

Address:

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**RECTOR
of the Jagiellonian University**
announces a competition for two positions
at Faculty of Physics, Astronomy and Applied Computer Science, Jagiellonian University

The position is funded by **Polish National Science Center**.

Aim of the project is research on ultracold atoms in many-level systems. The detailed extent of the research concerns dark states in the context and extent provided by the publications: [M. Łącki, M. A. Baranov, H. Pichler, and P. Zoller, Phys. Rev. Lett. **117**, 233001 (2016)] [M. Lacki, P. Zoller, and M. A. Baranov, Phys. Rev. A **100**, 033610 (2019)] [Mateusz Łącki, Phys. Rev. A **103**, 053301 (2021)] [SciPost Phys. **10**, 112 (2021)] and <https://arxiv.org/abs/2106.04709>

The research will be devoted to interactions of atoms in the systems like introduced above.

Key duties:

- conducting research for the project (numerics + analytics)
- controlling conceptual correctness of the research
- reporting of results in form of notes, whiteboard discussion
- publishing of the results in form of research articles, conference talks, posters
- collaboration with the research team

What we offer:

- stipend for 6 months appropriate to the experience (Msc Students: up to 2000 PLN / month, PhD students up to 3750 PLN / month). In principle the stipend does not preclude obtaining other stipends (this has to be checked on case by case basis).

Required qualification:

- mathematic skills allowing for fluent use of quantum mechanics, appropriate for candidate status (Msc/PhD student)
- programming skills allowing to carry out research (for example python+numpy+scipy and knowledge of a CAS system), plotting and presenting obtained data (e.g. gnuplot, matplotlib)
- PhDs : experience in numerical calculation with emphasis on numerical linear algebra for large complex systems.
- Finished bachelor/master studies with major in Physics. If the candidate had the opportunity to pick advancement level of courses taken, it is expected that most advanced course variants had been taken – especially in case of classical mechanics and quantum mechanics courses.
- High grades from most relevant courses for the project: quantum mechanics, linear algebra, mathematical analysis, complex analysis, mathematical methods of physics, condensed matter physics, electrodynamics. Extra credit will be given for knowledge of basics of algebraic topology, practical knowledge of characteristic classes.

Required personal skills:

- ability and willingness to communicate,
- interest in physics
- Ability to devote necessary time for completion of the project, willingness to present result in a form of a public seminar talk.

Candidates are asked to send their applications electronically. CV together with any additional documentation that the candidate satisfies the criteria outlined above should be sent directly to email mateusz.lacki@uj.edu.pl (it is imperative that you ask for confirmation that your application was received and you receive that confirmation). The CV should contain: publication list, list of schools/universities attended by the candidate (starting no later than a high school), statement of research interests, list of interests besides science, other projects that the candidate was/is involved in (also those not strictly related to research). Second stage of the competition will be the interview. The date of the interview is agreed upon together with the candidate.

Please supplement your application with “Personal data processing information for job applicants” oraz that can be found here: <https://iod.uj.edu.pl/druki-do-pobrania> in the link “EN - Kandydat do pracy - informacja o przetwarzaniu danych”.

The deadline for submissions for the first position is 20.10.2023, hour 23:59, Warsaw time.
The deadline for submissions for the second position is 20.12.2023, hour 23:59, Warsaw time.

In each case the interview will be scheduled within 7 days after the deadline. The competition will be concluded after all the interviews for each of the two positions.

The university reserves the right to contact only some of the candidates, and the name of the person that fills the position will be provided only to the selected candidate.