

STAVROS NIARCHOS FOUNDATION – FORTH SEMINAR SERIES

Tuesday 26 February 2019

16:00 – 17:00

A. Payatakes Seminar Room

**“Algorithm development for the study of 3D
optimum data of electrical resistivity tomographies”**

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Abstract

Electrical Resistivity Tomography (ERT) is a widely used geophysical method for near ground surface investigation for geological, archaeological and geotechnical applications. The ERT initially was used with 2D data that were collected on straight survey lines. Later, multiple parallel lines were used for a pseudo-3D results in order to define more realistically the 3D resistivity distribution of the subsurface. Nowadays, due to the computer development and the software updates, a fully 3D data acquisition is possible. However, the exponentially increased amount of data, which in turn is increasing the acquisition time and the power of the computer processing renders its practical implementation quite difficult. Hence, the necessity of 3D data optimisation leads to studies for decreasing the amount of data without compromising the resolving capabilities of the inversion results. The optimisation technique is based on the sensitivity matrix (Jacobian) and the results are tested with synthetic and field data verification.