

Mira : Change wavelength

Change wavelength

- Open slit completely (clockwise!)
- Stop mode-locking (mira 2nd unit : switch to CW)
- Change wavelength a bit, by watching the spectrum.
- If the amplitude gets too small, go back a little and :
- Optimize prism & horizontal cavity mirror
- When at right wavelength : optimize fine pump mirrors, prism, horizontal/vertical cavity mirror. NB: optimizing the prism also changes the wavelength a bit.
- Close the slit (counter clock wise) until the power drops to 50 % (monitor)
- Adjust the slit lateral position to optimum power (= centers slit)
- Put switch on mira to mode-locking (mira 2nd unit : switch to ML)
- Wiggle wavelength a bit until it mode-locks, or play a bit with the slit width
- Opening the slit such that you get maximum power while it still mode-locks. For stability, maybe go a few monitor values lower.

To lower wavelength

- Wavelength knob : clockwise
- Prism : counter clockwise

To higher wavelength

- Wavelength knob : counter clockwise
- Prism : clockwise

Slit-width : if open, no mode-locking occurs. Once closed and mode-locking, if closed even more, the power simply gets lower, but it keeps mode-locking.

If the slit is too much closed, the laser can go Q-switching : on scope : looks like an oscillating mode-locking pattern.

NB: going to <760 (?) or >900 (?) nm is more difficult. Use Verdi on 5-5.5 W. For <770 (?) nm & > 890 (?) nm a low humidity is needed, due to atmospheric water absorption inside the Mira (maybe increase the nitrogen flux).

What also sometimes works, is to first go to a wavelength where it easy mode-locks and then careful change the wavelength while keeping it mode-locked.