SCIENCESPRINGDAY

FCT FACULDADE DE CIÊNCIAS E TECNOLOGIA UNIVERSIDADE NOVA DE LISBOA

DCEA - Department of Environmental Sciences and Engineering

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Lab. 347 – Remediation Group (PI)

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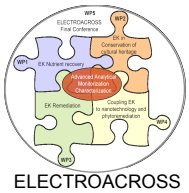
- Ph.D. Environ. Eng.,Technical University of Denmark, DTU-DK
- M.Sc. in Sanitary Eng., FCT
- Environmental Engineer, FCT

CENSE center for environmental and sustainability research



ELECTROACROSS

FUNDAÇÃO DA FACULDADE DE CIÊNCIAS E TECNOLOGIA UNIVERSIDADE NOVA DE LISBOA

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Objectives

Alexandra has over 25 years of experience in teaching and research on Soil and Soil Pollution, and remediation techniques, among other fields. She has been coordinating several international and national research projects on electro-remediation, studying the removal of inorganic and organic contaminants from soil, CCA and creosote treated wood waste, mine waste, sludge, municipal solid waste incinerators fly ash, aiming the valorization of the solids and the liquids (electrolytes), with nutrient recovering.

The development of new analytical methodologies for the characterization of complex environmental polluted matrices and monitoring of remediation processes is also one of her team aims, targeting forming human resources and exchanging students at all levels.

Methodology

- **Study and optimization of the electrokinetic process applied to different matrices.**
- **Study of the enhanced transport of zero valent iron nanoparticles (nZVI) under direct current in matrices with different porosities;**
- **Coupling electrokinetics with nanotechnologies for soil remediation.**
- **Study and optimization of advanced analytical techniques (e.g. GC×GC) for matrix characterization and contaminant monitoring during the remediation process.**
- **Modeling of the processes involved.**

Expected Results

- **Enlarge the scope of electrokinetic (EK) application, not only for remediation but also for nutrient recovery and conservation of cultural heritage.**
- **Optimize EK performance in waste streams, which can be a source of important secondary resources that nowadays are lost, contributing, ecologically and economically, to a sustainable management.**
- **Coupling EK to nanotechnologies, in which the role of direct current is quite the opposite of the traditional one: instead of aiming at getting the contaminants out, it is used to get nZVI into the soil for *in-situ* transformation and subsequent destruction of the contaminants, e.g. PCBs dechlorination.**

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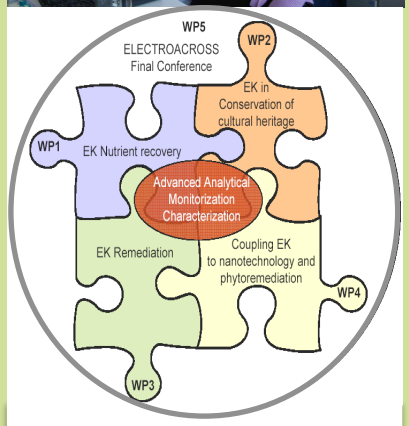
SFRH/BPD/81122/2011 (advisor);
SFRH/BD/76070/2011 (advisor).

Our team in the lab



ELECTROACROSS - Electrokinetics across disciplines and continents: an integrated approach to finding new strategies to sustainable development

Partners in the ELECTROACROSS project

ELECTROACROSS visiting researcher at Monash University, Clayton Campus, Australia (June 2011- Jan. 2012)