

Systematic effects on Strontium optical lattice clocks

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The two Strontium OLC developed at SYRTE have shown uncertainty in the low 10^{-17} , confirmed within local and international comparisons against both microwave and optical frequency reference. Improving their performance require better control and understanding of systematic effects. We present a new generation experimental chamber, under assembly and to be installed on Sr2 system, which is expected to enable a one order of magnitude reduction on the BBR uncertainty, predominant on the discussed system. We also present measurement of the AC Stark shift of the clock transition, with an investigation dependence of the atomic polarizabilities with the polarisation of the lattice light.

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