

Guest Speaker: Prof. Alessia Corami



Title: Soil mine and remediation

Abstract: Heavy metals are well-known environmental pollutants owing to their toxicity, longevity in the atmosphere, and ability to accumulate in the human body via bioaccumulation. The pollution of terrestrial and aquatic ecosystems with toxic heavy metals is a major environmental concern that has consequences for public health. Most heavy metals occur naturally, but a few are derived from anthropogenic sources. Heavy metals can become strongly toxic by mixing with different environmental elements, such as water, soil, and air.

Adsorption has become an alternative treatment method of contaminated media and a great effort has been devoted in developing new adsorbents. Phosphate treatment is widely considered an effective in situ treatment to reduce metal mobility and bioavailability in soils through the formation of highly insoluble phosphate which are stable in a wide range of environmental conditions.

A second remediation technology is Phytoremediation that is the use of higher plants for the cleanup of contaminated environments. Phytoremediation means to remove, stabilize, or transform the contaminants through plants and microorganism in the rhizosphere. Plants can remediate organic and inorganic contaminants, some advantages are the low energy cost and the eco-friendly nature, on the other hand it requires a long time for the growth of the plants and to uptake the contaminants, moreover the process depends on the root depth.

Biography:

She had her thesis degree in Earth Science at University of Rome La Sapienza “Characterization of mortars and plasters from the archaeological site of Elaiussa Sebaste (Turkey) and from the Quintili’s Villa on the Ancient Appian way in Rome in 1998”. During this time, she spent some weeks at ICCROM to carry out a particular analysis on mortars.

Later, she won a fellowship about isotopic chemistry at Geokarst srl AREA Science Park, analyzing organic and inorganic samples. In particular, the use of stable isotopes in food, water and different matrices.

On 2001, she won a fellowship at Georesources and Geoscience Institute of Italian CNR “*Investigation on ancient emeralds to determine the original mine*”

In 2002 she won Ph.D. fellowship at University of Rome La Sapienza “Phosphate-induced heavy metals immobilization in aqueous solutions and soils”. During her Ph.D. she spent 7 months in the USA at Miami University (OH-USA) working with Prof. John Rakovan, attending GLG 699.E course “Scanning Probe Microscopy: Theory and application”, and analyzing samples with AFM under Prof. Rakovan supervision. Later, she spent a period at Merced University (California) working with Prof. Samuel J. Traina and analyzing samples at high temperature and high pressure. He was her foreigner supervisor for PhD thesis.

In 2005 and 2006 she went to ESRF in Grenoble working with Dr. D’Acapito, analyzing her Ph.D. sample.

From 2007 she was a professor at Guglielmo Marconi University for 5 years, holding two courses, “Environmental Geology” and “Geomorphology”.

In 2014 she was a visiting professor at Karl Eberhard University of Tübingen (Germany) holding course “(Bio)-remediation technologies” and a second one about “Climate Change”.

During the last two years, she started to collaborate with prof. Saied Eslamian Department of Water Engineering, Isfahan University of Technology, Iran; she is working with prof. Andrew Hursthouse, Professor of Environmental Geochemistry at University of West Scotland.

During her career she published articles about archaeometry, geochemistry and remediation techniques. She is a supervisor for thesis degree, reviewer and international editorial board for some Scientific Journals, member of many Scientific Organizations.