

Geotechnical Engineering Lecture Series

Speaker: Luigi Sambuelli
Applied Geophysics - DITAG
Politecnico di Torino

Dates: January 18 and 19

Time: 11 pm

Location: SEB 122

Lecture 1 (Thursday 1/18): SMALL SCALE GEOPHYSICS FOR THE DETECTION OF DECAY IN TREES. The presentation deals with the application of ultrasonic tomography, electrical resistance tomography and georadar for the detection of decay in living tree trunks. The scale of the problem, the very peculiar characteristics of wood - both mechanic and electromagnetic - and some technological requirements of a marketable instrumentation still are a challenge.

Lecture 2: (Friday 1/19): RAPID ELECTRIC TOMOGRAPHY FOR SALINE POLLUTANTS AND SOLID TRANSPORT ESTIMATION IN WATER FLOWS. The presentation deals with the application of process tomography to a hydrogeological problem. The technique consists of performing fast resistivity or capacitance tomography through a section of a flowing multiphase fluid. The goal is to estimate the existence and proportion of the different phases within the flux through the interpretation of tomographic results. The technique is applied to water flow with a saline pollutant, coarse sand and silt.

Prof. L. Sambuelli has been involved in geophysical research, consulting and education for more than 20 years. His main research topics have been in the application of high-resolution geophysics to small scales systems, including archaeology, tunnelling, geotechnics, environmental problems and hidrogeology. He is owner or co-owner of three patents. Recently, Prof. Sambuelli has been the scientific leader of the research "Experiments in the high frequency georadar band (0.9 – 2.5 GHz) for the analysis of ancient historical buildings" within the "Cultural Heritage" project of C.N.R., and "Holographic Ground Probing Radar System". Since 1997 he is member of EEGS and since 1988 he is in the Editorial Board of European Journal of Environmental and Engineering Geophysics. He is Author of more than 60 papers on national and international Journal and congress proceedings. For more information, visit his home page at <http://www2.polito.it/ricerca/engel/ris/sam/mypage1.html>