The Magnesium Experiment

On this page you will find information about the magnesium experiment, manuals, instructions for certain sub-systems etc.

- Todo
- Power Failure - Emergency Plan and Check-List

Results and Important Values

Timeline (Begin: 21.12.16)

Changes at the Experiment:

- 1st homogenous Coils with Copper band: 21.12.16
- Waist measurement: clock laser: 23.12.16: Waist position was not in the center of the chamber
- Waist measurement: clock laser: 23.01.17: collimation of clock laser
- Measurement: 3P1 splitting: 24.01.17 new frequency of double pass aom: 104.8365 MHz
- Waist measurement: clock laser: 30.01.17: clock laser focused 174um @ 20.4 cm; atoms @ 26.5cm
- 2nd homogenous Coils with Copper band: 06.02.17
- Reduced lattice waist: 75.75um : 20.02.17
- Waist measurement: Lattice: 66.88um +/- 4.4

Reducing the linewidth: Measurements:

- Linewidth vs lock power: 13.02.17
- Linewidth vs Density; Linewidth vs variation of first ramp; Linewidth vs B-field; Linewidth vs lattice power; Linewidth vs 2nd ramp: 15.02.17
- Linewidth vs lattice power; Linewidth vs clock laser power: 26.02.17 (Saturday)

Preperation for the frequency measruements:

- 2nd Order Zeemann: 30.01.17
- Clock laser AC- Stark measurement: 01.02.17
- mj Splitting: 2nd copper band coils: 07.02.17; with DiffAmps: 09.02.17
- Stability analysis: clock laser locked to the atoms: 3.8*10^-16@ 700s : 27.02.17

Devices

- Cameras
- Lasersystems

- Vacuum
- Coils

AOM´s

Informations are based on Datasheets found in our office. I did not check if all AOM do excist or are working!

- **IntraAction:**
- **ASM-1501M3**: 150+-40 MHz for 257 nm and 1mm Dia beam: Is in use at SHG 2.
- **ASM-1501M3**: 150+-40 MHz for 257 nm and 1mm Dia beam: Is broken.
- **ASM-1501LA3**: 150+-40 MHz for 266 nm and 1mm Dia beam: Is available.
- **ASM-852-5**: 85+-15 MHz for 326nm and 2mm Dia beam: Is available.
- **ASM-80**: 80+-15 MHz for 440 - 700nm
- **Neos Technologies:**
- **N35085-0.5**: 85 MHz for 400 - 540nm
- **Isomet:**
- **Isomet 1205C-20**: 57 - 103 MHz for 442 - 1060 nm and 2mm Dia aperture: Is available.
- **Isomet 1205C-20**: 57 - 103 MHz for 442 - 1060 nm and 2mm Dia aperture: Is broken.
- **Isomet 1205C-20**: 57 - 103 MHz for 442 - 1060 nm and 0.75mm Dia aperture: Is available.
- **Crystal Technology:**
- **AOMO 3080-120**: 80+-20 MHz for 442 - 633 nm and 2.5mm * 1mm Dia aperture: Is available.
- **AOMO 3220-120**: 220+-60 MHz for 413 nm and 3mm Dia aperture: Is in Use at SHG 1.
- **AOMO 3350-120**: ??? MHz for ??? nm and 3mm Dia aperture: Is available.
- **AOMO 3350-120**: ??? MHz for ??? nm and 3mm Dia aperture: Is broken.
- **AOMO 3080-198**: ??? MHz for 1064 nm and 3mm Dia aperture: Is available.
- **unknown:**
- **3080-4**: ??? MHz for ??? nm and ?mm Dia aperture: The enclosure is missing.

Ther are also Datasheets of other companies like:

- **IntraAction** 3x Model AOM-80, 80+-15 MHz, 440 - 700 nm and 1mm Dia aperture.
- **Isomet** 2x Model 1250C-2, 80 MHz, 442 - 1060 nm and 2mm Dia aperture.
- **Isomet** 1x Model 1250C-2, 200+-50 MHz, 442 - 1060 nm and 0.75mm Dia aperture.

This are not listed yet. Fell free to complete this list!