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**Final Report**

**Infra-Structure Support  
for the Laboratory for Lightwave Technology  
T.F. Morse, PI**

OFFICE OF  
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RESEARCH ADMIN

**Air Force Award: F49620-97-1-0178  
March 15, 1997-March 14, 1998.**

**Spectroscopic Sources and Instrumentation**

The instrumentation funding for the Laboratory for Lightwave Technology permitted a significant extension of our experimental capabilities. The largest single item was the purchase of a Coherent FReD Laser. This is a frequency doubled argon ion laser that emits light at 244 nm which is needed for writing Bragg gratings in optical fibers. This not only allows the formation of Bragg gratings in fiber lasers that are used for optical fiber sensors, but for the writing of gratings in high power cladding pumped fiber lasers. With the decreasing cost of phase masks, it has been possible to purchase masks at several wavelengths of interest and avoid the complications of a complete holographic set-up.

The other major purchase was that of an Ando Spectrum Analyzer. We have an older model of this instrument in our laboratory, and it has served as a "work horse" for many different experiments. With projects on going in several laboratories, and with this instrument in constant demand, this increases our capabilities significantly. In addition, the newer model has a higher sensitivity that is needed for some of our spectroscopic experiments.

In addition to these major acquisitions, there were a number of smaller instruments that added to the flexibility, capabilities, and the general efficiency of our laboratory.

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