Attachment to SOB/D110/2023/1/66-0007077

Warsaw, 19 October 2023

1 postdoctoral research position in the scientific project "Variational Problems with Singularities Arising from Mathematical Physics" financed by the National Science Center (grant agreement no UMO-2022/47/D/ST1/00487) Principal Investigator: Bartosz Bieganowski

The National Science Center project „Variational Problems with Singularities Arising from Mathematical Physics", led by dr Bartosz Bieganowski, is offering one postdoctoral research position in the Institute of Applied Mathematics at the Faculty of Mathematics, Informatics, and Mechanics of the University of Warsaw.

Terms of employment

Selected candidate will be employed as full-time researcher (adiunkt). The duration of employment is twenty four months. The starting date will be agreed upon with the selected candidate, between February 1st and April 1st, 2024. The offered salary is approximately 8,500 PLN per month before taxes. The position includes a travel budget and no teaching obligations. Selected candidate will conduct research in the field of quantitative and qualitative analysis of variational problems with emerging peculiarities in mathematical physics.

Description of the project

The project takes into account two types of variational problems with singularities.

The first one in the Einstein scalar field equation of Lichnerowicz type. It is an equation from the Einstein theory with a variational structure on a Riemannian manifold. However, it has been studied by means of variational methods only for compact manifolds. We plan to extend these methods and results to noncompact manifolds. We will study also more general equations - with a general right hand side, and (as a byproduct) we plan to obtain also results for Schrodinger and Helmholz equations on manifolds. We would also like to study the normalized problem, i.e. with prescribed L2- norm.

The second problem is the Schrodinger equation with critical Hardy potential (inverse-square potential). The subcritical Hardy potential has been already studied and is well-understood. In the case of a critical Hardy potential, additional difficulties arise. The quadratic part of the variational functional does not generate a complete norm on the H1 space and one needs to work in a larger space X1. The application of Lions' lemma seems to be cumbersome, because the translated limit point of the minimizing sequence lie in X1 and it is not clear whether it is a solution to the "limiting" equation. Moreover, we plan to study this equation with and without an external potential V. We expect than obtained results, connected with recent works on the curl-curl equation, will allow us to show also an existence-type result for the curl-curl equation with a singular potential.

Requirements

For employment in the project, we require candidates to hold a PhD degree in computer science, mathematics, or bioinformatics. The degree must have been obtained no earlier than 7 years prior to the year of employment. Additionally, candidates must possess a strong background in one or more of the following fields within their discipline:

- Mathematical analysis
- Variational, topological and geometric methods

- Nonlinear partial differential equations

In addition, we expect:

- Teamwork skills
- Willingness to cooperate with both doctoral students and students, as well as experienced researchers
- Ability to communicate freely in English.

The competition may be entered by candidates who meet the conditions set out in art. 113 of the Law on Higher Education and Science of July 20, 2018 (Journal of Laws of 2023, item 742, as amended).

Applications

An application should include **Curriculum Vitae** that:

- presents an overview of the background and scientific achievements of the candidate;
- lists all the candidate's research works (including not yet published manuscripts);
- gives a name of a researcher who may serve as references for the candidate.

In addition, there should be a **signed cover letter** addressed to the Dean of the Faculty of Mathematics, Informatics and Mechanics, University of Warsaw together with the **personal data clause** (attached).
No research statements are required.
On the day of submitting the application, the candidate does not have to hold a PhD degree.

Applications, as well as further questions on both the scientific topic of the project and formal details of the call procedure should be directed to dr Bartosz Bieganowski: **bartoszb@mimuw.edu.pl**

In order to apply for the position, candidates should send an e-mail and submit the documents as attached .pdf files.

Application deadline: 23 November 2023

Applications which do not satisfy the above requirements or are submitted after the deadline will not be considered for the position.

The applications will be evaluated by a selection committee appointed by the Dean of the Faculty of Mathematics, Informatics and Mechanics, University of Warsaw. The committee may invite candidate to a meeting, which will be conducted remotely. The results of the competition will be sent to candidates electronically on 8 December 2023 at the latest. The competition is the first stage of the recruitment process as described in the Statute of the University of Warsaw, the recommendation by the selection committee being a basis for its subsequent stages.

……..……..
given and family name

Information on personal data processing

Controller

Controller of your personal data processed in connection with the recruitment process is the University of Warsaw, ul. Krakowskie Przedmieście 26/28, 00-927 Warszawa, as the Employer.

Contact with the controller:

- by traditional mail at: University of Warsaw, ul. Krakowskie Przedmieście 26/28, 00-927 Warszawa (name the organizational unit to which your letter is addressed);
- by phone: 22 55 20 355.

Data Protection Officer (DPO)

Controller has designated Data Protection Officer whom you may contact via email at iod@adm.uw.edu.pl. You may contact the DPO in all matters relating to your personal data processing by the University of Warsaw and the exercise of rights in relation to the processing of personal data.

The DPO, however, does not proceed other matters, like handling recruitment procedures, collecting recruitment documents, providing information on current recruitment process.

Purpose and legal grounds of data processing

Personal data of candidates for employment shall be processed for recruitment purposes only.

Your personal data shall be processed in the scope as indicated by employment law[1] *(given name (names) and family name, date of birth, contact information as provided, education, professional qualifications, previous employment)* for the purposes of this recruitment process[2], whereas other data[3] shall be processed based on your consent which may take the following wording:

I agree to the processing of personal data provided in CV and other submitted documents by the University of Warsaw for realising my recruitment process.

If your documents include data as mentioned in Art. 9 section 1 of the GDPR (special categories of personal data), processing shall be possible upon your consent to processing such data[4] which may take the following wording:

I agree to the processing of special categories of personal data, as mentioned in Art. 9 section 1 of the GDPR, provided in CV and other submitted documents) by the University of Warsaw for realising my recruitment process.

The University of Warsaw shall be also processing your personal data in future recruitment processes upon your consent[5] which may take the following wording:

I consent to processing of my personal data for the purposes of any future recruitment processes at the

[1] Art. 22[1] of the law of June 26, 1974 Labour Code (i.e. Journal of Laws 2019 item 1040 with subsequent changes);

[2] Art. 6 section 1 letter b of the Regulation of the European Parliament and the Council (EU) 2016/679 of April 27, 2016 on protection of individual persons with regard to the personal data processing and on the free flow of such data, and also repealing Directive 95/46/EC (general regulation on data protection) (Official Journal EU L 119 of 04.05.2016, page 1, with subsequent changes) (hereinafter as the GDPR);

[3] Art. 6 section 1 letter a of the GDPR;

[4] Art. 9 section 2 letter a GDPR;

[5] Art. 6 section 1 letter a GDPR;

University of Warsaw for the period of the next nine months.

You may revoke all such consents at any time by, for example, sending an email at sob@mimuw.edu.pl. Be advised that the revocation of your consent does not affect legal compliance of processing which had been completed upon consent before its revocation.[6]

Data retention period

Your personal data collected in this recruitment process shall be stored over the period of three months from the date the recruitment process is completed.

In case you agree to process your data in future recruitments, your data shall be used over the period of nine months.

Data recipients

Officers authorized by the Controller shall have access to your personal data, the processing of which is in the scope of their duties.

~~Recipients of personal data may be other subjects obligated by the Controller to provide specific services involving data processing, like~~

~~.....~~

~~*(name all recipients of data)*~~

Data transfer outside the European Economic Area (EEA)

Your personal data shall be disclosed to subjects authorized by law. Signing-in is through Google Forms. Your personal data may be also processed by our provider of G-Suit for education by Google Company in their data processing centres.[7] Your data shall be protected under the standards of the Privacy Shield, accepted by the European Commission.[8] This shall guarantee an adequate level of data security.

Rights of the data subject

Under the GDPR data subjects have the following rights:

- to access data and to receive copies of the actual data;
- to correct (rectify) your personal data;
- to restrict processing of personal data;
- to erase personal data, subject to provisions of Art. 17 section 3 of the GDPR;
- to file a claim with the President of the Personal Data Protection Office, if you believe data processing violates law.

Information on the requirement to provide data

Providing your personal data in the scope resulting from law is necessary to participate in the recruitment process. Providing other personal data is voluntary.

..... …....

place and date applicant's signature

[6] Art. 7 section 3 GDPR;

[7] https://www.google.com/about/datacenters/inside/locations/index.html

[8] https://www.privacyshield.gov