Job offer
Royal Military Academy - Patrimony

Researcher in Combined fragment impact and blast loading (M/F/X)
Departement of Structural & Blast Engineering
project "**STEE-BLASTEX**"
Publication: 30 January 2024

Job description and associated tasks

In the framework of the study BLASTEX on the design of textiles for blast and ballistic protection, we are looking for a **full-time researcher with a Master's Degree in Engineering Sciences, Applied Sciences in the domain of Structural, Mechanical or Materials Engineering**.

Context:
The Royal Military Academy of Belgium (RMA) is a military institution responsible for the basic academic, military and physical training of future officers, and for the continuing advanced training of officers during their active career in the Belgian Defense department (Homepage | RMA). It is fully recognized as a university, fulfilling the same criteria as civilian universities. The Royal Military Academy is also conducting scientific research at university level for projects funded by the Belgian Defense department or external sources.
You will work within the department of Structural & Blast Engineering at the Royal Military Academy in close collaboration with Ghent University and SIOEN.

Study:
Ballistic protection concerns apparel, vests, armors, helmets and structural reinforcement for vehicles as well. Woven, knitted or nonwoven fabrics, laminates, and composites are an interesting option for ballistic protection because of their light weight compared to metallic materials and the shear endless possible combinations based on a variation of fiber nature, fiber type, fiber density, yarn composition, yarn density, manufacturing techniques (weaving, knitting, Unidirectional lay-up, 2D or 3D), number of layers, combination of different types of layers and the use of coatings and matrix resins.
In order to optimally design armored protection to resist blast and fragmentation damage, realistic experimental testing and precise modelling and simulation tools are required. Therefore, the proposed project aims at developping optimised Explosion-proof textile-based armor to be used in both personal and vehicle protection using a novel experimental technique for combined fragment impact and blast loading, which is closer to the actual threat than the existing ballistic impact test standards. Once reliable test data have been gathered, a finite element based model will be developed to predict the blast and fragment protection by the textile-based armor. The test data will be used as input for the simulations, as well as for validation of the predictions. The project is a collaboration between Sioen, a leading textile manufacturer in Belgium, the Royal Military Academy and Ghent University. The PhD candidate will work at the Royal Military Academy and get support from Sioen and Ghent University. The funding foresees in a 4-year PhD fellowship.

Main Tasks

- Perform research activities in the frame of the study project.
- Report the progress results to the promotor and research team in English.

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- Report the obtained results at international conferences and write scientific papers in English.

Required skills

Technical skills

- The applicant shall have a **Master's Degree in Engineering Sciences, Applied Sciences in the domain of Structural, Mechanical or Materials Engineering**;
- Training or experience in Finite Element Modeling is an added value;
- Training or experience in applied research and or design is an added value;

Personal skills

- You conduct scientific research in an independent and upright way within a multidisciplinary environment that could lead you to a PhD.
- You think in an innovative and creative way.
- You communicate your results in a clear, concise and precise manner.
- You take initiatives.
- You are involved and results oriented.
- You are a team-player but you can also solve problems autonomously and find alternatives or solutions.
- You behave in a respectful way toward the others and their ideas;
- You are flexible for change and adapt yourself.
- You commit yourself in your job by giving the best of your aptitudes in striving toward the highest quality standards and persevere when needed.
- You will be working very closely together with the industrial partner and will get insight in their proprietary intellectual property. Confidentiality is therefore an absolute must.

Other skills

- The applicant shall have good knowledge of English (oral / written)
- Minimum knowledge of French or Dutch is an added value (collaboration with peers)

Specific requirement

- The successful candidate has to be committed to confidentiality and exclusivity and will therefore have to obtain the required security clearance. The candidate must consent with the background check required to obtain this clearance, which will be executed by the Belgian Defense.
- Working for the Patrimony requires living in Belgium for the duration of the study.

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Application

You will be working in a military environment. That is why everyone is expected to undergo a security verification. Please add to your application the filled out document. The form can be downloaded from: http://www.rma.ac.be/nl/aanvraag-veiligheidsverificatie

Send by email:

- a motivational letter;
- a CV
- a scan of your ID card (both sides);
- the filled out security document

to Mr David Lecompte (david.lecompte@mil.be) and to Mrs Helena BRUYNINCKX (erm-deao-rswo@mil.be).

Please mention clearly the reference of the project: **STEE-BLASTEX**.
Application deadline: **28 Feb 2024.**

The interviews will take place at the Royal Military Academy, Hobbemastraat 8, 1000 Brussels. In case of access restriction due to COVID-19 or non-Belgian application, on-line interviews will take place. The date and time of the interview will be communicated to the preselected candidates.

Miscellaneous

Contract

- Probable date of recruitment: From April 2024, in consultation with the applicant.
- Status: Full-time employment based on an open-ended contract with the Patrimony of the Royal Military Academy (you will not be a civil servant).
- Wage scale: class A1 (holder of a Master's degree in Science or equivalent), class A2 (holder of an Ir degree or equivalent Master's in Engineering Sciences, doctor's degree in the same area of expertise). RMA-Patrimony applies a merit-based research career track, allowing researchers to advance in wage scale based upon annual evaluations.
- Holiday pay.

Extra-legal benefits

- Possibility to benefit from a bilingualism allowance (Dutch/French) following a SELOR test;
- End-of-year bonus;
- Free DKV hospitalization insurance. Possibility of additional affiliation for one or more persons living under the same roof: spouse, child(ren) (50% of the price per additional member);
- Bike allowance / Free public transport (home-work commute);
- Meal vouchers (6€ / day);
- Free access to campus sports facilities outside working hours;
- On-campus restaurant and cafeteria with democratic prices (discount on the daily menu);
- Flexible working hours within the 38-hour week;
- Teleworking possible with allowance ;
- Holidays:
    - 29 days holiday / year from the 1st year of contract (then from 45 years: +1 day holiday every 5 years)

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    - + 1 week OFF every year between Christmas and New year's Eve (independent of the annual balance of holidays).
- Advantages and interesting offers thanks to the Benefits@work card (discounts, vouchers...);
- Entitlement to services offered by the 'Office Central d'Action Sociale et Culturelle de la Défense' (OCASC): among others holiday centres, discount on travel organised by the tour operator...;
- Possibility of benefiting from the nursery funded by Belgian Defence (subject to availability).

Workplace

- Royal Military Academy, Avenue de la Renaissance 30, 1000 Brussels;
- Occasional travels abroad for scientific conferences, etc.

Points of contact

- Concerning the research project: to Mr David Lecompte (david.lecompte@mil.be)
- Concerning the recruitment modalities: Mrs Helena Bruyninckx (erm-deao-rswo@mil.be)
- For more information about the Royal Military Academy, see Homepage | RMA

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