

INFORMATION ON THE COMPETITION

Krakow, 21st February, 2019

**DEAN
OF THE FACULTY OF PHYSICS, ASTRONOMY
AND APPLIED COMPUTER SCIENCE**

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**RECTOR
of the Jagiellonian University**
announces competition for the post of
ADJUNCT PROFESSOR
in the Institute of Physics
at the Faculty of Physics, Astronomy
and Applied Computer Science

within the scope of National Science Centre Project Sonata Bis no. 2017/26/E/ST2/0763, “*Compact phase space field theories – from gravity to complex systems*”

For the post of adjunct professor may apply persons who fulfil requirements stated in Article 113, 116 (2) (3) of the Act of 20th July 2018 Law on higher education and science.

The aim of this project is a generalization of field theories that are used in theoretical physics to describe matter and fundamental interactions to the case of topologically compact phase spaces. Fermionic and gauge fields are considered, including gravitational field in the formalism of Ashtekar variables. The studies are focused mainly on the case with spherical phase space, which provides a relation between relativistic field theories and spin systems considered in condensed matter physics. The developed approach is used as a description of both fundamental interactions and complex system. Application to topological quantum computation is also explored.

Requirements:

- 1) PhD in theoretical physics
- 2) Experience in the area of quantum gravity and quantum field theory.
- 3) Advanced English in writing and speaking.
- 4) Ability to work in a scientific group.
- 5) Interdisciplinary scientific interests are welcome.

Research tasks:

- Compactification of the gauge field theories with the gauge groups $U(1)$ and $SU(2)$.
- Analysis of consequences of the phase space compactness in the Standard Model of particle physics.
- Participation in the research devoted to construction of the compact phase space theory of gravity.

Terms of employment: contract of employment

Duration: 12 months

Starting date: Fall 2019

Salary: according to NSC rates (10 000 PLN Pre-tax per month)

Applications (Curriculum vitae, list of publications, 2 letters of recommendation) should be sent to Dr Jakub Mielczarek via e-mail: jakub.mielczarek@uj.edu.pl with annotation “postdoc” until 20th of May, 2019.

Competition commencement date: 25th March, 2019

Applications can be filed till: 20th May, 2019

Decision regarding competition settlement shall be made till: 1st June, 2019

Jagiellonian University does not provide housing.

Statement forms can be downloaded on the website:

<http://www.dso.uj.edu.pl/druki-do-pobrania/dokumenty-dla-kandydatow-pracownikow>

On the basis of authorization
of the Rector of Jagiellonian University
Dean of the Faculty of Physics, Astronomy
And Applied Computer Science