

28  
2018

NOON TALK @ DIATI

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Please bring  
your own mug.  
Coffee and tea  
will be  
provided  
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**Mercoledì 5 dicembre 2018  
ore 13.00**

Politecnico di Torino  
Sala Riunioni, primo piano,  
DIATI ingresso 3

**Chiara Colombero**

RTDa at DIATI

## **Frontiers of near-surface geophysical exploration: long-established methods vs. new approaches and emerging applications**

Prof. Valentina Socco moderates the discussion

### **ABSTRACT**

Applied Geophysics analyzes the distribution of physical properties in the subsurface for a wide range of everyday applications. Although the main relevance is in prospecting for natural resources, geophysical methods are also used as an aid to geological, engineering and environmental investigations at different scales. Conventional investigation methods (e.g. drilling) provide direct information of the subsurface, but at discrete locations and with more expensive and invasive operations. On the contrary, geophysical methods are generally non-invasive but the results are strongly dependent on the contrast between the measured physical parameters; additionally, the subsurface conditions are then reconstructed indirectly.

The research frontier is focused on new approaches and application fields for seismic, electrical and electromagnetic methods rather than on the development of novel methods.

This talk discusses possible seismic precursors to study rock mass failure with passive monitoring techniques, and surface-wave methods as valuable tools for the detection of sharp anomalies in the subsurface. Non-seismic applications in unconventional environments, ranging from water-covered areas to glaciers, will also be analyzed. Finally, the application of these methods to the conservation and restoration of cultural and archaeological heritage will be discussed.

### **BIOGRAPHY**

Chiara Colombero is a researcher (RTD-a) in the Department of Environment, Land and Infrastructure Engineering of Politecnico di Torino since March 2018. She graduated in Geology Applied to Engineering and Environment at the Earth Science Department of Università degli Studi di Torino in 2012, with a thesis on waterborne and on-land geophysical methods for the geological and hydrogeological investigation of lake bottom sediments. In the same department, she received her PhD in Earth Sciences in March 2017. She currently works in the Applied Geophysics research group and is teaching assistant in Applied Geophysics, Exploration Geophysics and Applied Geology/Geophysics (BD). Her research interests encompass seismic and non-seismic methods applied to a wide variety of fields, including rock mass stability, glacier monitoring, surface-wave analyses for the detection of subsurface anomalies, hydrogeological investigations in water-covered environments, and archaeological research and cultural heritage preservation and restoration. She is author of more than 30 national and international publications on these research fields. She won the AGLC 2016 award (Associazione per la Geofisica Licio Cernobori) for young researchers in Applied Geophysics, promoted by the National Group of Solid Earth Geophysics

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Save the date for our next speaker-event, on January 9 2019, at 13:00.