

Opis raziskovalnega dela (*Research work description*)

1. Članica UL (*UL member*):

Fakulteta za gradbeništvo in geodezijo / Faculty of Civil and Geodetic Engineering

2. Ime, priimek in elektronski naslov mentorja/ice (*Mentor's name, surname and email*):

Sara Zoubek, sara.zoubek@fgg.uni-lj.si

3. Raziskovalno področje (*Research field*):

2.01 Gradbeništvo (Civil Engineering)

4. Opis raziskovalnega dela (*Research work description*):

Vključuje morebitne dodatne pogoje, ki jih mora izpolnjevati kandidat/ka za mladega raziskovalca/ko, ki niso navedeni v razpisu za mlade raziskovalce (*It includes any additional conditions that the candidate for a young researcher must meet, which are not listed in the call to tender for young researchers.*).

Slov.: Sodobno gradbeništvo vse bolj vključuje uporabo metamaterialov, funkcionalno gradientnih materialov ter pametnih materialov in konstrukcij. Razvoj teh naprednih materialov je tesno povezan z metodami umetne inteligence, ki danes pomembno vplivajo na razvoj numeričnih orodij in simulacijskih pristopov. Hkrati pa napredek na področju 3D-tiska kovin odpira nove možnosti uporabe sodobnih tehnologij v gradbeništvu, zlasti pri načrtovanju namenske notranje strukture materiala, ki omogoča optimalne mehanske, fizikalne ali funkcionalne lastnosti konstrukcijskih elementov glede na njihov namen.

Raziskovalno delo bodočega mladega raziskovalca/ke bo obsegalo našete sodobne metode in tehnologije: od naprednega numeričnega modeliranja in integracije metod umetne inteligence, do eksperimentalnega dela v laboratoriju ter 3D-tiska jeklenih konstrukcijskih elementov.

Mladi raziskovalec/ka bo delo opravljal/a v okviru raziskovalne skupine Gradbene konstrukcije in gradbena fizika, ki pokriva področja numeričnega in eksperimentalnega modeliranja ter projektiranja jeklenih, masivnih in lesenih konstrukcij. Dolgoletno sodelovanje skupine z evropskimi tehničnimi univerzami omogoča izvedbo dela usposabljanja v tujini. Raznolikost numerično-eksperimentalnih pristopov ter široka interdisciplinarna znanja v programski skupini bodo kandidatu/ki omogočila, da si v dogovoru z mentorjem izbere konkretne raziskovalne cilje in poudarke, ki lahko nato predstavljajo izhodišče za njegovo/njeno nadaljnjo strokovno ali znanstveno kariero.

K prijavi so vabljeni kandidatke in kandidati s področij tehnike ali naravoslovja.

Eng.: Modern construction increasingly incorporates the use of metamaterials, functionally graded materials, and smart materials and structures. The development of these advanced materials is closely linked to methods of artificial intelligence, which today play an important role in advancing numerical tools and simulation approaches. At the same time, progress in metal 3D printing is opening new possibilities for applying modern technologies in construction, particularly in designing purpose-engineered internal material structures that enable optimal mechanical, physical, or functional properties of structural elements according to their intended use.

The research work of the future young researcher will encompass the listed modern methods and technologies: from advanced numerical modelling and the integration of artificial intelligence methods to experimental laboratory work and 3D printing of steel structural elements.

The young researcher will carry out their work within the research group Structural Engineering and Building Physics, which covers numerical and experimental modelling as well as the design of steel, concrete, and timber structures. The group's long-standing collaboration with European technical universities offers the possibility to complete part of the training abroad. The diversity of numerical-experimental approaches and the broad interdisciplinary expertise within the research programme will allow the candidate, in agreement with the supervisor, to define concrete research goals and focus areas that may later form the foundation of their future professional or scientific career.

Candidates from the fields of engineering or natural sciences are invited to apply.

5. Priloge, ki jih je treba priložiti ob prijavi (*Documents required to be submitted with the application*):

potrdilo o doseženi izobrazbi (*proof of completed education*)

- kandidat z zaključenim magistrskim študijskim programom (2. bolonjska stopnja) (*candidate who has completed a Master's degree (2nd Bologna level)*):
 - o diplomska listina / potrdilo o zaključku študijskega programa (*diploma certificate / certificate of completion of the study programme*)
 - o priloga k diplomi / potrdilo o opravljenih obveznostih (*diploma supplement / official transcript of records containing all grades obtained in the study programme*)
- kandidat, ki še ni zaključil študija na 2. stopnji (*candidate who has not yet completed a Master's degree*):
 - o potrdilo o do sedaj opravljenih obveznostih z ocenami magistrskega študijskega programa, s katerim se bo kandidat prijavil na doktorski študij (*official transcript of records listing all courses and grades obtained so far in the Master's degree programme on the basis of which the candidate will apply for enrollment in a doctoral degree programme.*)

nagrade – univerzitetna Prešernova nagrada ali Prešernova nagrada članice Univerze v Ljubljani oz. druga enakovredna nagrada (*awards, e.g. Prešeren Prize of the University of Ljubljana, Prešeren Prize of a University of Ljubljana member and/or another equivalent award*)

bibliografija (*bibliography*)

življenjepis (*CV*)

motivacijsko pismo (*motivation letter*)

opis dosedanjega sodelovanja pri raziskovalnem delu (*description of the candidate's research work*)

osnutek idejne zasnove raziskovalnega dela (*preliminary research proposal*)

priporočilno pismo (*letter of recommendation*)

druge priloge (*other attachments*):