

# HERACLES

## WINTER SCHOOL 2019

### Monitoring Technologies for Enhancing Environmental and Structural Resilience of Architectural Heritage

18-19 March, 2019 – Perugia (Italy)



## PROGRAMME

### Session 1

#### Monday, March 18<sup>th</sup> - Monitoring and diagnostic technologies for preventive conservation of architectural heritage

(Riconosciuti 3 CFP per gli iscritti all'Ordine degli Ingegneri)

Location: Aula Magna

- 14h00 – Opening session: F. Ubertini (PI of UNIPG in HERACLES project); G. Gigliotti (DICA Vice-Chair); V. Pane (Delegate for the Board of Engineers of Perugia)
- 14h10 – G. Padeletti (CNR-ISMN) – “HERitage Resilience Against CLimate Events on Site-HERACLES Project: Mission and Vision”
- 14h40 – M. Costantini (e-Geos) – “Satellite radar interferometry: introduction and application to building structural assessment”
- 15h00 – G. Milani (Politecnico di Milano) – “Fast seismic vulnerability evaluation of towers and churches by means of an adaptive NURBS linear kinematic FE limit analysis”
- 15h30 – F. Clementi (Università Politecnica delle Marche) – “The Non-Smooth Contact Dynamics method for the analysis of masonry structures”
- 16h00 – A. Formisano (Università di Napoli “Federico II”) – “Seismic vulnerability of masonry building aggregates and risk analysis of historical centres”
- 16h30 – Coffee break
- 16h50 – F. Ubertini (Università di Perugia) – “HERACLES SHM and structural diagnostic activities in Gubbio”
- 17h10 – I. Venanzi (Università di Perugia) – “Seismic damage localization in historic structures through online FEM calibration”
- 17h30 – E. García-Macías (Università di Perugia) – “Seismic interferometry for SHM of historic structures”
- 17h50 – F. Cluni, V. Gusella, G. Vinti (Università di Perugia) – “Thermographic analysis of plastered masonry walls”

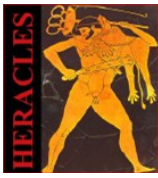
### Session 2

#### Tuesday, March 19<sup>th</sup> - Environmental monitoring and diagnosis for enhancing cultural heritage resilience to climate change

(Riconosciuti 3 CFP per gli iscritti all'Ordine degli Ingegneri)

Location: Aula Magna

- 09h00 – Welcome by F. Cotana (Coordinator of PhD in Energy and Sustainable Development) and A.L. Pisello (Chair of Session 2)
- 09h10 – M. Folegani (Sistema) – “Climate change and extreme weather conditions analysis in HERACLES sites”
- 09h30 – N. Cavalagli (Università di Perugia) – “Hierarchical environmental risk mapping of material degradation in historic buildings”
- 09h50 – G. Padeletti (CNR-ISMN) – “From the study of the past new solutions for the future”
- 10h10 – P. Pouli (Forth, Greece) – “Monitoring and Mapping of Deterioration Products on Cultural Heritage Monuments Using portable Imaging and Laser Spectroscopy instrumentation” (Recorded video presentation)
- 10h30 – Federica Rosso (Sapienza Università di Roma) – “Smart and traditional materials for enhancing CH resilience to climate change”
- 10h50 – Coffee break
- 11h10 – I. Catapano, G. Ludeno (CNR-IREA) – “Ground Penetrating Radar: a tool for non invasive surveys of infrastructures and historical assets
- 11h30 – I. Pigliautile (Università di Perugia) – “Wearable environmental monitoring: a new experimental prototype exploited within HERACLES project”
- 11h50 – A.L. Pisello (Università di Perugia) – “Microclimate change in cultural heritage: the effect on outdoor comfort, heritage conservation and energy demand”
- 12h10 – J. Moßgraber (Fraunhofer IOSB) – “From Sensor to Decision - ICT tools to support the management of Cultural Heritage”
- 12h30 – C. Balocco (Università di Firenze) – “Microclimatic and biological monitoring as integrated approach for conservation of Cultural Heritage. A case study at the the Palatina Library in Parma”
- 12h50 – Closing session



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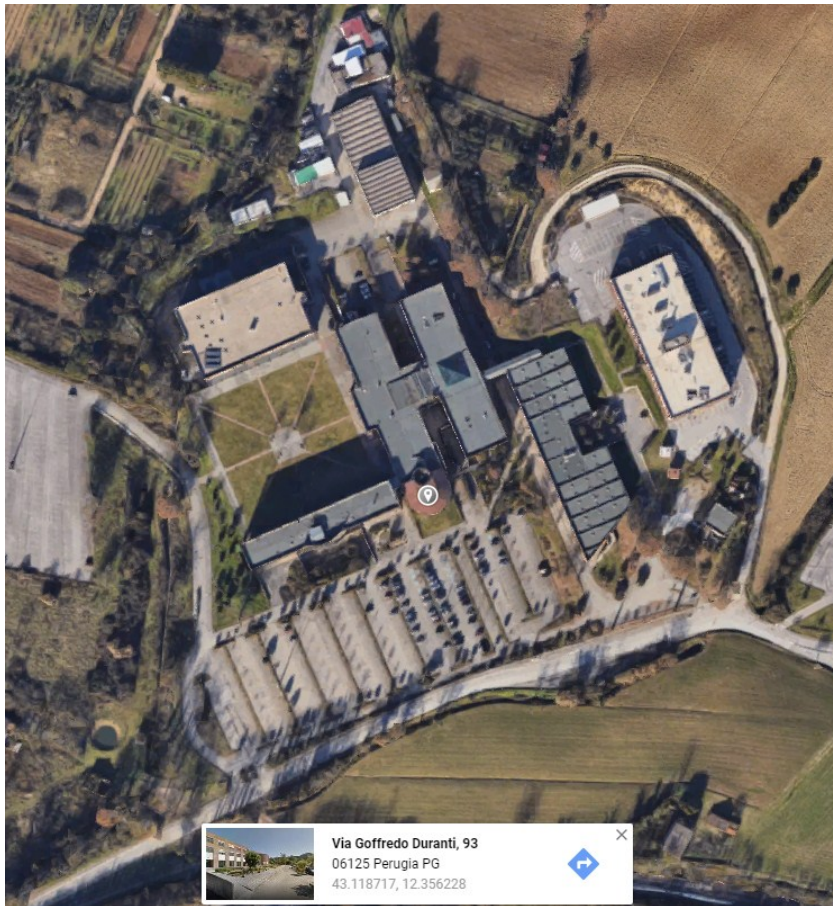
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18-19 March, 2019 – Perugia (Italy)



**Location:** Aula Magna of the Engineering Campus, University of Perugia



### Address:

Engineering Campus, University of Perugia  
Via G. Duranti, 93 - 06125 Perugia  
ITALY

### Organizing Committee

Filippo Ubertini (Chair, Session 1) - Anna Laura Pisello (Chair, Session 2)  
N. Cavalagli, I. Pigliatile – nicola.cavalagli@unipg.it (Contact for registration)