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Field-deployable Interferometric Fiber Link terminals with very low temperature sensitivity

In this work, we present a novel optical setup for interferometric fiber links with an inherently very low temperature sensitivity, based on standard fiber and components, in a topology free of uncompensated optical paths. The terminals are designed to be deployed outside of well-controlled labs, for example for chronometric levelling with transportable optical clocks. We setup two terminals and put the optical setup from the second terminal into a climate chamber and ramp the temperature be-tween 10℃ and 40℃. We observe phase shifts of less than 0.4 rad (0.3 fs at 194.4 THz) from the temperature ramping.

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