



**Institute of Molecular Physics**  
**Polish Academy of Sciences**  
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**Recruitment for**  
**the Poznan Doctoral School of the Institutes of the Polish Academy of Sciences (PDS IPAS)**  
**Procedure No. 12/2022/IFM/PSD**

**Institution:** Institute of Molecular Physics Polish Academy of Sciences (IMP PAS)  
**City:** Poznań, Poland  
**Position:** Ph.D. student  
**Positions available:** 1  
**Scientific discipline:** physics  
**Publication date:** 22 March 2022.  
**Application deadline:** 21 April 2022; 15:00 CEST  
**IMP PAS website:** <https://www.ifmpan.poznan.pl>  
**PDS website:** <https://www.ifmpan.poznan.pl/BIP/index.php/edukacja/psd-ipan>

## I. Offer description

**Research and doctoral thesis will be carried out within the OPUS 21 project funded by the National Science Center**

**Project title:** *Extraordinary electronic transport in magnetic topological insulators and semimetals.*

**Keywords:** topological matter, electronic transport, anomalous Hall effect, chiral magnetic anomaly, quantum oscillations.

**Research group where the project will be implemented:** Department of Magnetic Alloys in IMP PAS (as part of a project implemented by the Division of Magnetic Research of the Institute of Low Temperature and Structure Research of the Polish Academy of Sciences in Wrocław)

**Principal Investigator:** prof. dr hab. inż. Dariusz Kaczorowski

## II. Project objectives

Semimetals are materials that differ from ordinary metals in that the conductivity and valence bands overlap slightly and the conduction band is partially filled. If the contact points/lines are separated in the angular momentum space and have appropriate local symmetry, then such semimetallic phases are topologically protected. Interesting magnetic and transport properties are associated with this. In general, nearly all topological materials studied so far are non-magnetic. The project aims to discover new topological phases in which magnetism will significantly affect transport properties conditioned by non-trivial topology. The results obtained in the project may have a significant impact on future applications in the construction of a new generation of memory elements, sensors, magnetic switches and other spintronic devices, as well as systems useful in quantum computing.



### III. Responsibilities

- synthesis of the polycrystalline and single crystalline samples,
- measurements of the structural, magnetic, electric, and thermal properties of the samples,
- cooperation in analysis and interpretation of the obtained results,
- cooperation in preparation of the scientific papers,
- presentation of the results on national and international conferences.

### IV. Job benefits

- The research will be carried out in close cooperation with the Institute of Low Temperature and Structure Research of the Polish Academy of Sciences in Wrocław, therefore it will enable access and familiarization with the technological and research equipment of two institutes.
- The research will involve extensive foreign cooperation.
- The project provides the opportunity to participate in international conferences.

### V. Additional information

1. As part of the project, the Ph.D. student will receive a doctoral scholarship in the amount of PLN 3,260.00 net (PLN 3,675.00 gross) till the month of mid-term assessment and for the next 12 months, in the amount of PLN 3,720.00 net (PLN 4,190 gross). The last 12 months of doctoral studies will be financed by the IFM PAN, pursuant to Article 209(4)(1) of the Act of July 20<sup>th</sup>, Law on higher education and science. The period of receiving the scholarship is 48 months.
2. The Ph.D. student will be covered with the costs of social insurance, pursuant to Article 6(1)(7b) and Article 12(1) of the Act of October 13<sup>th</sup>, 1998 on the social insurance system (Journal of Laws of 2019, item 300, as amended), in accordance with the principles described below:
  - a. Social security contributions are co-financed by the Ph.D. student (insured) and the Institute of Molecular Physics of the Polish Academy of Sciences (payer).
  - b. The pension insurance contribution is financed in equal parts by the insured and the payer from their own resources, 9.76% of the calculation base each.
  - c. The disability pension insurance premium is financed by the insured person in the amount of 1.5% of the calculation base and 6.5% of the calculation base of the payer.
  - d. The sickness insurance contribution is financed entirely by the insured person from his own resources.
  - e. The accident insurance contribution for doctoral students is financed entirely from the payer's own funds.

### VI. Requirements for candidates

1. M.Sc. degree in physics or related sciences, or fulfilling the conditions stipulated in article 186, section 2 of the act of July 20<sup>th</sup>, 2018 Law on Higher Education and Sciences (journal of Laws of 2018, item 1668, as amended).
2. A person not holding the qualifications described in paragraph 1 may take part in a competition, but must obtain those qualifications before commencing study at Poznan Doctoral School of the Institutes of the Polish Academy of Sciences.
3. Knowledge and experience in the field of solid state physics.
4. Ability to use programs supporting research, for example: Mathematica, Origin, MS Office, etc.
5. Fluency in English (both in speech and writing) on the level of B2-C2.
6. The ability to independently solve problems as well as to work in a group, commitment and positive motivation.
7. An additional advantage will be the expanded knowledge of the subject of magnetic materials and related experimental methods.

## VII. Required documents

1. Application for admission to Poznań Doctoral School of the Institutes of the Polish Academy of Sciences (PDS IPAS) along with the consent for processing personal data upon the recruitment procedure and a statement on having acknowledged the regulations of recruitment for PDS IPAS, using form downloaded from:  
<https://www.ifmpan.poznan.pl/BIP/edukacja/psd-ipan.html?task=article.downloadAttachment&id=319&version=725>
2. Certified copy of the diploma confirming graduation or a certificate confirming graduation (in the case of diplomas issued by foreign higher education schools, diploma stipulated in article 326, section 2, passage 2 or article 327, passage 2 of the act of July 20th, 2018 – Law on Higher Education and Science (Journal of Laws of 2018, item 1668, as amended), entitling to apply for conferment of a doctoral degree in the state in where such a certificate was issued by the relevant higher education school. In the event when the candidate does not have the aforementioned documents, he/she is obliged to submit them before admission to PDS IPAS. Additional information on foreign school diplomas is available at: <https://nawa.gov.pl/en/recognition/recognition-for-academic-purposes/applying-for-admission-to-doctoralstudies>;
3. Scientific CV encompassing track record of previous education and employment;
4. A cover letter featuring a short description of research interests, scientific accomplishments, a list of publications, information on involvement in scientific activity (membership of student scientific groups, participation in scientific conferences, completed internships and training courses, prizes and distinctions received) and reasons for wishing to study at the doctoral school;
5. Certificates or other documents confirming the degree of proficiency in English, if the candidate owns such materials;
6. Consent for the processing of personal data for recruitment purposes (Appendix 1);
7. Contact details of at least one previous scientific supervisor or another researcher who is entitled to issue an opinion on the candidate.

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

**Applications should be submitted** electronically on e-mail address [office@ifmpan.poznan.pl](mailto:office@ifmpan.poznan.pl) with the subject of the message “*Competition for the Ph.D. position No. 12/2022/IFM/PSD*” as the attachment in the pdf file format.

**Alternatively**, if the electronic delivery is not possible, applications can be sent to the postal address: Secretariat of the Institute of Molecular Physics, Polish Academy of Sciences, Mariana Smoluchowskiego 17, 60-179 Poznan, Poland, with an annotation on the envelope: “ *Competition for the Ph.D. position No. 12/2022/IFM/PSD*”.

**Please do not send the originals of the documents.**

## VIII. Recruitment Procedure

Recruitment will take place in accordance with the Recruitment Regulations for PDS IPAS. The highest-ranking candidates will be invited to an interview (in a hybrid form: on-line or on-site). The candidates will be informed at least 7 days before the planned interview.

## IX. Criteria for evaluation of candidates for Doctoral School

1. Candidate’s research achievements, according to the grades obtained in the course of studies, scientific publications, awarded scholarships, and distinctions resulting from conducting scientific research or student activities or other achievements;

2. Candidate's scientific and professional experience, according to participation in conferences, workshops, training sessions and internships, implementation of research and commercial projects, involvement in scientific trusts and societies, international and professional mobility, experience in other sectors, including industry;
3. Candidate's knowledge of the following discipline: physical sciences;
4. Knowledge and experience in the subject matter described in the recruitment advertisement.

**The recruitment procedure shall be concluded until May 10<sup>th</sup>, 2022.**

**Estimated scholarship start date: June 11<sup>th</sup>, 2022.**

The description of the recruitment process for Doctoral School is stipulated in the Regulations of Recruitment for PDS IPAS. Following the recruitment procedure, the unadmitted candidates shall be informed about the scores obtained at various stages of the recruitment process.

**For additional information, please contact:**

the Principal Investigator of the OPUS 21 project, prof. dr hab. inż. Dariusz Kaczorowski

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**Institute of Molecular of the Physics Polish Academy of Sciences does not provide accommodation.**

**PROJECT LEADER**

**prof. dr hab. inż. Dariusz Kaczorowski**

**DIRECTOR**

**prof. dr. hab. Zbigniew Trybuła**



### **Information clause:**

According to the content of art. 13 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 (General Data Protection Regulation ), hereinafter referred to as GDPR, we inform that:

1. The administrator of the collected personal data is the Institute of Molecular Physics of the Polish Academy of Sciences, Mariana Smoluchowskiego 17, 60-179 Poznan, Poland, VAT No. PL 777-00-20-870 (hereinafter referred to as the Institute).
2. The administrator has appointed a Data Protection Inspector who can be contacted in writing, by traditional mail, writing to the Institute's address: Data Protection Inspector, Institute of Molecular Physics of the Polish Academy of Sciences, Mariana Smoluchowskiego 17, 60-179 Poznan, Poland or by sending an e-mail to [iod@ifmpan.poznan.pl](mailto:iod@ifmpan.poznan.pl).
3. Personal data are processed to implement the administrator's tasks related to the recruitment to the Poznań Doctoral School of the Institutes of the Polish Academy of Sciences.
4. The legal basis for data processing is the Act of 26 June 1974 - Labor Code, the Act of 30 April 2010 on the Polish Academy of Sciences, the Act of 20 July 2018 Law on Higher Education and Science, and consent of the data subject.
5. Personal data collected in the current recruitment process will be stored for three months from the moment the recruitment process is resolved. After this period, personal data will be effectively destroyed.
6. Personal data will not be conveyed to a third country.
7. Personal data of the candidate selected in the competition may be made available to third parties authorized under the law.
8. The person whose data is processed has the right to:
  - access to the content of your personal data, demand their correction or deletion, on the terms set out in art. 15-17 GDPR;
  - set restrictions on data processing, in cases specified in art. 18 GDPR;
  - data transfer, on the principles set out in art. 20 GDPR;
  - withdrawal of consent at any time without affecting the lawfulness of the processing that was carried out based on consent before its withdrawal;
  - lodging a complaint to the President of the Office for Personal Data Protection.

Providing personal data in the scope resulting from art. 22 (1) of the Act of 26 June 1974 - Labor Code, is mandatory, providing data in a broader scope is voluntary and requires consent to their processing. Refusal to provide personal data prevents the application from being considered.

## 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).

Name .....

.....

Date and signature