

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

1. Članica UL (*UL member*):

Fakulteta za elektrotehniko

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

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3. Raziskovalno področje (*Research field*):

2.03.03 Obnovljivi viri in tehnologije (*Renewable energy sources*)

4. Opis delovnega mesta mladega raziskovalca/ke (*Description 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:

Raziskovalno delo mladega raziskovalca bo usmerjeno v širše področje fotovoltaike, ki trenutno doživlja hitro rast tako globalno kot tudi v Sloveniji. Fotovoltaična tehnologija igra ključno vlogo pri doseganju podnebnih ciljev zelenega prehoda. Glavno fokus delovnega mesta bo na dolgoročnem spremljanju in analizi delovanja perovskitnih sončnih celic, inovativne fotovoltaične tehnologije, ki se kmalu pričakuje kot konkurenčna alternativa tradicionalnim silicijevim sončnim celicam.

Mlad raziskovalec bo najprej preučil relevantno literaturo, da bo razvil poglobljeno teoretično razumevanje delovanja perovskitnih sončnih celic. Nato bo nadaljeval z razvojem testnega merilnega sistema, ki omogoča dolgoročno spremljanje vseh ključnih parametrov perovskitnih sončnih celic tako v simuliranem kot tudi v realnem okolju. Na podlagi pridobljenih meritev bo oblikoval numerične simulacijske modele, ki jih bo nato preveril in primerjal z dejanskimi merilnimi rezultati testnih vzorcev. Končni rezultati bodo omogočili natančen vpogled v fizikalne mehanizme degradacije perovskitnih sončnih celic ter bodo prispevali k izboljšanju energetske učinkovitosti skozi celotno življenjsko dobo teh celic.

Mlad raziskovalec bo deloval znotraj Laboratorija za fotovoltaiko in optoelektroniko (LPVO) na Fakulteti za elektrotehniko Univerze v Ljubljani (UL FE). Njegovo raziskovalno delo bo tesno povezano z raziskovalnim programom »Fotovoltaika in elektronika« (P2-0197) ter tudi z drugimi mednarodnimi raziskovalnimi projekti, kjer bo sodeloval z drugimi priznanimi raziskovalnimi ustanovami doma in v tujini.

Mlad raziskovalec bo prav tako vpisan v doktorski študijski program Elektrotehnika na UL FE. Zahtevajo se visoka stopnja motivacije za raziskovalno delo, izkušnje v programiranju in numeričnem modeliranju, predhodno delo na eksperimentalnih projektih s področja elektrotehnike, fotovoltaike ali elektronike ter tekoče znanje angleškega jezika.

eng:

The research work of the young researcher will be focused on the broader field of photovoltaics, which is currently experiencing rapid development both globally and in Slovenia. Photovoltaic technology plays a crucial role in achieving the climate goals of the green transition. The main focus of the position will be on the long-term monitoring and analysis of the performance of perovskite solar cells, an innovative photovoltaic technology that is expected to soon emerge as a competitive alternative to traditional silicon solar cells.

The young researcher will first study relevant literature to develop an in-depth theoretical understanding of the operation and monitoring of perovskite solar cells. They will then proceed with the development of a test measurement system that enables the long-term monitoring of all key parameters of perovskite solar cells in both simulated and real environments. Based on the acquired measurements, they will create numerical simulation models, which will be validated and compared with actual measurement results from test samples. The final results will provide a detailed insight into the physical degradation mechanisms of perovskite solar cells and contribute to improving energy efficiency throughout the lifespan of these cells.

The young researcher will be part of the Laboratory for Photovoltaics and Optoelectronics (LPVO) at the Faculty of Electrical Engineering, University of Ljubljana (UL FE). Their research work will be closely connected to the research program "Photovoltaics and Electronics" (P2-0197) as well as other ongoing international research projects, where they will collaborate with other reputable research institutions at home and abroad.

The young researcher will also be enrolled in the doctoral study program in Electrical Engineering at UL FE. High motivation for research work, experience in programming and numerical modeling, previous involvement in experimental projects in the field of electrical engineering, photovoltaics, or electronics, and a proficient command of the English language are expected.