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The Norwegian University of Science and Technology (NTNU) creates knowledge for a better world and solutions that can change everyday life.

Faculty of Engineering / Faculty of Natural Sciences
Department of Geoscience and Petroleum / Department of Biotechnology and Food Science

Two joint PhD positions on advanced mineral processing using biotechnology and nanotechnology (IV-179/18)

Description

Two PhD positions are available in relation to the project "Nanomorphology effects on the bioactivity and chemical activity of metal oxides, sulphides, and silicates", funded by the Research Council of Norway. This project is interdisciplinary in nature, aiming at using nanotechnology and biotechnology to address the challenges in flotation of fine particles.

The project's main objective is to overcome the problem of changed floatability of minerals when their size is submicron and/or their surface has nanoirregularities (pits, hills, and nanopores). Systematic studies are required to estimate the effects of changing the physical and chemical properties of nanoparticles (NPs) on adsorption of organic and inorganic matters. The project addresses the fundamental mechanisms that govern the adsorption processes in competitive chemical and biological environments for modulating the properties of NP systems for their optimum performance in surface-based mineral separation.

Qualifications

We are seeking motivated candidates to join our highly interdisciplinary team, with one PhD position employed at the Department of Geoscience and Petroleum (IGP), and the other at the Department of Biotechnology and Food Science (IBT).

Relevant interdisciplinary background from mineral processing, biotechnology, nanotechnology, biophysics, or physical chemistry will be considered highly valuable for both positions. Successful candidates should also be able to work both independently and as part of our research team, have good communication skills, as well as spoken and written fluency in English.

The position at IGP will focus on preparation of ligand-free NPs with elaborate morphology, and their interaction with conventional reagents and biosurfactants addressing issues of fine particle flotation. Liquid-phase synthesis methods will be explored. The interaction of biosurfactants and biopolymers with nanoparticles will be studied using advanced in-situ and ex-situ spectroscopic techniques. Candidates with prior experience in nanomaterials synthesis and their characterization by spectroscopic methods of analysis will be favored for this PhD position. Candidates must fulfill the requirements for admission to the [doctoral program at the IV faculty, subfield Mineral Processing](#).

The position at IBT will focus on the cultivation and genetic manipulation of bacteria, and on the characterization of the interaction of these bacteria and purified components of the bacteria, with the NPs. This candidate must fulfill the requirements for admission to the [PhD program in Biotechnology](#) and needs adequate prior knowledge in biochemistry and molecular genetics. Previous research experience in characterization of nanoparticles, polysaccharides, or molecular interactions or in genetic manipulation of bacteria will be considered an advantage.

Conditions

PhD Candidates are remunerated in code 1017, and are normally remunerated at gross NOK 436 900 before tax. There will be a 2 % deduction to the Norwegian Public Service Pension Fund from gross wage.

Engagement as a PhD Candidate is done in accordance with "Regulation concerning terms and conditions of employment for the posts of post-doctoral research fellow, research fellow, research assistant and resident", given by the Ministry of Education and Research of 19.07.2010. The goal of the positions is to obtain a PhD degree. Applicants will engage in an organized PhD training program, and appointment requires approval of the applicants plan for a PhD study within three months from the date of commencement.

The position is of 3 years duration.

For further information about the project or the position at IGP Professor Hanumantha Rao Kota: hanumantha.rao.kota@ntnu.no. For information on the position at IBT, please contact Research professor Helga Ertesvåg: helga.ertesvag@ntnu.no. For question with regards to nanoparticle synthesis, please contact Associate Professor Maria Benelmekki: maria.benelmekki@ntnu.no.

The engagement is to be made in accordance with the regulations in force concerning State Employees and Civil Servants. The positions adhere to the Norwegian Government's policy of balanced ethnicity, age and gender. Women are encouraged to apply.

The application

Applications must contain information of educational background, work experience, and research or publication experience. Please indicate if you are interested in one or both of the positions. Certified copies of transcripts and reference letters should be enclosed. Applications with CV, grade transcripts and other enclosures should be submitted via www.jobbnorge.no.

Candidates from universities outside Norway are requested to send a Diploma Supplement (or similar document), which describes in detail the study and grade system and the rights for further studies associated with the obtained degree. Applicants from non-English-speaking countries outside Europe must document English skills by an approved test.

Mark the application with IV-179/18.

Start-up date may be discussed, but candidates should ideally start in August/September 2018.

Application deadline: June 25th 2018

According to the new Freedom of Information Act, information concerning the applicant may be made public even if the applicant has requested not to be included in the list of applicants.

Jobbnorge-ID: 153767, Søknadsfrist: Søknadsfristen er gått ut