

Towards transportable thulium optical lattice clock

P.N. Lebedev Physical Institute of the Russian Academy of Sciences, Moscow, Russia

Optical clocks are one of the most precise instruments today with applications ranging from tests of fundamental physics to relativistic geodesy. The $1.14\ \mu\text{m}$ clock transition in neutral thulium has exceptionally low sensitivity to the environment, including electric and magnetic fields and blackbody radiation. Together with practical wavelengths of used lasers it makes thulium a perspective candidate for transportable optical lattice clock. We discuss our recent results in thulium optical clock: the concept of synthetic clock frequency, a newly developed compact setup and prospect of building an optical clock with continuous interrogating of a moving cold atoms.

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Author: GOLOVIZIN, Artem (P.N. Lebedev Physical Institute)

Presenter: GOLOVIZIN, Artem (P.N. Lebedev Physical Institute)

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