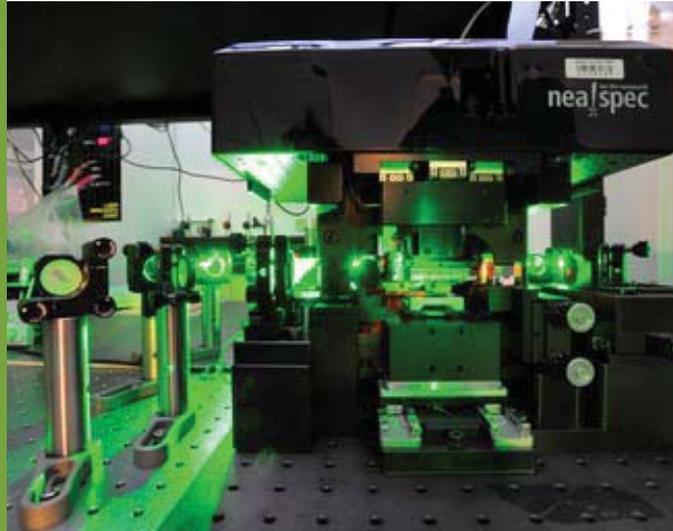


July 2013

# The Remaining Eye

Quarterly newsletter on laser safety

Edited by Robert Fairchild, Deputy LSO



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## Zone Support

Changes have been made.

## LASER Safety Web Page

If you have not visited the Laser Safety Web page, check L in the LBNL A-Z Index. You are missing out on a great deal of information

## Zone Support

Greta Toncheva will be supporting ionizing radiation 60% time with heavy focus on support for accelerators. As a result, the zone support has been restructured so that Greta's 40% time support of lasers will consist primarily with managing the program as the LSO and supporting the laser programs within the accelerator facilities at Building (B)006 and B071, along with B002.

Robert Fairchild will be supporting lasers and all non-ionizing radiation 60% time and ionizing radiation 40% time. See chart to the right.

<i>Zone One</i>	<i>Zone Two</i>	
<b>Buildings</b>	<b>Buildings</b>	
2	1	72
6 (ALS)	16	72C
71	55	80
	58A	84
	62	310 (JGI)
	66	976 (JCAP)
	67	977 (Potter)
	70	978 (JBEI)
	70A	
LSO Greta Toncheva x 495-2544 C605-8476	DL SO Robert Fairchild x 495-2278 C926-2051	
Backup Robert Fairchild x 495-2278 C926-2051	Backup Greta Toncheva x 495-2544 C605-8476	

## Cover Pictures

The photo on the top of page 1 is of the Kostecki lab, AHD 215, courtesy of Jaroslaw Syzdek.

Do you have a nice picture of your laser setup that you would like to share or a short article about your setup, the laser safety challenges, and how you are implementing laser safety in your lab? Please submit your photo(s) and articles to Robert Fairchild for inclusion in The Remaining Eye.

## Laser Pointer Concerns

As mentioned in previous editions of The Remaining Eye, there are many inexpensive laser pointers on the market. Some of them exceed the legal emission limits, emitting radiation well above the threshold that can cause serious eye injury. Most are labeled to indicate that they emit at a safe power level. This makes them illegal.

Laser pointers used in presentations should not exceed the Class 2 accessible emission limit (AEL) of 1 mW and must not exceed the Class 3R AEL of 5 mW. To help with determining whether or not a laser pointer is safe to use, EHSS will gladly measure the output of a laser pointer. At this time, such measurement is strictly voluntary. To have your laser pointer measured, contact the Deputy LSO, Robert Fairchild at 495-2278.

A recent measurement of one such green laser pointer labeled as Class 3R < 5mW determined that the 532 nm beam measured 16 mW; however, the laser lacked the required filters and 8 mW of 1064 nm and 1 mW of 808 nm beam were also emitted. Such lasers can cause injury since the human aversion response (blink reflex) cannot protect the viewer. Those pointers must not be used at LBNL.



Laser Pointer Measurements

## SLAC Near Miss Lesson Learned

On May 30, 2012, a qualified laser operator (QLO) worked for a short time without required laser eyewear protection in a laser lab. The QLO had been replacing laser mirror actuator motors and upgrading associated computer software in a Class 4 laser lab. The computer workstation and optics preparation work bench is inside the laser controlled area (LCA), but separated from the nominal hazard zone (NHZ) by a laser curtain. In one instance the QLO forgot to put on eyewear when leaving the computer work area and reentering the NHZ. At the time of the incident, a top access cover was removed from an enclosure where 760nm laser light is frequency tripled into the UV. This was the area where the worker observed unenclosed light from the laser. Given the beam enclosures present there was no possibility for a direct exposure to a primary beam or a secondary stray beam. There would have been an exposure to diffusely scattered laser light but at a level below the maximum permissible exposure (MPE). The QLO was in the NHZ for up to 5 minutes before exiting. Later that evening the QLO experienced some discomfort to both eyes and became concerned about possible laser exposure and eye injury. Follow-up exams show no eye injury.

It is important to be ever diligent and maintain situational awareness while working in a laser lab. Although it may be safe to enter a laser lab without laser eyewear when the laser light is fully enclosed, changing conditions may require changes to safety precautions (e.g. wearing laser eyewear).

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