of artefacts, degradation, mechanisms, evaluation of new materials, decision making techniques,
- Skills in utilization of different experimental equipment,
- Environment and energy (energy efficient and sustainable solutions for historical objects, etc...), and
- Management, in order to modernize activities in archaeological discovery.

Personal career development plan should also be included at early stage in order to evaluate student's characteristics, interests and abilities. The students should acquire different skills in the fields such as entrepreneurship, management and scientific communication, team skills, multicultural awareness, etc.

Mobility of doctoral candidates within this program is mandatory and should lead to strengthening the transmission and exploitation of knowledge, as well as to enhance the innovation process in the study of Cultural Heritage, not only in the framework of this proposal, but also in future activities of candidate. Network training events organized at different participating institutions will provide an integrated, complementary learning platform, acquiring knowledge in partners specific and complementary areas of expertise, introducing different issues - materials, technologies, and management, as well as advanced methodologies applied in the wide area of CH. Strong multidisciplinary character of this educational network should detect the candidate possibility to enter into European work market.

The completion of this internationally integrated curriculum will be rewarded by a Multiple Doctoral Degree in “Science and Technology for CH” recognized by five core universities (Sapienza Università di Roma, Université d'Avignon et des Pays de Vaucluse, Universidad de Burgos, Politecnico di Torino, Universidad de Burgos), as expected outcome of this proposal - European Doctorate in Science and Technology for CH.