The Fiber Sources and Applications Group at NIST, Boulder has openings both for graduate students and postdocs with a background in optics and/or electrical engineering for projects focused on the application of optical frequency combs to time-frequency transfer and ranging.

Our group has developed optical two-way time-frequency transfer techniques capable of synchronizing clocks to within a femtosecond over 10-km scale paths and at terrestrial velocities. We have also developed comb-based techniques to perform ranging with nm-level precision. To do this, we have leveraged the advent of robust optical frequency combs along with advanced digital signal processing techniques.

Our current work focuses on (i) the continued advancement of optical methods of transferring time and frequency information for practical terrestrial and satellite operation, (ii) the combination of precision ranging with time transfer, and (iii) use of optical time-transfer for comparison of optical clocks and tests of fundamental physics.

Interested students should contact the time transfer project leader, Laura Sinclair (laura.sinclair@nist.gov) or the group leader, Nathan Newbury (nathan.newbury@nist.gov). For more information on our group please visit: <https://www.nist.gov/pml/applied-physics-division/fiber-sources-and-applications>. U.S. Citizens are eligible to apply for a postdoctoral position with us through the NRC Research Associate Program (<https://sites.nationalacademies.org/PGA/RAP/index.htm>).