University of Maribor

FRAMEWORK PROGRAMME OF EARLY STAGE RESEARCHER TRAINING[1]

1. BASIC DATA

Mentor's name and surname	**Matjaž Finšgar**	Mentor's register number at ARIS (SICRIS):	**28477**
Mentor's e-mail:	matjaz.finsgar@um.si	Mentor's tel. no.:	+386 2 2294 447
Research programme (RP) leader's name and surname:	Lidija Fras Zemljič	RP leader's register number at ARIS (SICRIS):	19753
Title of research programme:	Textile Chemistry and Advanced Textile Materials	RP's Register number at ARIS (SICRIS):	P2-0118
Research organisation (RO) of University of Maribor, where training shall be conducted:	FKKT UM	RO Register number at ARIS (SICRIS):	0552-0794
Research field according to ARIS classification:	1.04	Research field according to EURAXESS classification	Analytical chemistry

2. DEFINITION OF RESEARCH PROBLEM AND GOALS OF DOCTORAL RESEARCH[2]

Starting point of research task of the early stage researcher and its position in the research programme, where the mentor is included, work hypothesis, research goals and foreseen result with emphasis on an original contribution to science:

The junior researcher will conduct research in the field of microplastics and nanoplastics, with an emphasis on the development, optimisation, and validation of analytical methods for the reliable determination of these particles in environmental and/or industrial samples. The work will include the design of the entire analytical workflow, from selecting a sampling strategy and sample preparation to measurement, data processing, and interpretation of results. Particular attention will be given to comparing different sample-preparation approaches, reducing matrix effects, preventing contamination, and ensuring measurement traceability.

[1] *Term early stage researcher (ESR) is written in male form and used as neutral for women and men.*

[2] *Research and study programme of training have to harmonise with contents of the research programme, where the mentor is a member.*

Within the training programme, the junior researcher will develop and validate methods in accordance with established validation principles and will prepare the corresponding documentation. For this purpose, the joung researcher will use chromatographic and spectroscopic techniques, sample-preparation procedures, and surface-analysis techniques to characterise particles and monitor surface changes. Where appropriate, electrochemical approaches will be incorporated into the methodological work to support system characterisation or to monitor processes related to particle behaviour in selected media.

The outcomes will be directed towards establishing analytical procedures that are useful for both research and applied purposes, as well as disseminating knowledge in the form of reports, publications, and presentations.

3. STUDY PROGRAMME

Foreseen study programme, to which early stage researcher shall be enrolled in academic year 2026/2027:

Doctoral Programme in Chemistry and Chemical Engineering (Faculty of Chemistry and Chemical Engineering, University of Maribor).

4. DESCRIPTION OF WORK AND TASKS

Carries out scientific and research projects.
Contributes to the design and development of research programmes.
Provides professional support and liaises with clients commissioning research assignments.
Prepares research reports and technical studies.
Monitors and coordinates research activities in accordance with funding agreements.
Ensures safe and healthy working conditions.
Organises and trains employees and students in the use of personal protective equipment (PPE) and other safety measures.
Performs other related tasks as instructed by the immediate supervisor.
Participates in ad hoc and standing committees of the University of Maribor (UM) and the Faculty, or other UM member institutions.
Substitutes for colleagues and the supervisor during their absence (as authorised).
Participates in annual and other inventories.
Performs other related duties as assigned by superiors.

The junior researcher will develop, optimise, and validate analytical methods for the determination of microplastics and nanoplastics in selected samples. The work will include a literature review, planning of experimental approaches, sample preparation and processing, and measurements using GC–MS, HPLC, IC, ICP–MS/ICP–OES, UV–VIS, and AAS techniques.

For particle characterisation and monitoring of surface properties, the junior researcher will use ToF-SIMS MS/MS, XPS, AFM, ATR-FTIR, LIBS, 3D profilometry, and contact-angle measurements. Where appropriate, electrochemical approaches (EIS, cyclic and stripping voltammetry, chronopotentiometry) will be incorporated into methodological studies to support monitoring of processes in selected media.

As part of method validation, the junior researcher will assess selectivity, linearity, limits of detection/quantification, accuracy, precision, robustness, and will estimate measurement uncertainty. The

work will also include data processing and interpretation, method comparison, reporting of results, preparation of scientific publications and presentations, and supporting equipment maintenance and safe laboratory operation.

5. REQUESTED LEVEL OF EDUCATION

Second-cycle (Master's) level qualification or pay grade VII/2

6. REQUESTED FIELD OF EDUCATION

Technical, natural sciences

7. KLASIUS SRV

Seventh level: Second-cycle (higher education) and comparable education / second-cycle higher education qualification and comparable qualification.

8. KLASIUS P

KLASIUS-P-16: 05 – Natural sciences, mathematics and statistics; 07 – Engineering, manufacturing and construction.

9. REQUESTED KNOWLEDGE

Fundamental knowledge of chemistry and analytical chemistry. Required computer skills: MS Windows, Word, Excel, Internet, e-mail, and electronic business/online administrative systems.

10. REQUESTED SPECIAL REQUIREMENTS

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11. REQUESTED LANGUAGES

Slovene or English, or active proficiency in one international language.

12. REQUESTED WORK EXPERIENCE

No requirement.

13. FORESEEN POSTDOCTORAL TRAINING

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Mentor's signature:

Matjaž Finšgar Digitalno podpisal Matjaž Finšgar
Datum: 2026.01.21 08:26:22 +01'00'

Research programme leader's signature:

Lidija Fras Zemljič
Digitally signed by Lidija Fras Zemljič
DN: C=SI, S=Slovenija, OU=individuals, G=Lidija + SN=Fras Zemljič + SERIALNUMBER=2469530912049 + CN=Lidija Fras Zemljič
Reason: I am the author of this document
Location:
Date: 2026.01.21 10:39:19+01'00'
Foxit PDF Editor Version: 12.1.8

Name and surname of Dean or authorised person[3]:
prof. dr. Zoran Novak

E-žig ustvarjen za:
Zoran Novak
zoran.novak@um.si

Napredni e-žig s kvalificiranim potrdilom
Imetnik potrdila: mSign
Datum e-žiga: 22.01.2026
Potek veljavnosti potrdila: 04.04.2030

Signature of dean or authorised person:

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Place and date:

Maribor, 21. 01. 2026

Stamp:

[3] The training program is signed by the dean of the member where the ESR's employment and training will take place.