



Center for Theoretical Physics  
Polish Academy of Sciences  
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## **Competition for the post of post-doc at the Center for Theoretical Physics of the Polish Academy of Sciences**

Project “New states of matter in ultra-cold quantum gases”

Nr **UMO-2019/34/E/ST2/00289**.

**dr hab. Krzysztof Pawłowski, prof. CFT.**

### **Description**

The theoretical study concerns ultracold gases in which atoms interact via both non-local and short-range interactions. In a balanced situation, when these two types of interactions are almost canceling each other, one can expect new quantum phases such as recently observed quantum droplets or the last year's result - supersolid state.

In our group, we used a generalized mean field model (so called LLGPE) to show that the quantum droplets may appear in quasi-1D systems, even in the strongly interacting regime (see Phys. Rev. Lett. 124, 090401 (2020) for details).

### **The specific research tasks:**

- study of the excitations of the droplet state,
- evaporation of a droplet,
- verification of the results hydrodynamical using *ab initio* methods,
- quantum correlation in a droplet,
- computations in quasi 1D setup, including decoherence sources (to propose realistic experiment).

The candidate will be asked to take part in conferences to disseminate the result and help with the group management. There are no obligatory teaching duties at the institute.

## Qualifications

- Highly motivated, ambitious and creative
- Ph.D. in physics / math,
- Prior theoretical work in one and more of these areas is highly desirable: numerical solution of Gross-Pitaevskii equation, solving the master equations (numerical or analytical), experience with the Bogoliubov-de Gennes equations, experience with the quantum many-body systems,
- Programming skills (e.g. C, CUDA, Mathematica, Python),
- Communication skills.

The documents should be sent electronically to [rekrutacja@cft.edu.pl](mailto:rekrutacja@cft.edu.pl), by **1 August 2021** with obligatory consent to process the personal data. In the e-mail's title please add the reference number: KP/08/2021.

All questions should be directed to: [pawlowski@cft.edu.pl](mailto:pawlowski@cft.edu.pl).

Selected Applicants will be invited for an interview which will be held either at the institute or via online communicators.

<b>Information Clause – Job Recruitment</b>
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**Information Obligation under the Article 13 of the RODO \*:**

**1. Data Administrator**

The administrator who is a deciding entity on how your personal data will be used is the Center for Theoretical Physics PAN represented by the Director with the seat in Warsaw Al. Lotników 32/46. You can contact the Administrator by using one of the contact forms available on the website: : <http://www.cft.edu.pl/>

**2. Data Protection Inspector**

The Director of the Center for Theoretical Physics of the Polish Academy of Sciences has appointed the Data Protection Inspector (Inspektor Ochrony Danych - IOD) with whom you can contact in all matters relating to your personal data. You can contact the Inspector by sending an email to: [iod@cft.edu.pl](mailto:iod@cft.edu.pl)

**3. The Purposes of Processing and the Legal Basis for Processing**

Your personal data will be processed for the purpose of running the current recruitment.

The basis for the processing of personal data are the provisions of the Labor Code Act of June 26, 1974 (uniform text: Dz. U. of 2018, item 917) and based on your consent for data processing.

**4. The Period of Storage of Personal Data**

Your personal data will be kept for the duration of the present recruitment.

**5. Data Recipients\*\***

The recipients of your personal data will be only entities authorized to obtain personal data on the basis of the law. Access to your data is provided only to employees authorized by the administrator and associates who must have access to the data to perform their duties.

**6. Your Processing Rights**

You have the right to access your data and the right to correct it or limit processing, as well as the right to appeal against the processing.

**7. The Obligation to Provide Data and the Consequences of not Providing Data**

Providing your personal data specified in the Labor Code is obligatory, and for the remaining extent voluntary.

**8. The right to make a complaint to the President of the Office for the Protection of Personal Data**

When you feel that the processing of personal data violates the provisions of the general regulation on the protection of personal data, you have the right to make a complaint to the President of the Office for the Protection of Personal Data.

**Consent to Data Processing**

**I consent to the processing of my personal data by the Center for Theoretical Physics PAN for the needs of:**

☐ Present recruitment.

I provide the data voluntarily and I declare that they are truthful. I got acquainted with the contents of the above information, including information about the purpose and methods of processing personal data and the right to access my data and the right to correct them.

