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High Precision Synchronization of a Laser-Microwave Network over Stabilized Fiber Links

Summary

We demonstrate a high precision laser-microwave hybrid network and a microwave-microwave network over stabilized multi-kilometer fiber links. Relative timing jitter between a remote microwave source and a remote laser is 950-attosecond for 18-hour operation. Relative phase jitter (>1Hz) and drift (<1Hz) between two remotely synchronized 10.83 GHz microwave sources are 77.9 and 119.6 μrad, respectively, over 2.5-hour operation.

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