

# Tunable Fiber Laser Using Coherent Combining – Lecture Abstract

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The target of this research is to create a tunable fiber laser around 1550 nm using coherent combining. The laser is based on two cavities with common active fiber (Erbium doped fiber). Each cavity has its own frequency comb, and when combining them, we get common bands in the frequency domain. By tuning the length of one of the cavities we wish to be able to tune the position of the common band, which means a change of the output wavelength.

In order to get a large range of tunability, we needed to shorten the length difference between the two cavities, and we used RF spectrum analyzer and fiber polisher to do so.

Also, we needed to increase the finesse to narrow the common band, we used high reflecting mirrors.