2018-10-12

Faculty of Engineering
Engineering Geology
Tina Martin

Call for Master Thesis:

Geophysical lab IP investigations on different bacteria-sand mixtures

In Sweden, approx. 2000 sites where dry-cleaning facilities have existed in the past now need to be monitored and cleaned up to avoid long-lasting chemical contamination of the groundwater (www.mirachl.se). This cleaning can occur through processes where bacteria eat the chemicals and break them down into less harmful components. One way to characterize and monitor this type of in-situ remediation of chlorinated hydrocarbon contamination could be to use an interdisciplinary approach that combines microbiology with geophysical investigations.
To interpret the geophysical field data, it is necessary to know the signature of different kinds of bacteria and to assess the sensitivity of the geophysical methods for these specific applications. This application is quite new for the geophysical Induced Polarization (IP) measurement technique, so extensive laboratory work to establish fundamental links between the presence of microbes and IP signals is required.
If you are interested in learning and using both geophysical and chemical-biological measurement in the lab as well as working together in a multidisciplinary team, you can apply for that thesis. The focus of that thesis is the investigation of artificial, well-known sand-bacteria (E. coli) mixtures and of natural sand with living bacteria, which can be found in sand filters at drinking water treatment plants. The lab investigations will be performed in different steps at Kemicentrum, the data analysis at Engineering Geology.

We are looking for somebody who is:

- Highly interested and willing to work across two disciplines
- Well-structured and working independently
- Working precise and in time
- Bringing in personal ideas
- Experience in any kind of biological laboratory work

Contact:

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