JOB OFFER

Position in the project:	PhD student
Scientific discipline:	Physics
Job type (employment contract/stipend):	stipend
Number of job offers:	2
Remuneration/stipend amount/month *("X0 000 PLN of full remuneration cost, i.e. expected net salary at X 000 PLN"):*	3 500 PLN/month scholarship
Position starts on:	Not earlier than 1 December 2018; on the starting date, the successful candidate will need to hold PhD student status.
Maximum period of contract/stipend agreement:	28 months
Institution:	The Faculty of Physics, Astronomy and Informatics of the Nicolaus Copernicus University in Toruń
Project leader:	Michał Zawada
Project title:	A next-generation worldwide quantum sensor network with optical atomic clocks ***Project is carried out within the TEAM programme of the Foundation for Polish Science***
Project description:	In our project we will establish, with our scientific partners, the first earth-scale quantum sensor network based on optical atomic clocks with the coordination and research centre located at KL FAMO in Toruń. The network of such detectors can be used as a state-of-the-art global sensor in a wide range of sectors from applications in geodesy, satellite navigation and environmental monitoring, including monitoring changes in ocean currents, oil and gas surveying, monitoring environmental changes such as melting of the polar ice caps and volcanic processes that take place before an eruption, to basic science and metrology. Although such network is naturally suited for a number of utilitarian purposes, in this project we will demonstrate its operation for the case of much more challenging fundamental studies. We will use it as an Earth-scale observatory for detecting dark matter in the form of topological defects and oscillating scalar fields and test existing hypotheses of new fields beyond the Standard Model at an unprecedented level of accuracy. The postdoc position will be a part of: Theme 1*: Dark matter direct-detection experiments with the sensor network made of optical atomic clocks* *Theme 2: Development of a new generation of optical sensors with enhanced detection limit for the variations in* α *and other fundamental constant*
Key responsibilities include:	1. Theme 1: a. Development of a world-wide dispersed network of

	existing optical clocks b. Participation in the dark matter observation sessions c. Publication of results in peer-reviewed journals 2. Theme 2: a. Development of new optical technologies for sensing the variations in the fine-structure constant b. Development of new methodology for enhancing the sensitivity to variations in different fundamental constants c. Publication of results in peer-reviewed journals
Profile of candidates/requirements:	1. Required: a master's degree (or BSc (Hons) or other equivalent) in physics or a closely related field. 2. Required: an excellent academic record. 3. Preferred: experience through coursework and/or a research project in atomic physics.
Required documents:	1. a cover letter, 2. curriculum vitae (including a description of scientific motivation, a description of research interests, and a publication list), 3. a scan or photocopy of the candidate's university degree; 4. at least one (max three) reference letter(s);
We offer	• Opportunity to work in interdisciplinary research department with strong support from astronomy and physics groups within the department. • PhD studies in the professional and dynamically developing international and interdisciplinary team. • Possibilities of foreign internships, trainings, and conference trips. • Collaboration with the best research groups in the world in the field of dark matter detection with optical atomic clocks.
Please submit the following documents to:	Please submit the aforementioned documents to castle[at]fizyka.umk.pl with annotation “PhD TEAM” in the subject field. After preliminary selection a shortlist of candidates fulfilling the main eligibility criteria will be invited for an interview, in person or online.
Application deadline:	20 November 2018

For more details about the position please visit (website/webpage address):	http://www.fizyka.umk.pl/~castle
Euraxess job/stipend offer (in case of PhD and postdoc positions):	https://euraxess.ec.europa.eu/jobs/347906

Please include in your offer:

“I hereby give consent for my personal data included in my application to be processed for the purposes of the recruitment process under the Personal Data Protection Act as of 29 August 1997, consolidated text: Journal of Laws 2016, item 922 as amended.”