

COST Action TU1208 – Working Group 4 – Combined use of GPR and other NDT methods & GPR applications in geosciences

Lara Pajewski (1), Mercedes Solla (2), and Simona Fontul (3)

(1) Sapienza University, Department of Information Engineering, Electronics and Telecommunications, Roma, Italy (lara.pajewski@uniroma1.it), (2) University of Vigo, Vigo, Spain (merchisolla@cud.uvigo.es), (3) LNEC - Laboratorio Nacional de Engenharia Civil, Lisbon, Portugal (simona@lnec.pt)

This work aims at presenting the main results achieved by Working Group (WG) 4 “Different applications of GPR and other NDT technologies in civil engineering” of the COST (European COOperation in Science and Technology) Action TU1208 “Civil Engineering Applications of Ground Penetrating Radar” (www.GPRadar.eu, www.cost.eu).

The main objective of the Action TU1208, started in April 2013 and ending in October 2017, is to exchange and increase scientific-technical knowledge and experience of Ground Penetrating Radar (GPR) techniques in civil engineering, whilst promoting in Europe the effective use of this safe non-destructive technique. The Action involves more than 150 Institutions from 28 COST Countries, a Cooperating State, 6 Near Neighbour Countries and 6 International Partner Countries.

WG4 deals with the use of GPR outside from the civil engineering area, namely in archaeological prospecting and cultural heritage diagnostics, agriculture and management of water resources, investigation of polluted industrial sites, non-destructive testing of living tree trunks, planetary exploration, demining, localization of people buried under avalanches and debris, and more. Furthermore, this WG studies the integration of GPR with other Non-Destructive Testing (NDT) methods. The most relevant achievements stemming from WG4 will be presented during the 2017 EGU GA. These are: (i) The collection of thorough information on the state-of-the-art, ongoing studies, problems and future research needs on the topics of interest for this WG; (ii) The performance of a plethora of interesting case studies in important sites all over Europe, including well-known historical places such as Stonehenge (United Kingdom), Carnuntum (Austria), the Wawel Cathedral (Cracow, Poland), the Tholos Tomb of Acharnon (Athens, Greece), the Łazienki Royal Palace (Warsaw, Poland), and more; (iii) WG4 contributed to the TU1208 Education Pack, an open educational package conceived to teach GPR in University courses. Additionally, WG4 was very active in offering training activities. In cooperation with the other WGs, the following courses were successfully organised: Training School (TS) “Civil engineering applications of Ground Penetrating Radar” (Pisa, Italy, September 2014), TS “Applications of Ground Penetrating Radar in urban areas: the sensitive case of historical cities” (Cracow, Poland, May 2015), TS “Applications of GPR to civil engineering and archaeology” (Valletta, Malta, January 2016), and TS “Non-destructive testing techniques for civil engineering” (Barcelona, Spain, March 2016). Finally, WG4 contributed to the organization of a series of national events devoted to fostering the interaction of Action Members with stakeholders, new potential GPR end-users, and interested citizens. During such events, participants could discover what is Ground Penetrating Radar (GPR) and how this technique can be effectively used in civil engineering works as well as in different fields (“TU1208 GPR Road Show”).

Acknowledgement:

The Authors are deeply grateful to COST (European Cooperation in Science and Technology, www.cost.eu), for funding and supporting the COST Action TU1208 “Civil engineering applications of Ground Penetrating Radar” (www.GPRadar.eu).