



AIMed – Early Stage Researchers Job advert

BASIC INFORMATION

Title: Antimicrobial Integrated Methodologies for orthopaedic applications – AIMed

Ultra-short laser surface modification of polymers, bioceramics and metals for enhancement of biological and antimicrobial properties.

Offer description:

Objectives: (i) Employment of ultra-short laser-assisted processing to obtain highly-ordered porous arrays network diverse and patterning designs on ultra-high molecular weight polyethylene surface, ceramics (CaP, Hydroxyapatite (HAp), and Zr) and biocompatible metal surfaces (Titanium alloys (Ti-6AL-4V)); (ii) optimization of biomimetic surface properties and functionalization via laser texturing. Development of diverse patterning designs by employing various optical techniques (pulse shaping, laser-induced periodic surface structuring (LIPSS)); (iii) Obtaining a hierarchical porosity via the creation of micro- and nano-structuring utilizing laser-based surface modification and LIPSS formation; (iv) Complete characterization and analysis via a set of analytical methods (SEM, AFM, XRD, FTIR, XPS, Wettability studies) of the designed structures and interface layers processed via Ultra-Fast Laser techniques to obtain surfaces with enhanced structural, biological and antimicrobial performance; (v) Examination of chemical properties and wear resistance of obtained samples before and after laser treatment for evaluating the best condition of materials processing and creation of an implant with enhanced biological and mechanical properties.

Research field

Main research field

Laser physics, material processing for bioapplications (tissue engineering), ultrafast laser micro/nanostructuring

Sub research field (optionally)

Biomaterials synthesis, processing

Type of contract

fixed-term employment contract

Job status

PhD enrolment program

Hours Per Week

40

Application deadline

31.08.2020

Time zone

Eastern European

Envisaged job starting date

01.10.2020

Is the job funded through a EU research framework programme?

H2020 / Marie Skłodowska-Curie Actions

Reference Number

ESR12

Marie Skłodowska-Curie Grant Agreement Number

861138

How to Apply

Email: albdaskalova@gmail.com, adaskalova@ie.bas.bg, aimed.861138@gmail.com



HIRING INFO AND WORK LOCATION

Hiring Organisation & Offer Posting Contact Details

Organisation/Company

Institute of Electronics- Bulgarian Academy of Sciences

Organisation type

Academic

Department

Laboratory of Micro Nano Photonics

Country

Bulgaria

Street

72 Tzarigradsko Chaussee Blvd.

City

Sofia

State

Postal Code

1784

Website

<http://www.ie-bas.org/>

Contact Person Email

albdaskalova@gmail.com,
daskalova@ie.bas.bg

Phone

-

Mobile phone

+359 886 316420

Fax

Work Locations

same as hiring organisation information

Number of positions available

Company/Institute

Country

Street

City

State/Province

Postal Code



REQUIREMENTS

Education

Main Research Field	Level
Laser physics, material processing for bioapplications (tissue engineering)	Master's degree.
Main Research Field	Level
Ultrafast laser micro/nanostructuring	Master's degree.

Skills/Qualifications

Strong background in ultra-fast laser physics and knowledge in laser-material interaction. He/she should be able to run complex experiments that involve both physical and biological aspects, as well as the analysis of microscopy images and large sets of data. As such the ability to work across disciplines will be necessary. Knowledge of optical setups of experiments is a requirement. The candidate would have to interact actively with other partners and participate in the project meetings (scientific and administrative aspects).

Research experience

Our International PhD Fellowship Program welcomes applications from individuals with a degree in the field of surface science and engineering related to the AIMed research activities. The applicants should possess serious records on biomaterial surface processing by means of ultra-fast laser treatment. Knowledge of the processes of laser ablation and modification is a must. Abilities to manage experimental work in ultra-fast laser based experiments is basic requirement. Experience in micro- nano-fabrication and synthesis of biomaterials is an advantage.

Languages

Language	Level
English	C1
Language	Level
Additional language is a preference	



ADDITIONAL INFO

Website for additional job details

<https://aimed-itn.eu/>

Benefits

The successful candidates will receive an attractive salary in accordance with the MSCA regulations for early stage researchers. The exact salary will be confirmed upon appointment and is dependent on the country correction factor (to allow for the difference in cost of living in different EU Member States). The salary includes a living allowance, a mobility allowance and a family allowance (if married or with children). The guaranteed PhD funding is for 36 months (i.e. EC funding, additional funding is possible depending on local research group). In addition to their individual scientific projects, all fellows will benefit from further continuing education, which includes internships and secondments, a variety of training modules as well as transferable skill courses and active participation in workshops and conferences.

Eligibility criteria

Early-stage researchers (ESR) are those who are, at the time of recruitment by the host, in the first four years (full-time equivalent) of their research careers. This is measured from the date when they obtained the degree which formally entitles them to embark on a doctorate, either in the country in which the degree was obtained or in the country in which the research training is provided, irrespective of whether or not a doctorate was envisaged. That means typically, for European (or Worldwide) applicants, in the first four years after their Master's degree.

Conditions of international mobility of researchers: Researchers are required to undertake trans-national mobility (i.e. move from one country to another) when taking up the appointment. At the time of selection by the host organisation, researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of their host organisation for more than 12 months in the 3 years immediately prior to their recruitment. Short stays, such as holidays, are not taken into account.

English language: Network fellows (ESRs) must demonstrate that their ability to understand and express themselves in both written and spoken English is sufficiently high for them to derive the full benefit from the network training.

Selection process

In a first step of the selection procedure, applications will be assessed by the selection committee based on merit and potential, measured in terms of the academic record and personal achievements. Pro-activity, participation in community activities, and capacity for team-work are also taken into account. Applicants will be notified the results of the first evaluation stage by mid September 2020. In the second step of the selection procedure, shortlisted candidates will receive invitations for



personal interviews with the AIMed selection committee, planned to take place by end of September 2020. Applicants will be notified accordingly.

The final list with candidates recommended for fellowship concession, as well as reserve candidates, will be available by the 1st of October, 2020

Additional comments

The application should contain the following documents (all provided in English language):

[AIMed ESR Application Form to be completed](#)

Curriculum Vitae

Cover letter: Refer to AIMed project and ESRs Recruitment procedure, indicate clearly the ESR positions to which you are applying in order of priority (maximum of three). Explain what your motivation is and why you would like to apply for these specific ESR position(s). List your skills that would fit closer to the requirements of the chosen projects, and provide the following supporting evidence:

- Certificate of Master's Degree (or equivalent) with transcripts of records
- Proof of English proficiency
- Recommendation letter(s) from previous supervisors or employers
- List of publications, if applicable
- Work experience certificates, if applicable
- Manuscripts of the listed publications, if applicable

All official certificates should be provided in their original European language or with an associated official English translation for non-European documents.