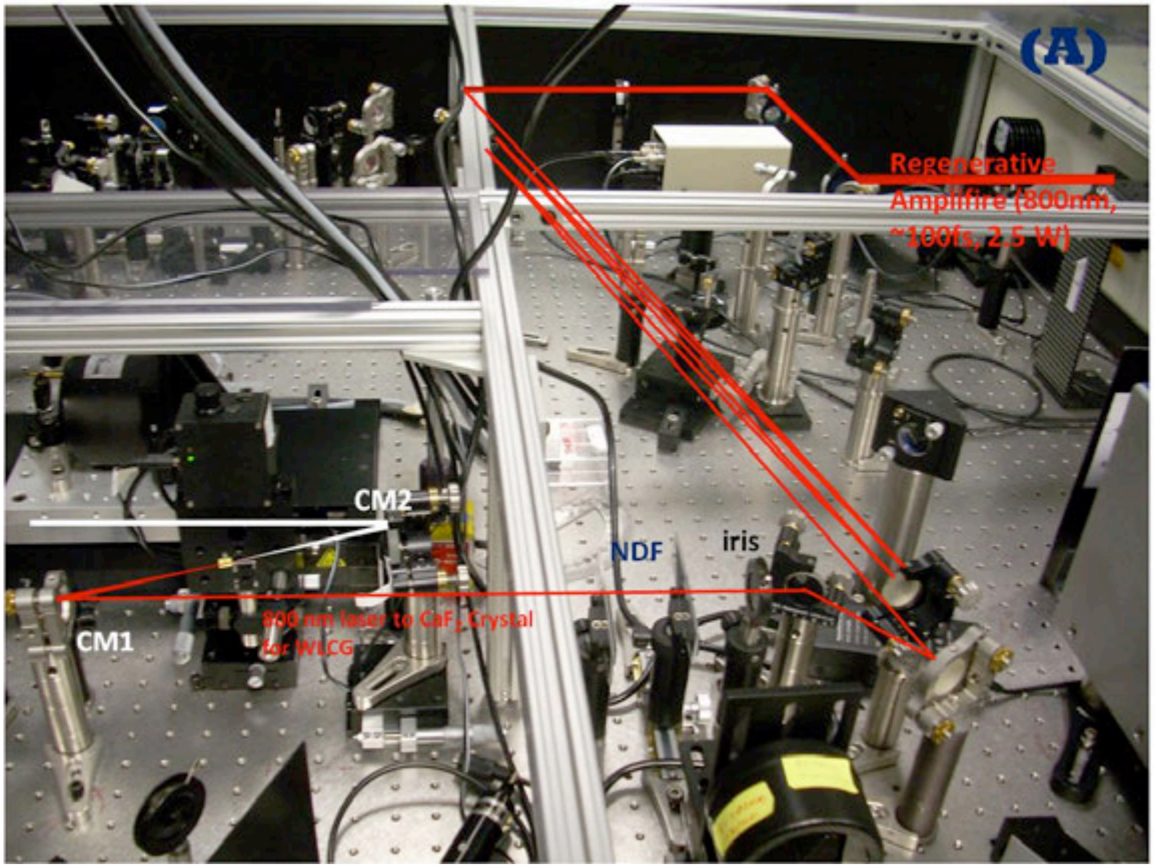
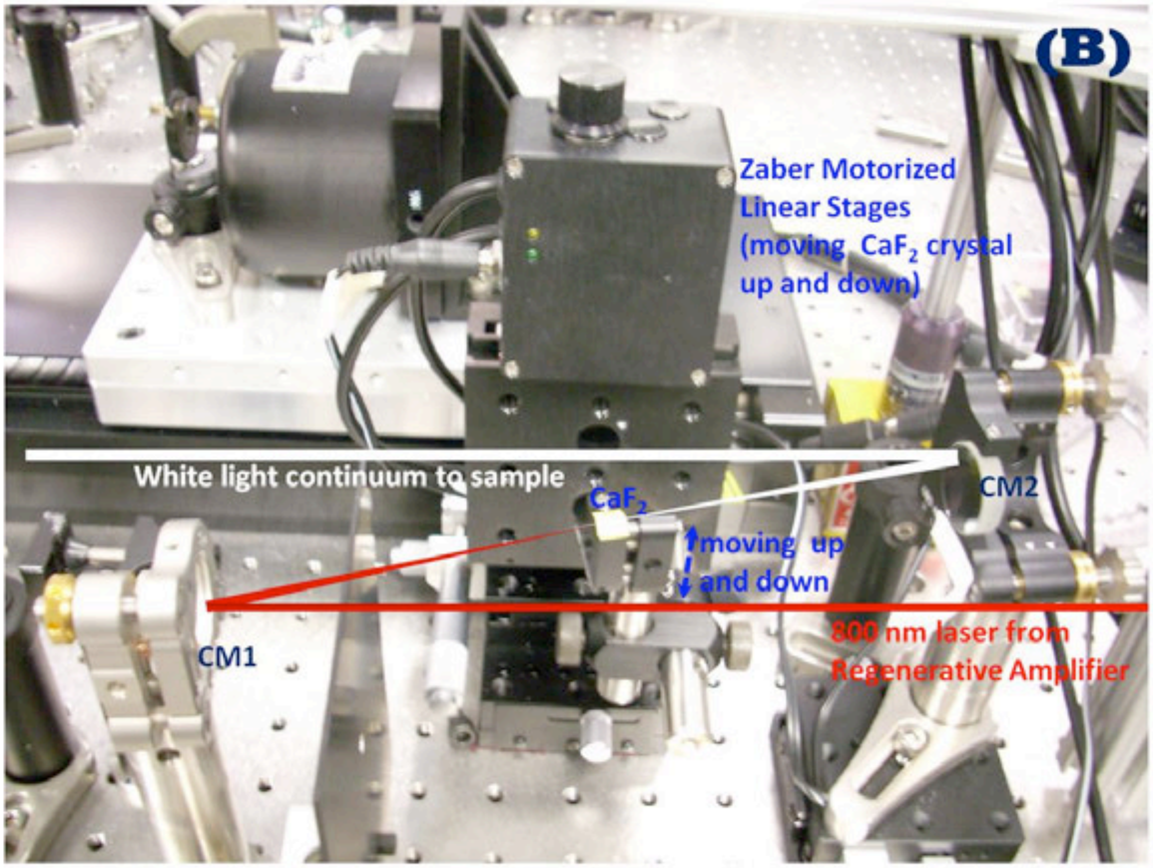
Description of White Light Continuum Generation



Two beamsplitters (20%, then 10% reflective) pick off 5 microjoules of the 800-nm, 120-fs regen output for continuum generation. After an appropriate delay, the beam profile is cut down to about 3 mm diameter with a variable iris and the pulse energy is attenuated to ~3 microjoule with two variable neutral density filter (from Edmund). The linear variable ND filters are antiparallel to each other so that they provide a uniform OD filter across the beam profile. The beam is focused by a 100-mm focal length spherical mirror into a 2-mm thick CaF_2 crystal and the subsequent white light is collimated with a 50-mm fl curved mirror. The CaF_2 crystal is translated up and down by about 2 mm at a rate of 1 mm/sec in order to prevent burning using a computer controlled translation stage (zaber.com T-LS13). To make a UV continuum, an SHG crystal is placed in the 800-nm beam after the ND filters and a colored glass filter is used to remove the residual 800-nm light and transmit the 400-nm pulse to the focusing mirror. For the 400-nm continuum we usually use ~1 microjoule/pulse.



WLCG in McCamant's group, U of Rochester

1. **800 nm WLC (320~650 nm):**
   Iris diaphragm (iris in (A)) and neutral density filters (NDF in (A)) are used to control the beam (800 nm from Regenerative Amplifier) profile and energy which will influence the stability and also quality of WLC.

2. **400 nm WLC (250~380 nm):**
   The same Iris diaphragm and neutral density filters are used to control the beam (400 nm after BBO SHG crystal and short pass filter) profile and energy which will influence the stability and also quality of WLC.