**LASER USE REGISTRATION**

<table>
<thead>
<tr>
<th>LUR No.</th>
<th>1096</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI Base LUR?</td>
<td>No</td>
</tr>
<tr>
<td>Last Inspection Date</td>
<td>Aug 20, 2015</td>
</tr>
</tbody>
</table>

**Principal Investigator (PI)** Orlando, Donald  
**Phone** 642-5328

**Department** Physics  
**Laser Location (Bldg)** LeConte Hall  
**Laser Location (Rm)** 283

**Contact Person** Donald Orlando  
**Phone** 642-5599

**Laser Users**  
Don Orlando  
Students in Physics 111 laboratory course.

**Laser Specifications and Characteristics:**

<table>
<thead>
<tr>
<th>Laser Classification</th>
<th>3B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make</td>
<td>EOSI</td>
</tr>
<tr>
<td>Model</td>
<td>2010</td>
</tr>
<tr>
<td>Serial No</td>
<td>00229</td>
</tr>
</tbody>
</table>

**LASER TYPE:** Argon, Ruby, etc.  
Diode

<table>
<thead>
<tr>
<th>Wavelength(s)</th>
<th>nm</th>
<th>780 nm</th>
</tr>
</thead>
</table>

**LASER OUTPUT**

<table>
<thead>
<tr>
<th>Power or Energy</th>
<th>J/pulse</th>
<th>10 milli(max) W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irradiance</td>
<td>W/cm²</td>
<td>26 milli W/cm²</td>
</tr>
<tr>
<td>Pulse Repetition Frequency</td>
<td>Hz</td>
<td></td>
</tr>
<tr>
<td>Pulse Duration</td>
<td>sec</td>
<td></td>
</tr>
</tbody>
</table>

**Operation Status** active  
**Is the laser tunable?** multiline

<table>
<thead>
<tr>
<th>Beam Diameter (mm)</th>
<th>1 (est)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beam Divergence (milliradians)</td>
<td>1 (est)</td>
</tr>
</tbody>
</table>

**ANSI MPE** 2.55 milli W/cm²

**Description of Laser Use:**

Used as a teaching tool. Used for Nonlinear spectroscopy and magneto-optics experiments.
UNIVERSITY OF CALIFORNIA, BERKELEY
OFFICE OF ENVIRONMENT HEALTH AND SAFETY

SAFETY PRECAUTIONS AND CONTROL MEASURES SPECIFIED ARE REQUIRED FOR OPERATION UNDER THIS LUR. PLEASE CONTACT THE LASER SAFETY OFFICER REGARDING ANY QUESTIONS.

SPECIAL HAZARD:

- 1. Invisible Beam
- 2. Open Beam
- 3. Collateral Radiation
- 4. High Pressure Arc Lamp
- 5. Reflective Surfaces
- 6. Chemicals
- 7. Cryogenics
- 8. Compressed Gases
- 9. High Voltage
- 10. Electrical
- 11. Explosion
- 12. Fire
- 13. Multiple Use Room
- 14. Repair Service
- 15. Q Switched/Mode Locked
- 16. Other
- 17. Skin Hazard

SAFETY CONTROLS REQUIRED FOR OPERATION:

- 18. Laser Warning Light on Door
- 19. Door Signs
- 20. Entry/Door Interlock
- 21. Emergency Procedures Posted
- 22. Laser "On" Indicator
- 23. Equipment Warning Labels
- 24. Protective Housing
- 25. Housing Interlock
- 26. Master Switch Key
- 27. Enclosures/Barriers
- 28. Beam Stops
- 29. Viewing Optics or Windows
- 30. Exhaust Ventilation
- 31. Eye Exam
- 32. Safety Training
- 33. Other

EYE PROTECTION REQUIRED

- YES
- NO

Eyewear Specifications

- O.D. 1.55(R4) Wavelength 780 nm
- O.D. 1.26(R4) Wavelength 780 nm
- O.D. Wavelength nm

SPECIAL REQUIREMENTS:

R1) Optical table laser barrier must be drawn close prior to operating any laser and should remain during normal operation.

R2) Alignments must be performed by PI or authorized and trained lab instructor.

R2) Laser users perform and document safety inspections of the laser system prior to each use. Each use is defined as any change to the optics, change in laser user, or if laser user is away from experiment for extended period of time. 1) Prior to use, laser users need to perform and document safety inspections of the laser system and associated optics.

R3) All suspected laser incidents shall be reported to the PI and to EH&S-Laser Safety.

R4) Personnel protective equipment (PPE) shall be worn as needed in accordance with the campus laser safety policy and laboratory safety procedure.

Safety precautions and control measures specified are required for operation under this LUR. Please contact the Laser Safety Officer regarding any questions.

Signature on File Feb 20, 1998 Laser Safety Officer
Signature on File Feb 20, 1998 Non-Ionizing Radiation Safety Committee Chair
Laser Specifications and Characteristics:

Laser Classification: 3B  
DOE Funding? NO

Make: New Focus  
Model: 7013  
Serial No: ST0414

LASER TYPE: Argon, Ruby, etc.
Diode

PULSED
CONTINUOUS WAVE

Wavelength(s)  
nm
780 nm

LASER OUTPUT

Power or Energy  
J/pulse
70 milli W

Irradiance  
W/cm²
185 milli W/cm²

Pulse Repetition Frequency  
Hz

Pulse Duration  
sec

Operation Status  
Active
Is the laser tunable?  
No

Beam Diameter (mm)  
1(est)

Beam Divergence (milliradians)  
1(est)

ANSI MPE  
1.45 milli W/cm²

Description of Laser Use:
Detailed description of Laser Use (include Schematic Diagram), use another sheet of paper if needed
Laser is used for Boise-Einstein (MOT) experiment. Laser beam is split into three beams.
SAFETY PRECAUTIONS AND CONTROL MEASURES SPECIFIED ARE REQUIRED FOR OPERATION UNDER THIS LUR. PLEASE CONTACT THE LASER SAFETY OFFICER REGARDING ANY QUESTIONS.

SPECIAL HAZARD:

- Invisible Beam
- Open Beam
- Collateral Radiation
- High Pressure Arc Lamp
- Reflective Surfaces
- Chemicals
- Cryogenics
- Compressed Gases
- High Voltage
- Electrical
- Explosion
- Fire
- Multiple Use Room
- Repair Service
- Q Switched/Mode Locked

SAFETY CONTROLS REQUIRED FOR OPERATION:

- Laser Warning Light on Door
- Door Signs
- Entry/Door Interlock
- Emergency Procedures Posted
- Laser "On" Indicator
- Equipment Warning Labels
- Protective Housing
- Housing Interlock
- Master Switch Key
- Enclosures/Barriers
- Beam Stops
- Operating Procedures
- Viewing Optics or Windows
- Exhaust Ventilation
- Manufacturer's Manual
- Eye Exam
- Safety Training
- Certificate/Quiz
- Formal Lecture
- Other

EYE PROTECTION REQUIRED

YES  NO

Eyewear Specifications

O.D. Wavelength nm  SOP Required

SOP Received

SOP Version Date

SPECIAL REQUIREMENTS:

R1) Optical table laser barrier must be drawn close prior to operating any laser and should remain during normal operation.

R2) Alignments must be performed by PI or authorized and trained lab instructor.

R2) Laser users perform and document safety inspections of the laser system prior to each use. Each use is defined as any change to the optics, change in laser user, or if laser user is away from experiment for extended period of time. 1) Prior to use, laser users need to perform and document safety inspections of the laser system and associated optics.

R3) All suspected laser incidents shall be reported to the PI and to EH&S-Laser Safety.

R4) Personnel protective equipment (PPE) shall be worn as needed in accordance with the campus laser safety policy and laboratory safety procedure.

Safety precautions and control measures specified are required for operation under this LUR. Please contact the Laser Safety Officer regarding any questions.
UNIVERSITY OF CALIFORNIA, BERKELEY
OFFICE OF ENVIRONMENT HEALTH AND SAFETY

LASER USE REGISTRATION

Manufactured [X]  On-loan [ ]  Built In-House [ ]  Modified [ ]

LUR No. 1188  PI Base LUR? [ ]  Last Inspection Date Aug 20, 2015

Principal Investigator (PI) Orlando, Donald  Phone 642-5328
Department Physics  Laser Location (Bldg) LeConte Hall (Rm) 285
Contact Person Donald Orlando  Phone 642-5328

Laser Users
Don Orlando
Students in Physics 111 laboratory course.

Laser Specifications and Characteristics:

Laser Classification 3B
Make Roither Laser Technik  Model RLV4212
Serial No

LASER TYPE: Argon, Ruby, etc.

<table>
<thead>
<tr>
<th>Laser Output</th>
<th>PULSED</th>
<th>CONTINUOUS WAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength(s)</td>
<td>nm</td>
<td>405 nm</td>
</tr>
</tbody>
</table>

Power or Energy J/pulse 0.12 (max) W
Irradiance W/cm² 0.13 W/cm²
Pulse Repetition Frequency Hz
Pulse Duration sec

Operation Status active
Is the laser tunable? Yes (BBO crystal)

Beam Diameter (mm) 1
Beam Divergence (milliradians) 1.0

ANSI MPE 2.55 milli W/cm²

Description of Laser Use:

Detailed description of Laser Use (include Schematic Diagram), use another sheet of paper if needed
Diode laser will be used for Quantum Interference and entanglement experiment. The 405 nm beam will be split into three (2 x 810 nm, 1x405nm) via BBO crystal. Beam power for all wavelengths past the BBO crystal is less than 1 mW (calculated).
SPECIAL HAZARD:

X 5. Reflective Surfaces  10. Electrical  15. Q Switched/Mode Locked

SAFETY CONTROLS REQUIRED FOR OPERATION:

32. Safety Training
18. Laser Warning Light on Door
X 19. Door Signs
X 20. Entry/Door Interlock
X 21. Emergency Procedures Posted
X 22. Laser "On" Indicator
X 23. Equipment Warning Labels
X 24. Protective Housing
X 25. Housing Interlock
X 26. Master Switch Key
X 27. Enclosures/Barriers
X 28. Beam Stops
X 29. Viewing Optics or Windows
X 30. Exhaust Ventilation
R1 31. Eye Exam
X 32. Safety Training
X 33. Other
X 34. Formal Lecture

EYE PROTECTION REQUIRED  ✕ YES  □ NO

Eyewear Specifications

O.D. 2.1  Wavelength 405 nm
O.D. 0  Wavelength 810 nm
O.D.  □  Wavelength □ nm

SPECIAL REQUIREMENTS:

R1) Optical table laser barrier must be drawn close prior to operating any laser and should remain during normal operation.

R2) Alignments must be performed by PI or authorized and trained lab instructor.

R2) Laser users perform and document safety inspections of the laser system prior to each use. Each use is defined as any change to the optics, change in laser user, or if laser user is away from experiment for extended period of time. 1) Prior to use, laser users need to perform and document safety inspections of the laser system and associated optics.

R3) All suspected laser incidents shall be reported to the PI and to EH&S-Laser Safety.

R4) Personnel protective equipment (PPE) shall be worn as needed in accordance with the campus laser safety policy and laboratory safety procedure.

Safety precautions and control measures specified are required for operation under this LUR.  Please contact the Laser Safety Officer regarding any questions.
Laser Specifications and Characteristics:

Laser Classification: 4

Make: UCB  Model: DO-1  Serial No: #1

LASER TYPE: Argon, Ruby, etc.

CO₂

- Wavelength(s): 10600 nm
- Power or Energy: J/pulse, 11 (max) W
- Irradiance: W/cm², 114 W/cm²
- Pulse Repetition Frequency: Hz
- Pulse Duration: sec

Operation Status: Active

Is the laser tunable? Yes

- Beam Diameter (mm): 8
- Beam Divergence (milliradians): 0.5

ANSI MPE: 0.1 W/cm²

Description of Laser Use:
Detailed description of Laser Use (include Schematic Diagram), use another sheet of paper if needed

Used as a teaching tool to study lasers. Class use includes alignment and output studies.
### SPECIAL HAZARD:

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>x</td>
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</tr>
<tr>
<td>x</td>
<td>5. Reflective Surfaces</td>
<td>10. Electrical</td>
<td></td>
<td>15. Q Switched/Mode Locked</td>
</tr>
</tbody>
</table>

### SAFETY CONTROLS REQUIRED FOR OPERATION:

<table>
<thead>
<tr>
<th></th>
<th>18. Laser Warning Light on Door</th>
<th>25. Housing Interlock</th>
<th>32. Safety Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>x</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>19. Door Signs</td>
<td>26. Master Switch Key</td>
<td>X Certificate/Quiz</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20. Entry/Door Interlock</td>
<td>27. Enclosures/Barriers</td>
<td>X Formal Lecture</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x</td>
<td>23. Equipment Warning Labels</td>
<td>30. Exhaust Ventilation</td>
<td>R2 33. Other</td>
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<tr>
<td>x</td>
<td>24. Protective Housing</td>
<td>31. Eye Exam</td>
<td></td>
</tr>
</tbody>
</table>

### EYE PROTECTION REQUIRED

**YES** □ NO

**Eyewear Specifications**

<table>
<thead>
<tr>
<th>O.D.</th>
<th>Wavelength</th>
<th>SOP Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.0 (R3)</td>
<td>10,600 nm</td>
<td>YES □ NO</td>
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</tr>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### SPECIAL REQUIREMENTS:

**R1)** Optical table laser barrier must be drawn close prior to operating any laser and should remain during normal operation.

**R2)** **Alignments must be performed by PI or authorized and trained lab instructor.**

R2) Laser users perform and document safety inspections of the laser system prior to each use. Each use is defined as any change to the optics, change in laser user, or if laser user is away from experiment for extended period of time. 1) Prior to use, laser users need to perform and document safety inspections of the laser system and associated optics.

**R3)** All suspected laser incidents shall be reported to the PI and to EH&S-Laser Safety.

**R4)** Personnel protective equipment (PPE) shall be worn as needed in accordance with the campus laser safety policy and laboratory safety procedure.

**NOTE:** This laser system is not to be used for instructional use until an engineered safety lock out system is installed to prevent the HV from being turned on while "valve #1" is open.

**Avoid prolonged skin exposure to UV lamp used to activate IF imaging cards.**

Safety precautions and control measures specified are required for operation under this LUR. Please contact the Laser Safety Officer regarding any questions.

**Signature on File** Dec 2, 1994 **Signature on File** Dec 5, 1994

**Laser Safety Officer** Signature Date **Non-Ionizing Radiation Safety Committee Chair** Date
## Laser Use Registration

<table>
<thead>
<tr>
<th>Laser Use Registration</th>
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<tbody>
<tr>
<td>LUR No.</td>
<td><strong>1201</strong></td>
</tr>
<tr>
<td>PI Base LUR?</td>
<td>No</td>
</tr>
<tr>
<td>Last Inspection Date</td>
<td>Aug 20, 2015</td>
</tr>
<tr>
<td>Principal Investigator (PI)</td>
<td><strong>Orlando, Donald</strong></td>
</tr>
<tr>
<td>Phone</td>
<td>642-5328</td>
</tr>
<tr>
<td>Department</td>
<td>Physics</td>
</tr>
<tr>
<td>Laser Location (Bldg)</td>
<td>LeConte Hall</td>
</tr>
<tr>
<td>(Rm)</td>
<td>286E</td>
</tr>
<tr>
<td>Contact Person</td>
<td>Donald Orlando</td>
</tr>
<tr>
<td>Phone</td>
<td>642-5328</td>
</tr>
</tbody>
</table>

### Laser Users
- Don Orlando
- Students in Physics 111 laboratory course.

### Laser Specifications and Characteristics:

<table>
<thead>
<tr>
<th>Laser Classification</th>
<th>3B</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOE Funding?</td>
<td>NO</td>
</tr>
<tr>
<td>Make</td>
<td>Axcel</td>
</tr>
<tr>
<td>Model</td>
<td>619083</td>
</tr>
<tr>
<td>Serial No</td>
<td>BF-979-0300-P50</td>
</tr>
</tbody>
</table>

#### Laser Type:
- Argon, Ruby, etc.
- Diode

#### Laser Output:
- **Wavelength(s):** 975 nm
- **Power or Energy:** 0.3 W
- **Irradiance:** 0.78 W/cm²
- **Pulse Repetition Frequency:** Hz
- **Pulse Duration:** sec

#### Operation Status:
- Active
- Is the laser tunable? Y
- Beam Diameter (mm): 1 (est)
- Beam Divergence (milliradians): 1 (est)

#### ANSI MPE:
- 0.00355 W/cm²

### Description of Laser Use:

Detailed description of Laser Use (include Schematic Diagram), use another sheet of paper if needed

Laser will be used for an optical tweezer set-up.

12/6/11 - This LUR has been transferred to newer Lumics laser (845nm, 200mW, serial #0026147(maybe, hard to read)), as the Avanex laser formerly listed here has been decommissioned and salvaged (laser “blew up”).

1/23/14 - This LUR has been transferred to Axcel laser (975nm, 300mW, model 619083, serial #BF-979-0300-P50)
SPECIAL HAZARD:

1. Invisible Beam
2. Open Beam
3. Collateral Radiation
4. High Pressure Arc Lamp
5. Reflective Surfaces
6. Chemicals
7. Cryogenics
8. Compressed Gases
9. High Voltage
10. Electrical
11. Explosion
12. Fire
13. Multiple Use Room
14. Repair Service
15. Q Switched/Mode Locked
16. Other
17. Skin Hazard

SAFETY CONTROLS REQUIRED FOR OPERATION:

18. Laser Warning Light on Door
19. Door Signs
20. Entry/Door Interlock
21. Emergency Procedures Posted
22. Laser "On" Indicator
23. Equipment Warning Labels
24. Protective Housing
25. Housing Interlock
26. Master Switch Key
27. Enclosures/Barriers
28. Beam Stops
29. Viewing Optics or Windows
30. Exhaust Ventilation
31. Eye Exam
32. Safety Training
33. Other

EYE PROTECTION REQUIRED

☑ YES ☐ NO

Eyewear Specifications

<table>
<thead>
<tr>
<th>O.D.</th>
<th>Wavelength (nm)</th>
<th>SOP Required</th>
<th>SOP Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.3</td>
<td>975</td>
<td>☑</td>
<td>☐</td>
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<td></td>
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</tr>
</tbody>
</table>

SPECIAL REQUIREMENTS:

R1) Optical table laser barrier must be drawn close prior to operating any laser and should remain during normal operation.

R2) Alignments must be performed by PI or authorized and trained lab instructor.

R2) Laser users perform and document safety inspections of the laser system prior to each use. Each use is defined as any change to the optics, change in laser user, or if laser user is away from experiment for extended period of time.1) Prior to use, laser users need to perform and document safety inspections of the laser system and associated optics.

R3) All suspected laser incidents shall be reported to the PI and to EH&S-Laser Safety.

R4) Personnel protective equipment (PPE) shall be worn as needed in accordance with the campus laser safety policy and laboratory safety procedure.

Safety precautions and control measures specified are required for operation under this LUR. Please contact the Laser Safety Officer regarding any questions.
**LASER USE REGISTRATION**

- **LUR No.** 1222
- **PI Base LUR?** No
- **Last Inspection Date** Aug 20, 2015
- **Principal Investigator (PI)** Orlando, Donald
- **Department** Physics
- **Laser Location (Bldg)** LeConte Hall
- **(Rm)** 283
- **Contact Person** Donald Orlando
- **Phone** 642-2843

**Laser Users**
Students in Physics 111 laboratory course.

**Laser Specifications and Characteristics:**

<table>
<thead>
<tr>
<th>Laser Classification</th>
<th>3B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make</td>
<td>Russian</td>
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<tr>
<td>Model</td>
<td>X780</td>
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<tr>
<td>Serial No</td>
<td>2010/000352</td>
</tr>
</tbody>
</table>

**LASER TYPE:** Argon, Ruby, etc.

- **LASER TYPE:** Diode
- **Wavelength(s):** PULSED 780 nm
- **Power or Energy:** J/pulse 0.04 W
- **Irradiance:** W/cm² 0.104 W/cm²
- **Pulse Repetition Frequency:** Hz
- **Pulse Duration:** sec

**Operation Status** Active

**Is the laser tunable?** No

- **Beam Diameter (mm):** 1 (est)
- **Beam Divergence (milliradians):** 1 (est)

**ANSI MPE** 0.00145 W/cm²

**Description of Laser Use:**
Detailed description of Laser Use (include Schematic Diagram), use another sheet of paper if needed
Laser is used for Non-linear spectroscopy and magneto-optics experiments.
SPECIAL HAZARD:

- 1. Invisible Beam
- 2. Open Beam
- 3. Collateral Radiation
- 4. High Pressure Arc Lamp
- 5. Reflective Surfaces
- 6. Chemicals
- 7. Cryogenics
- 8. Compressed Gases
- 9. High Voltage
- 10. Electrical
- 11. Explosion
- 12. Fire
- 13. Multiple Use Room
- 14. Repair Service
- 15. Q Switched/Mode Locked
- 16. Other
- 17. Skin Hazard
- 18. Chemicals
- 19. Cryogenics
- 20. Compressed Gases
- 21. High Voltage
- 22. Electrical
- 23. Invisible Beam
- 24. Open Beam
- 25. Collateral Radiation
- 26. High Pressure Arc Lamp
- 27. Reflective Surfaces

SAFETY CONTROLS REQUIRED FOR OPERATION:

<table>
<thead>
<tr>
<th>18. Laser Warning Light on Door</th>
<th>25. Housing Interlock</th>
<th>32. Safety Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>X 19. Door Signs</td>
<td>X 26. Master Switch Key</td>
<td>X Certificate/Quiz</td>
</tr>
<tr>
<td>X 20. Entry/Door Interlock</td>
<td>X 27. Enclosures/Barriers</td>
<td>X Formal Lecture</td>
</tr>
<tr>
<td>X 23. Equipment Warning Labels</td>
<td>30. Exhaust Ventilation</td>
<td>X 33. Other</td>
</tr>
<tr>
<td>X 24. Protective Housing</td>
<td>X 31. Eye Exam</td>
<td></td>
</tr>
</tbody>
</table>

EYE PROTECTION REQUIRED

- [ ] YES
- [ ] NO

Eyewear Specifications

<table>
<thead>
<tr>
<th>O.D.</th>
<th>Wavelength</th>
<th>SOP Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.86</td>
<td>780 nm</td>
<td>[ ] YES [ ] NO</td>
</tr>
<tr>
<td></td>
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<tr>
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<td></td>
</tr>
</tbody>
</table>

SPECIAL REQUIREMENTS:

R1) Optical table laser barrier must be drawn close prior to operating any laser and should remain during normal operation.

R2) Alignments must be performed by PI or authorized and trained lab instructor.

R2) Laser users perform and document safety inspections of the laser system prior to each use. Each use is defined as any change to the optics, change in laser user, or if laser user is away from experiment for extended period of time.1) Prior to use, laser users need to perform and document safety inspections of the laser system and associated optics.

R3) All suspected laser incidents shall be reported to the PI and to EH&S-Laser Safety.

R4) Personnel protective equipment (PPE) shall be worn as needed in accordance with the campus laser safety policy and laboratory safety procedure.

Safety precautions and control measures specified are required for operation under this LUR. Please contact the Laser Safety Officer regarding any questions.

<table>
<thead>
<tr>
<th>Signature on File</th>
<th>Aug 19, 2010</th>
<th>Signature on File</th>
<th>Mar 20, 2011</th>
</tr>
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<tbody>
<tr>
<td>Laser Safety Officer</td>
<td>Signature Date</td>
<td>Non-Ionizing Radiation Safety Committee Chair</td>
<td>Date</td>
</tr>
</tbody>
</table>
LASER USE REGISTRATION

LUR No. 1011
PI Base LUR? Yes
Last Inspection Date Aug 20, 2015

Principal Investigator (PI) Orlando, Donald
Phone 642-5328
Department Physics
Laser Location (Bldg) LeConte Hall (Rm) 285
Contact Person Donald Orlando Phone 642-5328

Laser Users
Don Orlando

LASER SPECIFICATIONS AND CHARACTERISTICS:

Laser Classification 3B
DOE Funding? NO
Make Power Technology Inc
Model LDC U5/5642
Serial No M021K12

LASER TYPE: Argon, Ruby, etc.

<table>
<thead>
<tr>
<th></th>
<th>PULSED</th>
<th>CONTINUOUS WAVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength(s)</td>
<td>nm</td>
<td>658 nm</td>
</tr>
</tbody>
</table>

LASER OUTPUT

<table>
<thead>
<tr>
<th></th>
<th>J/pulse</th>
<th>46 milli(max) W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power or Energy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Irradiance</td>
<td>W/cm2</td>
<td>0.026 milli W/cm2</td>
</tr>
<tr>
<td>Pulse Repetition Frequency</td>
<td>Hz</td>
<td></td>
</tr>
<tr>
<td>Pulse Duration</td>
<td>sec</td>
<td></td>
</tr>
</tbody>
</table>

Operation Status storage
Is the laser tunable? No

Beam Diameter (mm) 1
Beam Divergence (milliradians) 1

ANSI MPE 2.55 milli W/cm2

DESCRIPTION OF LASER USE:

Detailed description of Laser Use (include Schematic Diagram), use another sheet of paper if needed
Used to teach holography.

8/21/2012 - Holography experiment has been replaced. Laser is in storage.

1/23/14 - Laser not seen, Don says probably stored in room 184

LASER SAFETY REQUIREMENTS
SPECIAL HAZARD:

1. Invisible Beam
2. Open Beam
3. Collateral Radiation
4. High Pressure Arc Lamp
5. Reflective Surfaces
6. Chemicals
7. Cryogenics
8. Compressed Gases
9. High Voltage
10. Electrical
11. Explosion
12. Fire
13. Multiple Use Room
14. Repair Service
15. Q Switched/Mode Locked
16. Other
17. Skin Hazard
18. Chemicals
19. Cryogenics
20. Compressed Gases
21. High Voltage
22. Electrical
23. Explosion
24. Fire
25. Multiple Use Room
26. Repair Service
27. Q Switched/Mode Locked

SAFETY CONTROLS REQUIRED FOR OPERATION:

18. Laser Warning Light on Door
19. Door Signs
20. Entry/Door Interlock
21. Emergency Procedures Posted
22. Laser "On" Indicator
23. Equipment Warning Labels
24. Protective Housing
25. Housing Interlock
26. Master Switch Key
27. Enclosures/Barriers
28. Beam Stops
29. Viewing Optics or Windows
30. Exhaust Ventilation
31. Eye Exam
32. Safety Training
33. Certificate/Quiz
34. Formal Lecture
35. Operating Procedures
36. Manufacturer's Manual
37. Other

EYE PROTECTION REQUIRED

YES  NO

Eyewear Specifications

O.D. 1.66(R4) Wavelength 633 nm
O.D. ________ Wavelength ________ nm
O.D. ________ Wavelength ________ nm

SOP Required

YES  NO

SOP Received

YES  NO

SOP Version Date


SPECIAL REQUIREMENTS:

R1) Optical table laser barrier must be in place prior to operating any laser and should remain during normal operation.

R2) Alignments must be performed by PI or authorized and trained lab instructor.

R2) Laser users perform and document safety inspections of the laser system prior to each use. Each use is defined as any change to the optics, change in laser user, or if laser user is away from experiment for extended period of time. 1) Prior to use, laser users need to perform and document safety inspections of the laser system and associated optics.

R3) All suspected laser incidents shall be reported to the PI and to EH&S-Laser Safety.

R4) Personnel protective equipment (PPE) shall be worn as needed in accordance with the campus laser safety policy and laboratory safety procedure.

Safety precautions and control measures specified are required for operation under this LUR. Please contact the Laser Safety Officer regarding any questions.

Signature on File Dec 22, 1994 Signature on File Jan 9, 1995
Laser Safety Officer Signature Date Non-Ionizing Radiation Safety Committee Chair Date