Organization

The Laboratory of Microbial Ecology and Technology (LabMET) is part of the Faculty of Bioscience Engineering at Ghent University and part of the Department of Biochemical and Microbial Technology. LabMET (http://labmet.ugent.be) is specialized in the study and application of mixed microbial cultures or communities. A microbial community consists of several populations which each represent a functional biological entity and thus a diverse metabolic capacity. The assemblage of these biological entities represents - when properly organised - a powerful resource. LabMET focuses on the optimal management of these microbial resources (Microbial Resource Management, MRM) enabling us to develop novel products and processes to improve our environment or human health in the most sustainable way. More specifically, LabMET applies this approach in the fields of applied microbial ecology, bioproduction, functional food and feed, medical microbial ecology, biomaterials and nanotechnology, water treatment, aquaculture, bio-energy, and soils and sediments. The LabMET research group comprises of about 70 staff of which 35 academic staff.

1 position is available for a PhD researcher (3 years) as outlined below.

PhD research fellow "microbial self healing"

After decades of uninterrupted growth, Ghent University is today one of the leading institutions of higher education and research in the Low Countries. With a view to cooperation in research and scientific service, numerous research groups, centres and institutes have been founded over the years. Several of them are renowned worldwide, in various scientific disciplines. Several innovating companies have their roots in research work at Ghent University. The university puts a strong emphasis on the international dimension of its scientific research and stimulates international scientific cooperation.

For this project, two Ghent University research groups act in strong collaboration: the Laboratory for Microbial Ecology and Technology (LabMET-UGent, promotor Prof. Nico Boon), and the Magnel Laboratory for Concrete Research (Magnel-UGent, promotor Prof. Nele De Belie). Both groups have been working together on the interaction between micro-organisms and concrete since 1998. This includes not only biodeterioration but also synergistic, bio-catalytic processes on building materials such as biological cleaning, bioconsolidation and biological repair. They have established an extended experience with bioprecipitation processes. Self-healing of concrete has been studied since 2007, and since then the group of PhD students and postdocs involved in research on various self-healing methodologies and characterisation of self-healing has steadily grown.

Within this PhD project, precipitation of bacterial $CaCO_3$ as a self-healing methodology for concrete, will be developed into a fully functional but yet cost-efficient healing agent that can be introduced into the market. The PhD student will design a suitable encapsulation method for the bacteria that will survive concrete mixing, and which has a minimal impact on concrete strength. Microbial and chemical parameters will be optimized to increase the calcite precipitation within the crack. The PhD student will furthermore explore the concept of microbial calcium carbonate for prevention of reinforcement corrosion. Collaborations with the Delft University of Technology (The Netherlands) and Avecom (a Flemish innovative small enterprise specialised in steering and optimizing microbial processes) are planned.

Details position:

- Title: Research fellow "microbial self healing"

- Type of employment: Full time, fixed term appointment for 3 years, yearly renewable after positive evaluation
- Closing date: November 15 2012, applications will be regularly reviewed prior to the deadline hence early application is recommended
- More information: Prof. Nico Boon, Nico.Boon@UGent.be ; +3292645976

General eligibility conditions

- Research experiences must not exceed 4 years and applicants must not yet have acquired a PhD degree
- Applications of researchers of any nationality are welcome
- The candidate must not have spent more than 12 months during the last 3 years in the country of the team for which he/she would like to be recruited (Belgium); he/she must not be of the same nationality as that of the recruiting team (Belgian).
- Researchers must not be a national of the country of their host institution (Belgium)
- The recruitments will be realized on a competitive basis (based on the application and on an interview if pre-selected).

Selection criteria

Qualifications

Essential

- A Master degree in microbiology or environmental engineering or equivalent completed before the start date of the position. Experience in the field of self-healing materials will be greatly appreciated.
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Knowledge and Skills

Essential

- Knowledge of pure and mixed culture incubations and microbiology.
- Ability to rigorously design experiments and to perform experiments under well-controlled conditions
- Ability to perform in-depth and critical data analysis
- Knowledge of bioreactor operations
- Be experienced and interested in interdisciplinary research. This includes microbiology, chemistry and material sciences (concrete technology).
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Desirable

- Potential to provide academic supervision to graduate students
- Ability to generate high-impact research publications, as shown by the CV.
- Potential for contributing to research program development

Experience

Essential

- Extensive experience in laboratory scale bioreactor operation
- Extensive experience with the operation and study of complex microbial processes
- Evidence of high-quality publications in the aforementioned areas

Desirable

- Experience with microbial ecology and molecular microbial techniques, including state of the art sequencing techniques
- Experience with flow cytometry methods to study complex microbial communities in a laboratory environment

Personal Qualities

Essential

- Excellent interpersonal skills to work effectively with team members from different backgrounds and with different tasks.
- Focused on delivering high quality science
- Willingness to travel internationally for project meetings and conferences.
- Ability to work collaboratively with colleagues.
- Good communication and time management skills and the ability to meet objectives within set deadlines
- Good oral and written communication skills in English are required.
- High level communication, inter-personal and management skills.
- Demonstrated ability to work with minimum supervision
- Determination and ability to work to deadlines.
- Outcome focused

Application process

Applications must be sent via email to labmet.recruitment@ugent.be as pdf or word documents, with in the subject line mentioning "Application microbial self healing". Applications must consist of the following:

1. Covering Letter. The covering letter should include the position reference, your contact address and telephone number. It is an opportunity in not more than one page to introduce yourself and highlight the key reasons you should be considered for the role.
2. Resume or *Curriculum Vitae*. A resume is a brief history of your employment and experience that covers the following areas:
    - Educational qualifications and professional affiliations that detail the full title of the qualification, the year awarded and the title of the institution attended;
    - Employment history in chronological order, starting with current position and specifying dates of employment, title of each position, name of employer, main duties or accountabilities and achievements; and
    - The names and contact details (address, telephone, fax and e-mail) of three referees, including if possible a senior person (preferably your supervisor or the head of your organisational unit) closely associated with your current work.
3. Selection Criteria. A statement addressing how each of the selection criteria have been met is required to assist the Selection Committee determine whether you have the relevant qualifications, knowledge/skills, experience and personal qualities.

An academic curriculum vitae should include research fields and current interests, publications (full list as attachment with three most significant marked with an asterisk), research grants awarded and, if applicable, details of teaching evaluation.

Selection process

A Selection Committee will consider all applications and shortlist candidates for interview who appear to meet the selection criteria at the highest levels. They will be invited to attend an interview and the remaining unsuccessful applicants will be notified accordingly.

An invitation to attend an interview provides an opportunity to provide further information to the Selection Committee to substantiate your claims against the selection criteria or demonstrate your capabilities. Please note that for some positions interviews may be conducted by teleconference in the first instance.

The Selection Committee will subsequently seek referee reports, if not sought prior to interview, before making a decision to make an offer of appointment to the preferred candidate. The purpose of referee checks is to obtain, in confidence, factual information about your past work history, as well as opinions regarding the quality of your work, behaviour in the work place and suitability for the position. Referee reports may be sought orally, or for academic staff, in writing by post or e-mail.

Referees should normally include current supervisors or and/or managers. A referee must be able to comment on your work experience, skills and performance with respect to the selection criteria. Referee checks conducted after the interview process can sometimes delay notification of the successful candidate and other interviewees.

If you are the preferred candidate, you will receive a written offer of appointment to the position. Do not take any action, such as resigning from your current position, before you receive a **written offer** of appointment.

Ghent University is an equal opportunity employer.