

## **PhD position: Electrochemical sensors for pesticide detection**

**Employer: *Jožef Stefan Institute, Electronic Ceramics Department, Ljubljana, Slovenia***

**Supervisor: *prof. dr. Danjela Kuscer***

**Research field: *material science, electrochemistry***

**Deadline: *30.6.2021***

### Short description

The PhD research includes synthesis of metal-oxide nanomaterials, designing/processing of three-electrode systems for multiple pesticide detection and determination of the measuring conditions for sensing up to five pesticides, each separately, in a model fluid.

### Job description and requirements

There is currently a lot of interest in designing more efficient electrochemical sensors for on-site monitoring of pesticides in food, water and the environment. The project will start with the synthesis of nanomaterials for neonicotinoide detection. After, a three-electrode system for single and multiple detection of neonicotinoides will be designed and processed. Electrodes and interconnections will be integrated on a selected substrate by screen printing. Any successful products' structures will be structurally, microstructurally and functionally characterised. The last period of the project will include manufacturing and characterisation of test sensors.

The project includes research work in collaboration with other members in the group. The applicant should be able to analyse data and write results in form of journal publications and present the results at conferences with posters and at a later stage, oral presentations.

The applicant should hold or be in the process of defending a Master's degree in chemistry, material science, physics or equal. M.Sc. level of understanding of inorganic Chemistry is required. Knowledge of electrochemistry is an advantage. Commonly used laboratory techniques and analytical skills are expected.

The applicant should have good written and spoken English skills. We expect respect and willingness to contribute to a novel research idea in a group environment.

### We offer:

A motivated dynamic team to work with. A novel ambitious research idea. A broad knowledge of synthesis, thick film processing, characterisation methods. The possibility to improve your synthesis and analysis skills. A fully equipped lab and an access to all necessary top-research equipment. An international team. Opportunity to training abroad.

Additional information:

Fully-funded 4-year PhD position. The gross salary is 1400 EUR per month with full social security and pension contributions.

Required documents:

A cover letter, your CV, certificate of education

Information:

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