

# MASTER THESIS POSITIONS: Cultivation and metal extraction capacity of microorganisms grown on industrial metal-containing waste products



Metal-loving microorganisms live in extreme conditions and utilize energy from the sources that are inaccessible to other life forms, performing redox transformation of various metals. This group of microorganisms is capable of bioleaching, i.e. breaking down the mineral matrix and thus releasing the precious, base and strategically important metals of interest (e.g., copper, iron, chromium, nickel and uranium) into solution, where it can be recovered.

The capacity to mobilize heavy metals from metal-containing industrial waste products makes *metallophilic microorganisms* the prime candidates for ecologically friendly materials recycling and economically feasible recovery of metals. The current research focuses on the characterization of microbial potential in bioprocessing of different metal-bearing industrial waste compounds in order to explore the metal extracting performance of various microorganisms.

## **Aim of the study:**

The master thesis aims to cultivate and characterize metal extraction capacity of different microorganisms grown on various metal-containing waste products with the future aim to establish bioprocessing of multimetallic waste products on industrial scale.

## **We offer:**

Extensive supervision by experienced researchers of state-of-the-art approaches for fermentative cultivation and physiological characterization of metallophilic microorganisms, participation in a continuously evolving project, biochemistry of extremophiles, molecular techniques, electron microscopy and analytical spectroscopy techniques.

The candidate will be integrated into an interactive and international lab environment with a broad scientific experience in biochemistry, microbiology, molecular biology, biophysics, physiology, astrobiology as well as microbial biotechnology.

Thesis duration: 12 months; salary: 440EUR per month. Beginning: immediately.

## **Prerequisites:**

Highly motivated, enthusiastic students with a strong interest in Biotechnology/Biochemistry/Microbiology/Analytical Chemistry with a passion for science and research are encouraged to apply. Previous experience in biotechnology/microbial cultivation/electron microscopy/analytical chemistry would be an asset.

If you are interested, please send your applications including CV, a letter of motivation and references to Tetyana Milojevic: [tetyana.milojevic@univie.ac.at](mailto:tetyana.milojevic@univie.ac.at)

For more information please visit our website at <http://www.bpc.univie.ac.at/mitarbeiter/tetyana-milojevic>