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

1. Članica UL (*UL member)*:

Biotehniška fakulteta

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

Sebastian Dahle, sebastian.dahle@bf.uni-lj.si

3. Raziskovalno področje (*Research field*):

Bioznanosti

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:

Plazemska tehnologija za obdelavo lesenih površin je tema znanstvenih raziskav že več kot 30 let. Kljub temu, da je veliko mikroskopskih in makroskopskih učinkov plazemske obdelave že poznanih, ter da ima veliko možnih aplikacij, sta tako plazma kot tudi les tako kompleksni fazi, da ostaja veliko podrobnosti interakcije med obema fazama še vedno neznanih.
Cilj raziskovalne naloge je ugotovitev učinkov različnih plazemskih tehnologij (dielektrična barierna razelektritev, površinska razelektritev, curek drsnega loka) za predobdelavo površin lesa pred nanašanjem različnih premazov za zunanjo uporabo. S tem bomo pridobili nove vpoglede v mehanizme, s katerimi plazma vpliva na lastnosti premaza. V nadaljevanju bomo raziskali vpliv plazem na staranje, tako z umetnim pospešenim staranjem, kot tudi z naravnim staranjem v zunanjih vremenskih pogojih. Ugotavljali bomo estetsko in uporabno življenjsko dobo preskušancev. Na osnovi uporabljenih materialov in porabljene energije bomo ocenili vplive na okolje in ogljični odtis plazemskega procesa. Na temelju teh rezultatov bomo razvili nov poslovni model za uporabo plazme va panogi lesarstva.
Predvideno je tudi sodelovanje z več znanstvenimi partnerji, vključno z gostovanjem mladega raziskovalca v tujini.

Delovno mesto mladega raziskovalca bo zajemalo naslednje:
- priprava vzorcev z obdelavo s plazmo in nanašanjem premazov,
- eksperimentalno delo (npr. izpostavljenost na prostem, umetno staranje),
- meritve z uporabo različnih analiznih metod (vključno z FTIR, XPS, SEM),
- analiza p ocena evaluacija vplivov na okolje in ogljičnega odtisa.

Kandidat mora imeti zaključen magistrski študij z ustreznega področja, npr. lesarstvo, inženirstvo materialov, fizika, kemija, biotehnologija.

eng:

Plasma treatments of wooden surfaces have been scientifically investigated for more than 30 years. Although many microscopic and macroscopic effects were identified, as well as many possible applications, both plasma and wood are such complex phases that many details of the interaction between the two still remain unknown.
The goal of the research project is to determine the effects of different plasma technologies (dielectric barrier discharge, surface discharge, gliding arc jet) for the pretreatment of wood surfaces before the application of various coatings for exterior use, in order to gain new insights into the mechanisms by which plasma affects the properties of the coating. Further, the influence of plasmas on the aging performance will be investigated both in an artificial weathering chamber and in external weather conditions, and the aesthetic and useful lifetimes will be determined. From the use of materials and energy, the impacts on coal and the carbon footprint of the plasma process will be assessed. Based on these results, a new business model for the use of plasma in the wood industry will be developed.
During the course of the research, the collaboration with several scientific partners is foreseen, which will include the opportunities for short research stays abroad.

The Young Researcher's position will include the following tasks:
- preparation of samples using plasma and application of coatings,
- experimental work (e.g. outdoor exposure, artificial aging),
- measurements using various analytical methods (including FTIR, XPS, SEM),
- analysis of the consumption of electricity and materials,
- evaluation of environmental impacts and carbon footprint.

The candidate must have completed a master's degree in a relevant field, such as wood science and technology, materials engineering, physics, chemistry, or biotechnology.