Kratek opis usposabljanja mladega raziskovalca (*Short description of the Young Researcher's training)*

1. Raziskovalna organizacija (*Research organisation)*:

Univerza v Ljubljani, Fakulteta za gradbeništvo in geodezijo, Jamova c. 2, 1000 Ljubljana

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

Blaž Stres, blaz.stres@fgg.uni-lj.si

3. Šifra in naziv raziskovalnega področja (*Research field*):

2.20 Vodarstvo

4. Kratek opis usposabljanja mladega raziskovalca (*Short description of the Young Researcher's training)*:

slo: Mladi raziskovalec/ka (MR) se bo usposabljala z raziskovalnim delom v okviru raziskovalnega programa P2-0180 Vodarstvo in geotehnika: orodja in metode za analize in simulacije procesov ter razvoj tehnologij (www.fgg.uni-lj.si/raziskovalna-dejavnost/programske-skupine/). Previdено področje raziskovanja v sklopu doktorske disertacije je biologija grajenega okolja, ki je kompetitivno interdisciplinarno področje, kjer raziskave potekajo na presečišču modernih tehnik mikrobiologije (NGS), kemije in fizike (mapiranja parametrov okolja), kinetike pretvorb ključnih polutantov, stabilizacije organske snovi, proizvodnje obnovljivih virov energije, statistične bioinformatike, ki daje vpogled v okoljske procese na molekularnem in sistemskem nivoju. Raziskave so usmerjene v industrijske probleme področja hidrologije: kraški izviri pitne vode, papirniško blato, industrijska sirotka, ter razvoj modernih tehnologij za spremljanje procesov stabilizacije organske snovi. Za primer si lahko kandidati pogledajo naslednje objave: https://doi.org/10.1016/j.cels.2015.01.001 https://doi.org/10.1371/journal.pone.0076440 https://doi.org/10.1016/j.jenvman.2018.05.068 https://doi.org/10.1016/j.biortech.2015.04.021 Pričakovani profil MR je magistrska izobrazba s področja vodarstva, fizike, računalništva, strojništva, bio/kemije, mikro/biologije, ter motivacija za učenje in raziskovalno delo ter objave na tem interdisciplinarnem področju. V okviru doktorskega dela bo kandidat/ka osvojil/a metode, ki vodijo od molekul (DNA, metaboliti, organske snovi in ioni v okolju), statistične bioinformatike (linux, R, metagenomika, metabolomika) do pretoka snovi (aktivnost, poraba substratov, produkcija produktov) ter njihove vzročne povezanosti, to je modeliranja in razumevanja delovanja sistemov, pomembnih za industrijo. Predviden je vpis na doktorski študij Varstvo okolja z možnostjo izbire tudi predmetov z drugih relevantnih doktorskih študijev. *eng:* Young Researcher (MR) will be trained through research work in the framework of the Research Programme P2-1080 Water Science and Technology, and Geotechnical Engineering: Tools and Methods for Process Analyses and Simulations, and Development of Technologies (www.en.fgg.uni-lj.si/research/research-programmes/). Research is planned within the field of hydrology and biology of a built environment, which is a

competitively interdisciplinary field, where research is carried out at the intersection of modern techniques of microbiology (NGS), chemistry and physics (mapping parameters of the environment, NMR), kinetics of transformations of key pollutants, stabilization of organic matter, renewable sources of energy, statistical bioinformatics, which gives insight into environmental processes at the molecular and system level. Research is focused on industrial problems in the field of hydrology: Karst springs of drinking water, paper sludge, industrial whey, and the development of modern technologies for monitoring the processes of stabilization of organic matter.
Candidates may review the following publications:
https://doi.org/10.1016/j.cels.2015.01.001
https://doi.org/10.1371/journal.pone.0076440
https://doi.org/10.1016/j.jenvman.2018.05.068
https://doi.org/10.1016/j.biortech.2015.04.021
The expected profile of young researcher is a master's degree in water management, physics, computer science, mechanical engineering, bio/chemistry, micro/biology, and motivation for learning and research work and publications in this interdisciplinary field. Within the doctoral thesis, the candidate will be given the methods that span from molecules (DNA, metabolites, organic matter and ions in the environment), statistical bioinformatics (linux, R, metagenomics, metabolomics) to the flow of matter (activity, substrate consumption, production of end products) and their causal relationships, that is, modeling and understanding the functioning of systems relevant to the industry.
Foreseen is the enrollment into the doctoral studies Environmental Protection with the possibility of selecting subjects also from other relevant doctoral studies.