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Optical atomic clocks - SA.COK

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Optical lattice clocks are the most precise device ever developed and are at the forefront of frequency metrology. Nowadays, the systematic uncertainty and stability of optical clocks are 2 orders of magnitude better than cesium microwave fountains currently realizing the SI second, with applications in fundamental physics, astronomy and geoscience. In the near future, a re-definition of the SI second is expected, once optical clocks are proven to be as reliable and reproducible as their microwave counterparts. In this talk we discuss the science foundations of optical lattice clocks, their state of the art, current limitations and possible applications in science and industry.

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