Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*

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 Piculin, sara.piculin@fgg.uni-lj.si

3. Raziskovalno področje (*Research field*):

2.01 Gradbeništvo (Civil Engineering)

4. Opis delovnega mesta mladega raziskovalca/ke (D*escription of the Young Researcher's position)*:
Vključuje morebitne dodatne pogoje, ki jih mora izpolnjevati kandidat/ka za mladega raziskovalca/ko, ki niso navedeni v razpisu za mlade raziskovalce.

slo: Bodoči mladi raziskovalec/ka bo raziskovalno delo opravljal/a v okviru raziskovalne skupine Gradbene konstrukcije in gradbena fizika, ki pokriva področje numeričnega in eksperimentalnega modeliranja ter projektiranja jeklenih, masivnih in lesenih konstrukcij. Bodoči pristopi k načrtovanju konstrukcij bodo zahtevali materiale oziroma konstrukcijske sisteme, ki se bodo aktivno odzivali v času in prostoru na dane obremenitve. Razvoj metod na področju 3D tiska kovin odpira nove možnosti aplikacije sodobnih tehnologij v konstrukcijah, zlasti v smislu namensko zasnovane notranje strukture, ki omogoča optimalne lastnosti konstrukcije in konstrukcijskih elementov glede na njihov namen. Sodobno gradbeništvo vključuje uporabo metamaterialov in funkcionalno gradientnih materialov ter pametnih materialov in konstrukcij. Razvoj novih materialov in konstrukcij je tesno povezan z metodami umetne inteligence, ki so trenutno v samem središču razvoja numeričnih metod, saj predstavljajo osnovo visokotehnoloških rešitev. Usposabljanje bodočega mladega raziskovalca/ke bo zajemalo zgoraj naštete sodobne metode in tehnologije, od uporabe naprednega numeričnega modeliranja ter metod umetne inteligence, do eksperimentalnega dela v laboratoriju in 3D tiska jeklenih konstrukcijskih elementov. Programska skupina je ena vodilnih raziskovalnih skupin na področju razvoja tehničnih standardov in eksperimentalnih metod pri analizi konstrukcijskih rešitev, kar bo dobra osnova za dosego zastavljenih ciljev. Dolgoletno sodelovanje z evropskim tehničnimi univerzami, kot so Univerzi v Pavii, Tehniška univerza v Delftu, Univerza v Budimpešti, Univerza v Stuttgartu, center za numerično modeliranje na Univerzi v Hannovru, idr. bo dalo kandidatu/ki možnost izvedbe dela usposabljanja v tujini. Splošnost uporabljenih numerično-eksperimentalnih metod ter široka znanja v programski skupini, bodo omogočala kandidatu/ki, da si, v dogovoru z mentorjem, izbere konkretne cilje in poudarke raziskav, ki bodo tako lahko osnova tudi za kandidatovo bodočo strokovno ali raziskovalno kariero. Vabljeni so kandidati/ke s področja tehnike ali naravoslovja.

eng: The future young researcher will carry out his/her research work in the research group Building Structures and Building Physics, which covers the field of numerical and experimental modeling and design of steel, concrete and timber structures. Future approaches to structural design require materials or structural systems that will actively respond in time and space to given loads. The development of methods in the field of 3D printing of metals opens up new possibilities for the use of modern technologies in structures, especially in the production of materials and structures whose internal structure is specifically designed to have optimal properties depending on their purpose. Today's construction industry includes the use of metamaterials, functionally gradient materials and intelligent materials and structures. The development of new materials and structural elements is closely linked to artificial intelligence methods, which are currently at the center of the development of numerical methods, as they represents the basis of high-tech solutions. The training of the future young researcher includes the use of advanced numerical modelling, artificial intelligence methods, experimental work in the laboratory and 3D printing of metal. The research group is one of the leading research groups in the field of development of technical standards and experimental methods in the analysis of structural systems, which will be a good basis for achieving the set goals. Long-term collaborations with some of the leading European technical universities, such as the University of Pavia, Delft University of Technology, Budapest University of Technology and Economics, University of Stuttgart, the centre for numerical modeling at the University of Hannover and others will give the candidate the opportunity to complete part of the training abroad. The generality of the numerical-experimental methods used as well as the broad knowledge in the research group allow the candidate to choose specific goals and focuses

of research in consultation with the mentor. The mentioned can be the basis for the candidate's future professional or research career. Candidates in the field of engineering or natural sciences are invited.