

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

DigiLock-Module Server

1. S-MOT-Laser connected
2. start *DigiLock - SN 01265 - S-MOT-Laser*: double click on *S-MOT-Laser*
 1. push "Scan on"
 2. push "AutoLock"
 3. change the "Offset Value" to 0 V
 4. change the "Setpoint" (under "AutoLock") of max slop of the middle peak
 5. Push "PID: Lock to Slop"

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 Zeeman-slower: ... mW
- Power behind the mystical mirrow: ... mW

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