

# **A Multi-kilometer Phase Transmission System with Picosecond Timing Stability**

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## **Abstract**

The Next Linear Collider requires picosecond long term timing stability for RF signals distributed over 30 kilometers. A fiber optic system operating at 1550nm in 15 kilometers of SMF-28 fiber has been constructed. The round trip length of the transmission fiber is measured using the reflected optical signal, and is corrected by varying the temperature of a 6 kilometer correction fiber located in series with the main fiber. Long term test results are presented.