

285 nm-Laser (S-MOT)

The 285 nm Laser consists of a two-stage frequency doubled, raman-fiber-amplifier MOPA. The raman-fiber-amplifier is seeded by a diode laser. * Laser-Diode current: .. mA * Seed power (is displayed in the *FLPM RMU CCT 1.1.0.0* program): ~ 20 mW



Change values

Turning on the Laser

- Enable main-switch. Set key to standby.
- Wait for the LED to change the color from orange to green to orange (~15 seconds after turning on). Turn the key now.
- Start the program *FLPM RMU CCT 1.1.0.0* and select the checkbox of *Laser Enable*.
- The *Power Setpoint* **must stay** at *0.500 W*
 - Optimize fiber coupling to *Iodine Spectroscopy*. Transfer-efficiency > 70%
- Change *Power Setpoint* for 285nm SHG operation
 - 2 - 2.500 W for 100-150 mW directly after 285 nm SHG.
 - Do not exceed much more than 3.5 W

Locking to Iodine-Spectroscopy

- Start *DigiLock-Module Server* and connect to *S-MOT-Laser*
 - Push *Scan on* and *AutoLock*
 - Change the *Offset Value* to 0 V
 - Change the frequency with the piezo on the toptica rack electronics to be close to the iodine resonance (check with wavemeter)
 - Change the *Setpoint* (under *AutoLock*) to be in the middle of the error signal. Check, if the crosshair snaps to the slope.
 - Move the crosshair to the second slope, rightclick on press *PID: Lock to Slop*.

Lock-Paramters



Add parameters

Lasersystem - Typical power values

The system was build by Jan Friebe and is described in his diplomathesis.

570 nm-Laser

- Outputpower after cube to 285 nm-SHG: ~ 1.2 W @ 2.5 W
- Operationpower: < @ 3 W
- Max outpupower: ??? W @ ??? W

Iodine spectroscopy

- Infront fiber: ~ 38 mW @ 0.500 W
- After fiber: ~ 29 mW @ 0.500 W (= 400 mV @ 0.500 W) [efficiency ~ 70 %]
- Infront fiber: ~ 220 mW @ 2.500 W
- After fiber: ~ 160 mW @ 2.500 W (= 2 V @ 2.500 W) [efficiency ~ 70 %]

285 nm-SHG

- Outputpower: ~ ... mW @ 2.000 W
- Outputpower: ~ 100 mW @ 2.500 W
- Power for photodiode: ~ ... mW
- Stabilized power (infront AOM): **80 mW**
- Power infront the AOM in ... order: 80 mW
- Power behind the AOM: 43 mW @ 2.500 W (efficiency ~ 50 %)
- Power for the Zeaman-slower: ... mW
- Power behind the mystical mirrow: ... mW

From:
<https://iqwiki.iqo.uni-hannover.de/> - IQwiki

Permanent link:
<https://iqwiki.iqo.uni-hannover.de/doku.php?id=groups:mg:experiment:laser:285nmlaser&rev=1441143453>

Last update: **2015/09/01 21:37**

