

Post-doc position on precision measurements with an optical atomic clock



The ISOC mission is an ESA mission, consisting of operating an optical lattice clock on the ISS and comparing it with ground clocks. The goal is testing the equivalence principle with high precision and performing relativistic geodesy from space. In this framework, the science team (HHU, U. Birmingham, PTB, Observatoire de Paris, Czech Techn. U., INRIM, U. Firenze) has developed a breadboard demonstrator. It is the first modular and transportable lattice clock, and has reached an inaccuracy of 2×10^{-17} (arxiv.org/1803.03157)

The post-doc shall work on improving the performance of the demonstrator and performing scientific studies with it. This includes a precision measurement of isotope shifts with the goal of searching for physics beyond the Standard Model and a transport of the clock to a site where a precision measurement of the gravitational potential can be performed by comparison with other optical clocks via optical fibers. Furthermore, the work shall involve comparisons with clocks worldwide via the ISS mission ACES, due to start around 2018. These comparisons will be done using a free-space link to the ISS clock, so that the transportable clock may be operated (nearly) anywhere on Earth.

A person with very good understanding of complex cold atom/optical equipment, with a high motivation level and with excellent organizational skills is sought.

The salary level depends on experience and qualification and is up to level 100% EG 13. The position is initially for 2 years but may be extended in duration. For further information or for applying, contact:

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