



**Institute of Molecular Physics
Polish Academy of Sciences**
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Director of Institute of Molecular Physics PAS
opens a recruitment for
Post-doc position
in OPUS-21 Research Project

Institution: Institute of Molecular Physics Polish Academy of Sciences (IMP PAS)

[PL: Instytut Fizyki Molekularnej Polskiej Akademii Nauk (IFM PAN)]

City: Poznań, Poland

Position: Post-doc

Scientific discipline: physics, material engineering, mathematics

Opening date: 14 March 2023

Application deadline: 07 April 2023; 15:00 CEST

www: <http://www.ifmpan.poznan.pl>

Key words: condensed matter physics, computational physics, applied physics, first-principles calculations, atomistic spin dynamics simulations, magnetic materials, machine learning.

I. Offer description

Title of the scientific project: OPUS-21: *Searching for free rare earth and rare earth free permanent magnets using machine learning*

Principal investigator: Dr. Mirosław Werwiński, Assoc. Prof. IMP PAS

Project description: The goal of the project is to discover replacements for currently used permanent magnets. Using machine learning algorithms, a universal model will be developed based on the database we will prepare, which then will be used to predict optimal permanent magnet compositions. The database will be created on the basis of quantum-mechanical calculations, called first-principles calculations, in which materials will be modeled at the atomic level in terms of the spatial distribution of atomic nuclei and electrons.

Research objectives:

- ab initio calculations (using the density functional theory DFT) of magnetic properties of permanent magnets;
- implementation of machine learning algorithms and development of universal model for predictions of permanent magnet compositions.

II. Requirements for candidates:

- 1. Researcher profile:** recognized researcher (R2).
- 2. Research fields:** condensed matter physics, material science, computational physics.

3. Required level of education: PhD in physics, material engineering, mathematics or related granted not earlier than 7 years* before the year of a start of an employment.

4. Skills/qualifications:

- knowledge in the field of solid state physics and physics of magnetism,
- the basic skills in programming.

5. Specific requirements: not applicable

6. Required languages: very good knowledge of English allowing for efficient communication and preparation of scientific publications

7. Required research experience:

- filed: physical sciences or material engineering,
- in the subject: solid state physics, computational physics, applied physics, first-principles calculations, atomistic spin dynamics simulations, magnetic materials
- years of experience: 1-4

or

- filed: mathematics
- in the subject: mathematical physics, applied mathematics, machine learning
- years of experience: 1-4

8. Work experience: not applicable

III. Duration of the employment: 12 months, with the possibility of extending

IV. Type of contract: temporary

V. Job status: full-time

VI. Hours per week: 40

VII. Envisaged job starting date : April-May 2023

VIII. Salary: about 8000 PLN/month (gross)

IX. Number of positions available: 1

X. Benefits: raising the level of competence, acquiring new knowledge, experience and skills, establishing scientific cooperation.

XI. Required documents:

1. Application;
2. CV covering: summary of professional accomplishments, brief description of scientific interests and achievements, as well as information about participation in scientific projects, schools, and internships;
3. Copy or scan of PhD degree diploma;
4. Copy or scan of PhD thesis;
5. Copy of scan of language certificate (if any);
6. Copy or scan of candidate's publications;
7. References from PhD thesis supervisor (optional);
8. Consent to the processing of personal data (Appendix 1).

Documents in other languages than Polish or English should be translated.

XII. Applying for the position:

Applications with the title "Opening for the post-doc position- OPUS-21 - Z2 – no. 01 " should be sent by e-mail.

e-mail: werwinski@ifmpan.poznan.pl or at the Institute's address.

Contact:

Mirosław Werwiński, PhD

e-mail: werwinski@ifmpan.poznan.pl

phone: +48 61 8695150

XIII. Eligibility criteria:

- candidate's ability to fulfill scientific objectives of the project;
- candidate's scientific achievements, including publications;
- distinctions, scholarships, awards, completed scientific trainings, workshops, participation in research projects and scientific experience acquired outside the parent scientific unit in the country or abroad.

XIV. Selection process:

Contest of the applications followed by a short interview with the best candidates using electronic means of communication.

The selection will be made by a recruitment committee.

XV. Results announcement date: 2nd half of April 2023.

XVI. Additional information: IPM PAS does not provide accommodation.

** This period does not include breaks related to: maternity leave, adoption leave, paternal leave, parental leave granted in compliance with the Labour Code, nor periods of sickness benefit or physiotherapy benefit granted on account of being unfit to work, including any caused by a health condition requiring rehabilitation. Women may extend the 7-year period by 18 months for every child born or adopted. A woman may choose whichever manner of accounting for career breaks she finds preferable.*

DISCLAIMER:

According to art. 13 1 and 2 of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of individuals with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC (Journal of Laws UE L 119/1 of 4.5.2016), hereinafter referred to as RODO, we inform that:

1. The administrator of your personal data is the Institute of Molecular Physics Polish Academy of Sciences in Poznań, ul. Mariana Smoluchowskiego 17.
2. Your personal data will be processed for the duration of the recruitment process.
3. You have the right to request from the administrator access to personal data, the right to correct them, delete or limit processing, the right to object to the processing of personal data, as well as the right to transfer data.
4. You have the right to withdraw your consent at any time. The above does not affect the compliance with the law, which was made on the basis of your consent before it was withdrawn.
5. It is possible to lodge a complaint with the supervisory body - the President of the Office for Personal Data Protection.
6. Providing personal data is voluntary.
7. Your data will not be shared with entities other than entities authorized on the basis of applicable law.
8. The administrator will not transfer your personal data to recipients in third countries and international organizations.

Appendix 1. Consent for the processing of personal data for recruitment purposes

I agree to the processing of personal data provided in this document for realising the recruitment process pursuant to the Personal Data Protection Act of 10 May 2018 (Journal of Laws 2018, item 1000) and in agreement with Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

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Date and signature