



Max-Planck-Institut für Physik
(Werner-Heisenberg-Institut)



AWAKE Summer Laser Propagation



J. Moody

Max Planck Institute for Physics

G. Dzsotjan, M.A Kedves, B. Raczkevi, M. Aladi , G. Demeter

Wigner Institute

V. Lee

A.M. Bachmann, E. Granados, V. Fedosseev, H. Panuganti

CERN

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Program and Task List



- **Full System shakedown (combined)**
 - (1-2 weeks)
 - Laser systems
 - Access systems
 - Controls
 - Vapor source
 - *Triggers*
- **Vacuum Propagation studies**
 - Previous measurements showed energy, profile discrepancies (1 week)
 - Careful cross calibration of energy meters
 - Careful setting of imaging
- **ns time resolved measurements:**
 - Transverse Profile
 - Spectrum
 - Transverse Profile from Schlieren
 - 1 week
- **ps time resolved (streak camera):**
 - Same as ns measurements
 - 1 week
- **Backward Propagating diode laser**
 - 2 weeks





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Systems Needed

Summer Program: PreRequisites



Access:

Need to open LSSP2 to get laser pulse out

Controls and DAQ:

Need pyJAPC working and control of all mirrors for alignment

Laser system:

Ready to go

Triggers:

1. 10ps-stable triggers from streak room to LBDP3 / Schlieren setup (2)
2. Energy meter triggers (3)
3. PXI camera triggers that are locked to laser

Vapor Source:

Functional and tested

PXI Cameras:

1. Laser room Camera
2. Virtual line
 1. CAM03
 2. CAM04
 3. CAM05
3. Pickoff Camera

Gated Camera and Spectrometer:

Need 10ps stable trigger



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Summer Program: Timetable



	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Early April	Late April	Early May	Late May	Early June	Late June	Early July	Late July	Early August	Late August	Early September	Late September	Early October	Late October	Early November	Late Novem
2	Non-functional	Non-functional	Non-functional	Non-functional	Non-functional	Non-functional	DSO tests									
3	Non-functional	Non-functional	Spencer et al: Testing	Spencer et al: Testing	Spencer et al: Testing	Spencer et al: Testing	Spencer et al: Testing	Spencer et al: Testing								
4	Non-functional	Non-functional	Non-functional	Non-functional	Non-functional	Non-functional	Non-functional	Conditioning								
5	Non-functional	Non-functional	Non-functional	Non-functional	Non-functional	Non-functional	Non-functional	Realignment		Laser-plasma studies		Laser-plasma studies		Laser-plasma studies		Laser-plasm studies
6	Non-functional	Non-functional	Non-functional	Non-functional	Non-functional	Non-functional	Non-functional	Realignment								
7									Source studies		Source studies		Source studies		Source studies	
8									Beamline studies		Beamline studies		Beamline studies		Beamline studies	
9			Rb Recycling??							Laser-plasma studies		Laser-plasma studies		Laser-plasma studies		Laser-plasm studies
10	Spencer at LOA April-May	Spencer at LOA April-May	Spencer at LOA April-May	Spencer at LOA April-May			Steffen away 5th-21st	Steffen away 5th-21st			Spencer@LANL 19.08-23.08	Spencer contract ends, PJAS TBD	Spencer contract ends, PJAS TBD	Spencer contract ends, PJAS TBD	Spencer contract ends, PJAS TBD	Spencer contract end, PJAS TBD
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- Can we condense our programs instead of alternating?
- Laser propagation program is complicated

