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| JOB OFFER | |
| Position in the project: | Bsc or MsC student |
| Scientific discipline: | Physics, Astrophysics, Cosmology, Astronomy |
| Job type (employment contract/stipend): | stipend |
| Number of job offers: | Max 2 |
| Remuneration/stipend amount/month *(“X0 000 PLN of full remuneration cost, i.e. expected net salary at X 000 PLN”):* | 1 700 PLN/month scholarship |
| Position starts on: | Not earlier than 1 January 2020; on the starting date, the successful candidate will need to hold BSc/MSc student status |
| Maximum period of contract/stipend agreement: | 14 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: | Theme 1:Development of a world-wide dispersed network of existing optical clocksParticipation in the dark matter observation sessionsCo-authorship of publication(s) in peer-reviewed journalsTheme 2:Development of new optical technologies for sensing the variations in the fine-structure constantDevelopment of new methodology for enhancing the sensitivity to variations in different fundamental constantsCo-authorship of publication(s) in peer-reviewed journals |
| Profile of candidates/requirements: | 1. Required: either current MSc/BSc student status in studies in physics or a closely related field, or a BSc (or equivalent) degree. 2. Required: an excellent academic record. 3. Deirable: experience through coursework and/or a research project in atomic physics. |
| Required documents: | 1. A cover letter, 2. Curriculum vitae 3. Grades in the course of studies (at least from the previous academic year). 4. Proof of participation in BSc/MSc studies in physics, astronomy, astrophysics or a similar science area. |
| We offer | * Opportunity to work in interdisciplinary research department with strong support from astronomy and physics groups within the department. * BSc/MSc 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 “student 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: | 16 December 2019 |
| 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): |  |
| 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.” | |