

## Open PhD position

### »Analysis and degradation of microplastics in wastewater«

#### Topic description:

Plastic waste represents a growing burden in the environment. Although the toxic effect on humans is not yet completely understood, we are increasingly aware of the dangers of microplastics and recently identified nanoplastics. Recycling is already a global trend and it reduces the pollution, but new methods are urgently needed so that plastics in one form or another does not reach the ecosystem anymore. Plastics in the environment are slowly decomposing into so-called secondary microplastics. Primary microplastics, which is much more common in the environment, is introduced directly as such, mainly through domestic and industrial wastewater. One of the main sources of the latter is synthetic textiles, which are released mainly by washing in the washing machines. At the [Department of Nanostructured Materials](http://www.si.gorenje.com/), we are developing efficient ways of degradation synthetic fibers into harmless and ecologically unproblematic compounds.



The doctoral training will be based on the analysis of released microplastics in wastewater and the analysis of the same plastics after the implementation of different decomposition techniques, which are performed by a combination of photocatalysis and exposure of plastics to microorganisms. The work will include the synthesis of effective catalysts that, in combination with microorganisms, will most successfully degrade this problematic pollutant. During the training, the researcher will master the techniques of characterization and discover and develop models of chemical processes that take place during the photocatalytic and biological process of decomposition. The work will take place at the Jožef Stefan Institute. Starting in October 2020, 4 years PhD position is fully-funded by the Slovenian Research Agency.

#### Minimum requirements for application:

- master degree from chemistry or other natural sciences,
- grade point average (exams and lab classes excluding the undergraduate thesis) above 8,
- age up to 28 years (the year of birth is taken into account),
- knowledge of English.

#### Criteria for assessment of candidates:

- grade point average in all courses,
- awards or prizes received,
- participation in research work,
- scientific articles published,
- assessment of an interview with the candidate.

Interested candidates should send their CV to [matejka.podlogar@ijs.si](mailto:matejka.podlogar@ijs.si) [Public call](#)