

Figure 2-1.

This figure shows the sonogram. The notes show the frequency as a function of time. This same concept is shown in the color picture above the notes. The idea of the sonogram is very similar to the STRUT and the FROG, techniques that we will use to study ultrafast pulses. [This figure is used with permission of Len Juninski, from <http://www.ca.sandia.gov/ultrafrog>. [z59]

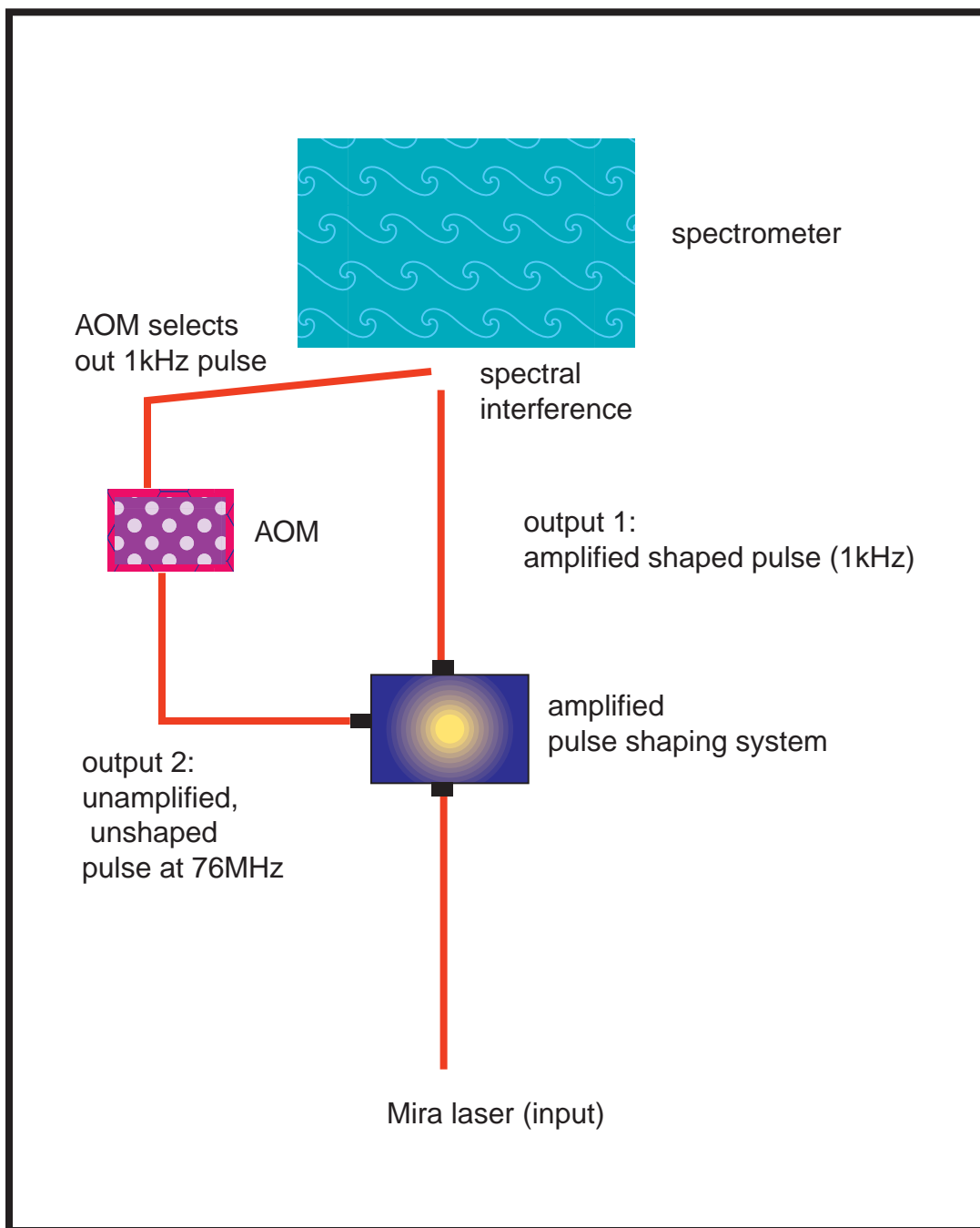


Figure 2-3. Using the TADPOLE to measure amplified shaped pulses. Since the amplified shaped pulses have a repetition rate of 1kHz, and the Mira laser has a repetition rate of 76MHz, it is necessary to use another AOM in the system to create a 1kHz reference pulse.

[m69]

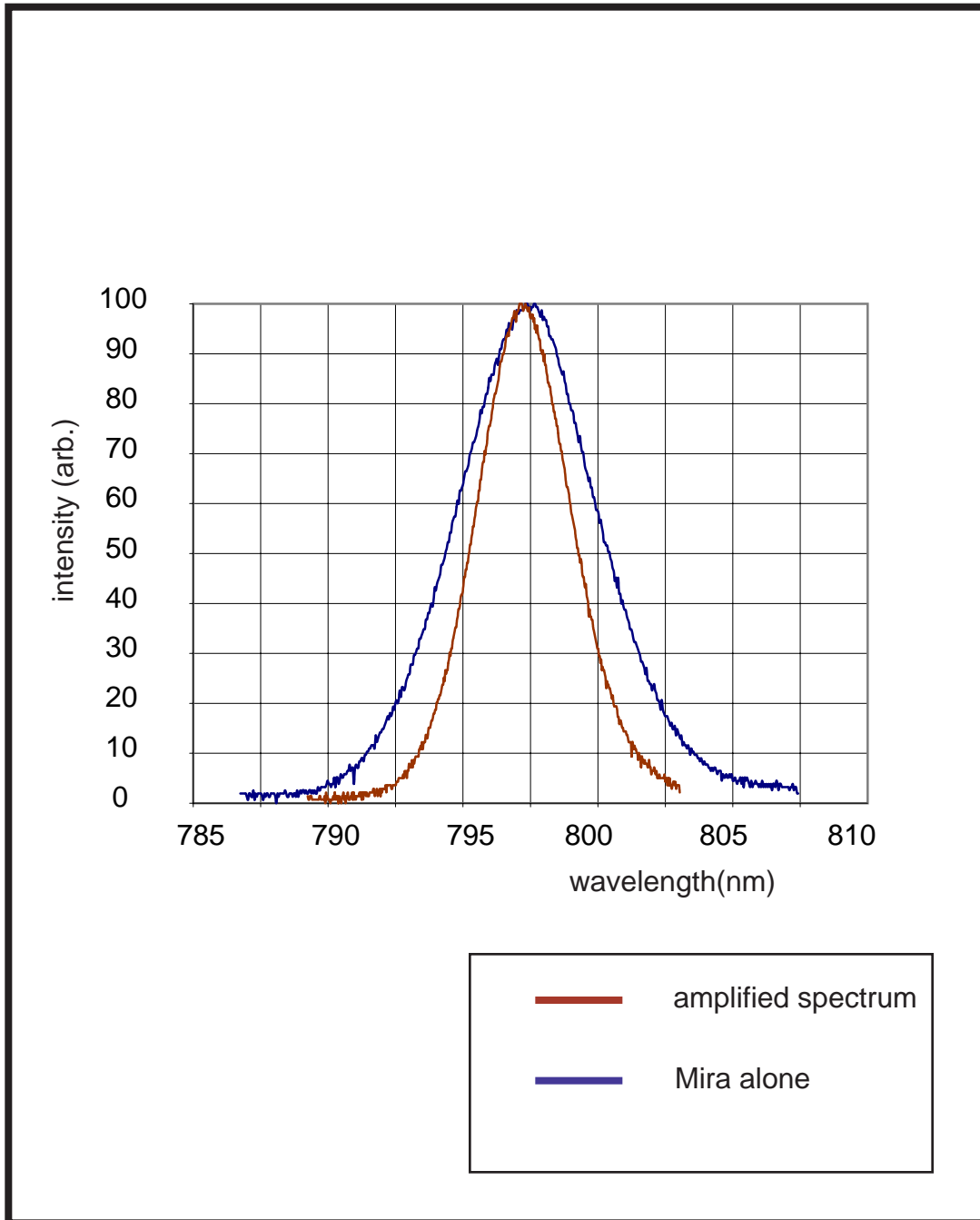


Figure 2-10.
 This shows the spectrum of the Mira alone and the amplified beam. In this case the Mira has a FWHM of 6nm and the amplified pulse has a FWHM of 4.5nm. In general the Mira will have a broader spectrum of 10nm and the amplified pulse will have a 8nm bandwidth.

[11]

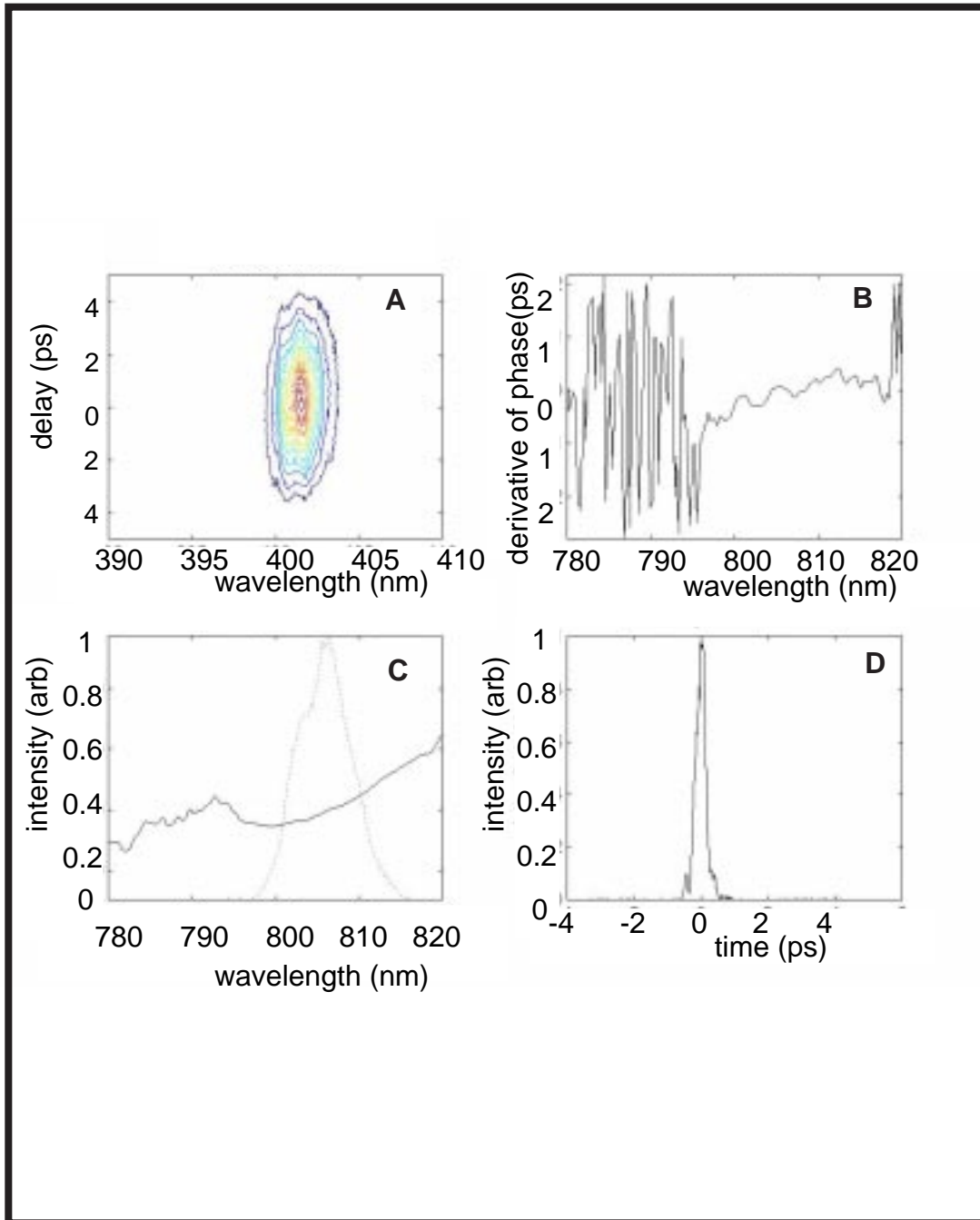


Figure 2-11.

STRUT data. **(A)**STRUT of the Ti:sapphire pulse from the Mira laser. **(B)** derivative of the phase recovered from **A**. **(C)** intensity of the pulse as a function of wavelength. **(D)** intensity of the pulse as a function of time.

[qy11]

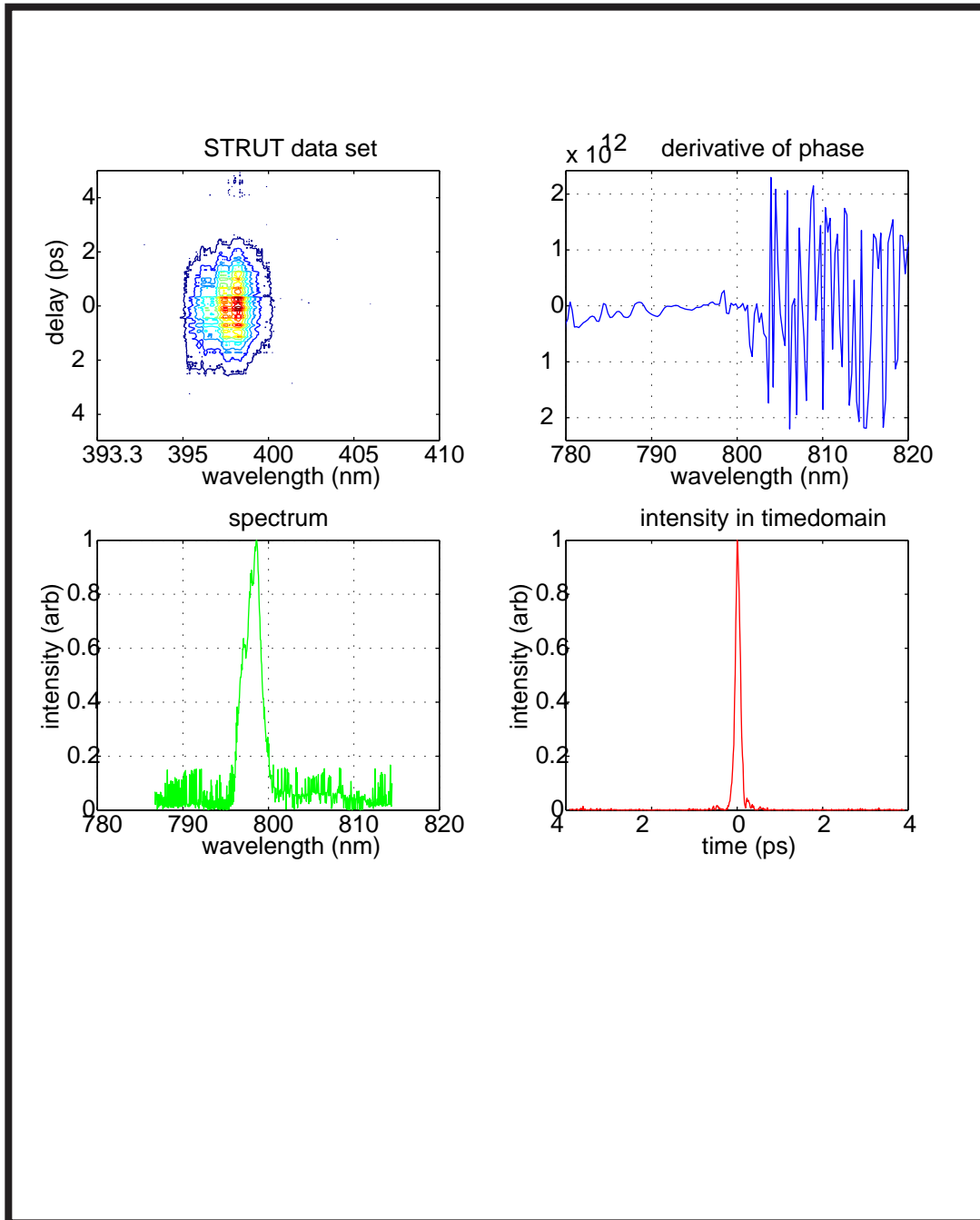


Figure 2-12.

STRUT data. The 4 figures have the same meaning as in Fig.2-10. This data represents the amplified unshaped pulse.

[q44]

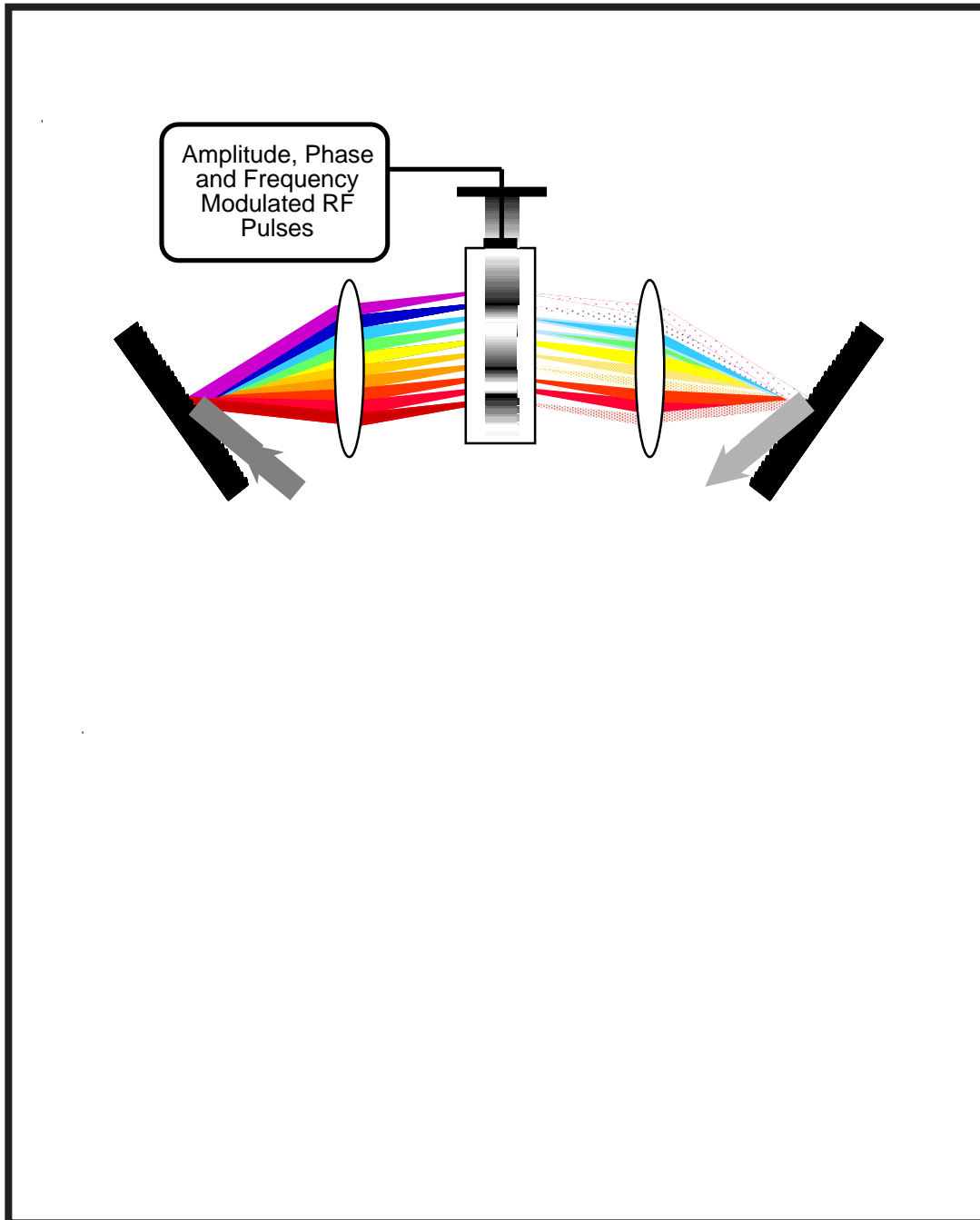


Figure 2-13.

Schematic of the acousto-optic pulse shaping system. An acousto-optic modulator sits at the center of the 4-F system. This allows us to modulate the beam in spectral domain.