

Match of the vacancy within the Strategic Goals of the Department

Global Strategic Goals of the Faculty of Engineering and Architecture at Ghent University

New members of the Professorial Staff (i.e. Assistant Professors, Associate Professors, Full Professors and Senior Full Professors) are expected to develop (research) activities aimed at engineering applications or architecture and to join, as far as is possible, existing research groups rather than to separately create (very) small new and isolated research groups.

The research activities within the Faculty of Engineering and Architecture are only partially realized by employees that are funded directly by the government (Professorial Staff, Assisting Academic Personnel, and Administrative & Technical Personnel) or through research funds provided by the university itself. Indeed, a considerable share of research activities within the Faculty of Engineering and Architecture is realized by researchers that are funded through external national/Flemish or international resources (e.g., FWO-Flanders/Research Foundation-Flanders, VLAIO-Flanders/Flanders Innovation & Entrepreneurship, EU, contract research in cooperation with companies). While the latter concerns external funding, the research activities are in fact managed by internal Professorial Staff members that succeed in acquiring external funding based on their expertise and experience.

If the Faculty of Engineering and Architecture wants to safeguard its competitive position (internationally and nationally), it will continuously have to succeed in acquiring the necessary external funding. It is therefore the Faculty's strategy to preferably create vacancies in domains in which chances are high that such external funding can be acquired. This aspect is explicitly considered during the appointment procedure of Professorial Staff members within the Faculty of Engineering and Architecture.

Strategic Goals of the Department - match with the vacancy

Following the retirement of colleague Roumen Petrov, the policy plan of the *Department of Electromechanics, Systems and Metals Engineering* provides for a substitution in the field of *Microstructural Metallurgy*. At the request of the department, it is proposed that a part-time mandate (0.5 FTE) be declared open because the intention is to link this mandate to a part-time mandate (0.5 FTE) in an identical field at TU Delft in the *Materials Science and Engineering* department. This request is in line with years of intense cooperation between the Metal Science and Technology research group at UGent and the Materials Science and Engineering department at TU Delft, which has taken the form of exchanges of academic staff and students between the departments involved. It is the intention that the two part-time positions, one at UGent and one at TU Delft, will be assumed by one and the same person who occupies one full-time position equally divided over two universities.

High-tech material characterisation is situated at the heart of the field of Microstructural Metallurgy as desired by the groups involved in terms of this intended mandate. This includes a broad spectrum of advanced observation techniques including electron microscopy (both SEM and TEM), X-ray diffraction and physical characterisation techniques available in the laboratory infrastructure at both institutes. It goes without saying that microstructure observation is not a goal in itself but is part of the investigation of the physical processes at the (sub-)microstructural scale that are responsible for functional material properties, e.g. mechanical properties of advanced steel grades. Equally important is the connection with current evolutions in metal-making processes, such as thermo-mechanical rolling or 3D printing, which allow the microstructure to be formed in function of the desired application properties. It is therefore not only important that the position is occupied by someone who has a thorough knowledge of material observation, but who also has an extensive theoretical knowledge that forms the basis of understanding the current physical materials science literature. This is also necessary to seamlessly link the experimental research to the computational research activities in the relevant departments, e.g. in the field of applied thermodynamics and crystal plasticity when simulating solid-state transformation in metal alloys.

The creation of a common mandate at TU Delft and UGent also aims to make optimal use of the opportunities created by being part of both the Belgian-Flemish and Dutch materials science ecosystems in which various actors play an important role. On the UGent side, this presupposes a thorough collaboration with the [IOF Metals](#) consortium and on the TU Delft side [M2i](#) is an obvious partner as far as research valorisation is concerned.

Metal technology and materials science observation techniques also play an important role in the educational curriculum both at TU Delft and UGent. Thus, in the recent educational reform at UGent, it was decided to reposition the subject *Microstructure-Property Control of Metals* as a core subject in the *Sustainable Materials Science Engineering* master program. Hence, also from educational perspective the mandate will contribute to the strength and future proof readiness stature of the departments involved.

Applicants should apply to both UGent (via this [link](#)) and TU Delft. For the TU Delft application, candidates are referred to this [link](#) an may request more detailed information to Prof. Dr. [Maria Santofimia](#) and/or Dr. [Marcel Sluiter](#).