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【544】 Long-term stability analysis of a compact Ramsey-scheme vapor-cell atomic clock at 10^{-14} level

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We are developing a highly compact and high-performance vapor-cell atomic clock operating in time-domain Ramsey scheme [1]. Here, we present an analysis of the dominant contributions to the clock instability at the level of 10^{-14} , on long-term timescales up to one day. Main limitations arise from light-shift effects, the barometric effect (i.e. the sensitivity to environmental pressure variations), and microwave power-shift effects. The full detailed instability budget will be discussed at the conference. The clock reaches a measured instability of $<2 \times 10^{-14}$ at one day.

[1] S. Kang, et al., Journal of Applied Physics 117, 104510 (2015).

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