



Vipavska cesta 13, 5000 Nova Gorica

**The University of Nova Gorica is offering positions of  
ASSISTANT YOUNG RESEARCHER (m/f)**

We welcome candidates for assistant young researcher (doctoral candidate) positions at the student-friendly and research-oriented [University of Nova Gorica](#). Successful candidates will join research activities in the dynamic research environment supported by state-of-the-art infrastructure through involvement in international research collaborations. Successful candidates will enroll in the appropriate postgraduate study program at the [Graduate school](#) of the University of Nova Gorica.

The positions pertain to the following PhD advisers:

**1. mentor: prof. dr. Franc Marušič: 1 position**

**Research Topic: Linguistics**

The PhD student will be included in the research group which focuses on the syntax and morphosyntax of Slavic languages both within theoretical and experimental linguistics. The topic will be linked to the (morpho)syntax of Slavic clitics, so that the main focus of the research work of the candidate will include the positioning of clitics within a sentence, their behaviour, or their form. The thesis can be either experimentally or theoretically oriented.

**2. mentor: prof. dr. Irina Elena Cristea: 1 position**

**Research Topic: Algebra**

The candidate will work in the field of hypercompositional algebra in the [Centre of Information Technologies and Applied Mathematics](#). The algebraic hypercompositional structures represent both an independent line of research and a tool of investigation in other fields like: Geometry, Graphs and Hypergraphs, Topology, Cryptography, Code Theory, Automata Theory, Probability, Theory of Fuzzy Sets, etc. The candidate's research will focus on new combinatorial aspects of hypergroups related with arithmetic functions, graphs, fuzzy sets, aiming also to analyze the similarities and differences with corresponding topics in the classical algebra. The theoretical results will be motivated by their future applicability in various complex engineering and environmental systems.

### **3. mentor: prof. dr. Egon Pavlica: 1 position**

#### **Research Topic: Electro-optical properties of 2D heterostructures including organic semiconductors**

We are seeking a talented PhD student to join our team and experimentally investigate the electro-optical properties of 2D heterostructures and organic semiconductors. The ideal candidate will have a strong background in solid state physics and intuition to perform experimental research. The successful candidate will be responsible for developing and implementing advanced techniques for characterizing the properties of these materials, as well as for designing and conducting experiments to gain deeper insights into their behavior. The candidate will learn how to prepare 2D heterostructures including organic semiconductors and study their applicability by preparing novel electronic components, organic thin film transistors, photodetectors, organic solar cells, memory components, energy-harvesting components, and bio-mimetic components e.g. biosensors. The selected candidate will be immediately employed and involved in the experimental research in [Laboratory of organic matter physics](#).

#### **Responsibilities:**

- Preparation of 2D heterostructures including organic semiconductors;
- Develop and implement advanced techniques for characterizing the electro-optical properties of 2D heterostructures;
- Design and conduct experiments to investigate the behavior of these materials under different conditions;
- Analyse data and interpret results to gain insights into the fundamental properties of these materials;
- Collaborate with other researchers to advance our understanding of 2D heterostructures and their potential applications;
- Publish research findings in leading scientific journals and present work at national and international conferences.

### **4. mentor: prof. dr. Barbara Ressel: 1 position**

#### **Research Topic: Physics**

"Study of the electronic properties of lead-free organic perovskites"

The stringent need to reduce extensive emission of carbon dioxide to decelerate global warming makes research towards new materials and technologies for the supply of our society with clean energy one of the most important and challenging fields in today's materials science. Solar energy conversion bears a huge potential to be a leading technology in the world's future energy production, as the sun is an unlimited source of energy in a time horizon of millions of years and provides enough energy in one hour to meet the global energy needs for one year.

Perovskite-based materials are the latest development in photovoltaic materials and possess an  $ABX_3$  crystal structure (A: monovalent (in)organic cation, B: divalent metal cation, X: halide anion). They have been shown to provide impressive power conversion efficiencies up to 25.7% and can be prepared solution-based using a very low amount of energy.

We propose a research project to investigate a novel family of tin halide perovskites (namely  $PEA_{0.15}FA_{0.85}SnI_{2.85}Br_{0.15}$ ) thoroughly studying the electronic structure as well as the electronic dynamics (i.e. site specific recombination pathways) by conventional and time resolved photoemission spectroscopy (TR-PES).

Candidates for these positions **are required to** meet the conditions for young researcher as stated in the [Rules on selection and founding of young researchers](#) at University of Nova Gorica.

Conditions for the selection of a young researcher candidate:

- Has not yet completed a doctorate in science or obtained the title of doctor of science;
- Has not yet been employed as a young researcher;
- No more than four years have elapsed since the year of completion of their second cycle programme of study or the programme of study leading to eligibility for admission to the doctoral programme. In the event of absence due to parental care after the completion of the study programme, with which they have enrolled/will enrol in doctoral studies, this period shall be extended for the duration of the justified absence. In the case of justified absence determined in the health insurance regulations, after the completion of the study programme, with which they have enrolled/will enrol in doctoral studies, this period shall be extended only in the case of continuous absence of more than six months (absence of more than six months means at least six months and one day), and only for the duration of the justified absence.

Prior to the beginning of the funding of the training, the young researcher shall obtain the habilitation title assistant. Conditions for obtain the habilitation title assistant are set out in the Article 4 of [Regulations concerning conditions and appointment procedures for research and teaching positions at the University of Nova Gorica](#).

Criteria for the evaluation and selection of young researcher candidates:

- Assessment of the interview with the candidate (up to 5 points); Published papers (up to 3 points);
- Participation in research work (up to 3 points);
- Awards or recognitions received (up to 1 point);
- The average grade of the second cycle study programme or the study programme which qualifies the candidate for admission to the doctoral programme (1 point for an average grade between 9 and 10 inclusive and 0.5 point for an average grade between 8 and 8.99 inclusive).

The selected young researchers not having completed their second cycle studies when applying to the tender must complete their studies by 15 September at the latest.

University of Nova Gorica shall conclude employment contracts with the selected young researcher candidates.

Young researchers' training shall be funded until they have obtained a PhD or for a maximum of four years.

The provisions of the Act on Scientific Research and Innovation Activities (UL. RS., 186/2021), the Employment Relations Act ZDR-1, the Rules on the Selection and Founding of Young Researchers and Regulations concerning conditions and appointment procedures for research and teaching positions at the University of Nova Gorica shall be applied in the selection process of young researchers.

**The following must be attached to the application:**

- a short motivational letter;
- CV;
- a copy of your degree certificate, list of passed exams, grade point average and other relevant documents.

Please send your application, along with the required attachments which evidence the fulfillment of the formal requirements by e-mail to [careers@ung.si](mailto:careers@ung.si) no later than 15 July 2023.

**In the application, it is mandatory to provide the first and last name of the mentor you are applying to.**

**The application should be sent as a single PDF e-mail attachment.**

If you have any questions relating to the application procedure, please contact:

Tea Stibilj Nemec, tel. +386 5 6205 822, e-mail [careers@ung.si](mailto:careers@ung.si) or

Nina Cotič, tel. +386 5 6205 817, e-mail [careers@ung.si](mailto:careers@ung.si).