



**ROMANIAN ACADEMY**  
**“PETRU PONI” INSTITUTE OF MACROMOLECULAR CHEMISTRY**  
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## **COMPETITION ANNOUNCEMENT**

As the Beneficiary, the “**Petru Poni**” Institute of Macromolecular Chemistry Iași, organizes the competition to hire within the funding contract no. 4PCE/08.01.2025, *Harnessing the multifunctionality of tailor-made polysaccharides to design nanostructured sorbents for wastewater treatment*” (Acronym: **MPSorb**), a vacant position, as follows:

**Position: Research Assistant (Member - Master student):**

**Numbers of positions open to competition: 1**

**Type of employment contract:** Individual part-time employment contract

**Estimated contract start date: 01.03.2025**

**Employment period:** temporary, until **31.12.2025** with the possibility of extension, with funding from contract no. 4PCE/08.01.2025, *Harnessing the multifunctionality of tailor-made polysaccharides to design nanostructured sorbents for wastewater treatment*” (Acronym: **MPSorb**).

**The place of the research activity:** Functional Polymers Department within the “Petru Poni” Institute of Macromolecular Chemistry

**Place of the competition:** “Petru Poni” Institute of Macromolecular Chemistry (ICMPP), 41A Grigore Ghica Voda Alley, 700487 Iași

**Job description:** *Preparation of polysaccharide-based hydrogels and evaluation of their performance in removing priority pollutants*

**Specific requirements for the Research Assistant position (Member - Master student):**

- The candidate must possess a bachelor's degree in chemistry;
- The candidate must be enrolled on a Master's degree in chemistry;
- Theoretical and practical knowledge of polymer functionalization;
- Theoretical and practical knowledge in the field of biopolymer-based hydrogels would be an asset;
- Theoretical and practical knowledge of the techniques used to assess the sorption performance of priority pollutants;
- The candidate must have skills in processing and presenting research results;
- The candidate has knowledge of written and spoken English;
- The candidate must show availability for travel in the country and abroad;
- Must possess motivation and creativity, along with advanced communication and teamwork abilities;
- Practical knowledge of computer software (Word, Excel, Power Point) is required.

**Selection procedure:**

- **Analysis of the candidate's file** (eliminary step) - Lack of a requested document or failure to fulfill a mandatory requirement entails elimination from the competition. The results of the selection of competition files are displayed on the ICMPP website with the mention „admitted” or „rejected”;

- **Written test** (eliminary) – The written test will take place at the ICMPP headquarters and will consist of a written exam with subjects according to the examination topics displayed on the website. Only candidates who have submitted all the necessary documents to register for the competition and meet the conditions for participation are accepted to participate in the written test. To be declared

admitted, candidates must obtain a minimum grade of 8 (eight) in the written test. The results of the written test are displayed on the ICMPP website with the mention „admitted” or „rejected”;

- **Oral examination** - The oral examination will take place at the ICMPP headquarters and will consist of the presentation of the scientific activity of the candidates. To be declared admitted, candidates must obtain a minimum grade of 8 (eight) in the oral test. The results of the oral examination are displayed on the ICMPP website with the mention „admitted” or „rejected”.

The result of the competition tests is appreciated by each member of the commission with grades from 1 to 10; the grade of the test represents the arithmetic average of the grades given by the committee members.

The final mark of the candidates is calculated as follows:

$$\text{Final grade} = \text{written exam grade} \times 0.7 + \text{oral exam grade} \times 0.3$$

The ranking of candidates will be done according to the final average.

### **Examination topics:**

1. General macromolecular chemistry
  - 1.1. Definition and classification of macromolecular compounds
  - 1.2. Polymerization processes: classification, short presentations
  - 1.3. Polymer-analogue transformations. Reactivity of functional groups belonging to the chains macromolecular chains
  - 1.3. Molecular mass of polymers
  - 1.4. Methods for the determination of molecular mass in polymers, general principles and general principles
2. Biomaterials
  - 2.1 Definitions and classification. Characteristics of biomaterials
  - 2.2. Polysaccharides: sources, production, chemical properties
    - 2.2.1 Chitosan
    - 2.2.2 Cellulose
    - 2.2.3 Xanthan
    - 2.2.4 Dextran
3. Hydrogels
  - 3.1 Definition, classification
  - 3.2 Methods of preparation
  - 3.3 Factors influencing the gelation process
4. Characterization techniques
  - 4.1. UV-VIS spectroscopy
  - 4.2. Atomic absorption spectroscopy (AAS)

### **Bibliography:**

1. C. Simionescu, C. Vasiliu Oprea, V. Bulacovschi, B. Simionescu, C. Neguleanu, *Chimie macromoleculara*, Ed. Didactica si Pedagogica, Bucuresti, 1985
2. D.F. Williams, *On the nature of biomaterials*, *Biomaterials*, 30, 5897-5909 (2009)
3. S. Dumitriu, V.I.Popa, *Polymeric Biomaterials*, 3rd edition, CRC Press, Boca Raton, 2013
4. M. Tombs, S.E. Harding, *An introduction to polysaccharide biotechnology*, Taylor & Francis, 1998
5. V. Sinha, S. Chakma, *Advances in the preparation of hydrogel for wastewater treatment: A concise review*. *J. Environ. Chem.Eng.* 7, 10329 (2019)
6. M. Thomas, *Ultraviolet and Visible Spectroscopy*, John Wiley&Sons, 1996
7. R.D. Beaty, J.D. Kerber, Concepts, *Instrumentation and Techniques in Atomic Absorption Spectrophotometry*, Perkin-Elmer Corporation, Norwalk, CT, U.S.A, 1993.

**Note:** This position is open to all candidates regardless of their nationality, gender, religion, race or sexual orientation, the project team rejects any type of discrimination.

### **Competition timetable:**

**Competition publication date:** 20.01.2025

**Deadline for file submission:** 19.02.2025, at 13.00 at the ICMPP headquarters or online at: [dinu.valentina@icmpp.ro](mailto:dinu.valentina@icmpp.ro)

**Publication of the results of the files analysis:** 19.02.2025, at 16:00

**Deadline for appeals of the results of the files analysis:** 20.02.2025, at 14:00

**Publication of the final results of the file analysis:** 20.02.2025, at 16:00

**Written test date:** 24.02.2025, at 09:00

**Date of publication of the results of the written test:** 24.02.2025, at 16:00

**Deadline for appeals of the results of the written test:** 25.02.2025, at 14:00

**Date of publication of the results of the written test:** 25.02.2025, at 16:00

**Oral examination:** 26.02.2025, at 09:00.

**Date of publication of the results of the oral examination:** 26.02.2025, at 16:00

**Deadline for appeals of the results of the oral examination:** 27.02.2025, at 14:00

**Publication of the final results of the oral examination:** 27.02.2025, at 16:00

**Publication of the final results of the competition on the institute website:** 27.02.2025, at 16:00

### **General requirements for candidates:**

- The candidate has Romanian citizenship, citizenship of other Member States of the European Union or of the European Economic Area or citizenship of the Swiss Confederation;
- The candidate has knowledge of Romanian and/or English - written and spoken;
- The candidate is in a state of health appropriate to the position for which he/she is applying, attested on the basis of a medical certificate issued by the family doctor or authorized health units;
- The candidate meets the educational and specific requirements for the position advertised;
- The candidate has not been convicted of an offense against humanity, against the State or the authorities, in the line of duty or in connection with the service, which hinders the course of justice, of forgery or corruption, or of an intentional crime which would make him/her incompatible with the performance of his/her duties, unless he/she has been rehabilitated.

### **The enrolment file must contain:**

- The candidate must submit a formal request addressed to the ICMPP management by which he requests the registration in the competition for filling the vacant position, dated and signed by the candidate, approved by the director of the institute and registered within the legal registration deadline
- Copy of identity document and copies of documents proving change of name, if applicable;
- Copies of the documents proving the candidate's studies: high school diploma, bachelor's degree accompanied by the transcript of records;
- Proof of enrolment in a Master's degree program at a Master's degree institution;
- Diplomas obtained in other countries must be recognized by the National Centre for the Recognition and Equivalence of Diplomas (CNRED), and implicitly by the National Council for the Attestation of University Degrees, Diplomas and Certificates (CNATDCU), or the procedures for their recognition must be initiated; Curriculum vitae adapted to employment requirements;
- Curriculum vitae adapted to employment requirements;
- Cover letter (free format) in which to indicate the research areas of interest and the motivation for applying for the position;
- Medical certificate in original, attesting clearly the state of health, the number, date, name of the issuer and its quality, in the standard format established by the Ministry of Health;
- Criminal record or declaration on his own responsibility that he/she has no criminal convictions that would make him/her incompatible with the position for which he/she is applying, with the completion of the competition file (up to the date of the first competition test) with the original criminal record.

*The candidate undertakes to maintain the confidentiality of the research topics in which he/she participates.*

Details regarding the specific conditions can be read on the website <https://icmpp.ro>, <<Vacancies>> Section, <https://www.euraxess.gov.ro/ro>, <https://jobs.research.gov.ro/>, or additional information can be obtained at the Human Resources Office at the headquarters of the “Petru Poni” Institute of Macromolecular Chemistry from Iasi, telephone 0332 880 220, as well as at e-mail: [dinu.valentina@icmpp.ro](mailto:dinu.valentina@icmpp.ro).

**This announcement was published on the Institute’s website - <<Vacancies>> Section, by the Secretary of the competition commission on 20.01.2025**