



## Electromagnetic and ultrasonic investigations on a roman marble slab

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The archaeological Museum of Rome (Museo delle Terme di Diocleziano) asked our group about the physical consistency of a marble slab (II – III century AD) that has recently fallen down during the transportation for an exhibition. In fact, due to insurance conflict, it was necessary to control the new fractures due to the recent accident and distinguish them from the ancient ones. The sculptured slab (today's size is 1280 x 70 x 9 cm), cut at the ends for a re-use as an inscription in the rear face, was restored (assemblage of different broken parts and cleaning) in contemporary times.

We used different methodologies to investigate the slab: namely a pacometer (Protovale Elcometer) to individuate internal coupling pins, GPR (2000 MHz) and Ultrasonic (55 kHz) tomographic high-density surveys to investigate the internal extension of all the visible fractures and to search for the unknown internal ones. For every methodology used the quality of the acquired data was relatively high.

They have been processed and compared to give a set of information useful for the bureaucratic problems of the Museum. Later on, the data have been processed in depth, for studying how to improve the data processing and for extracting all the information contained in the whole set of experimental data.

Finally, the results of such a study in depth are exposed in detail.