

Low-noise optical frequency divider for precision measurement

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Here we report an optical frequency divider (OFD), which can realize optical frequency ratio measurement as well as optical frequency division to other desired frequencies. Using the OFD, we measure the frequency ratio between the fundamental and its second harmonic with an uncertainty of $3\text{E-}22$. Meanwhile, we also demonstrate an optical frequency synthesizer referenced to a Yb optical clock. Moreover, we demonstrate the transportability, long-term operation and multi-channel division of the OFD.

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