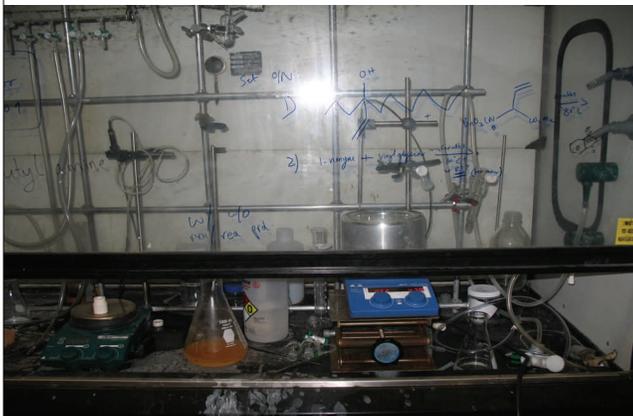


Criminal Charges Filed Against Principal Investigator in the UCLA Case

By Kathryn C. Craig

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Sangji's hood after the fire. Credit: UCLA

On December 27, 2011 the Los Angeles County District Attorney's Office filed charges against the University of California Regents and UCLA chemistry professor Patrick Harran for felony violations of California labor laws in the death of a 23-year-old, Sheharbano (Sheri) Sangji, chemistry research assistant. These charges were filed 3 days before the statute of limitation was set to expire. Harran and the UC Board of Regents will be arraigned March 2012.

If convicted Harran faces up to four-and-a-half years in prison and the university faces fines of as much as \$4.5 million dollars.

Because Sangji was an employee rather than a graduate student, Cal/OSHA investigated the incident; as a result of the investigation Cal/OHSA fined the university \$31,875. The agency cited UCLA for lack of training; failure to document

training; failing to correct unsafe laboratory conditions and work practices identified in an Oct. 30, 2008 EHS inspection of Harran's lab; and failing to ensure that employees wore appropriate personal protective equipment (PPE), such as lab coats.

The investigation revealed that Harran was aware that his employees did not customarily wear lab coats. Furthermore, investigators determined that Sangji was not following proper procedures due to a lack of basic training and specific chemical safety training.

The CAL/OSHA report provides insight into the chain of events that lead to her death. On the day of the accident, December 29, 2008, she was using a syringe to remove tert-butyllithium (tBuLi), a pyrophoric chemical that ignites spontaneously in air, from a container. For unknown reasons, the syringe plunger came out of the barrel and the tBuLi was exposed to the atmosphere. Although it wasn't part of her experiment, an open flask of hexane was also in the hood and Sangji knocked it over. The tBuLi ignited and the solvent also caught fire. The reagent and solvent spilled onto her torso and hands.

The synthetic sweater she wore caught fire and melted onto her skin. She was wearing nitrile gloves, no lab coat, and no one remembers if she was wearing eye protection. Although there was a safety shower in the lab, Sangji did not use it. She ran towards the exit of the lab. Weifend Chen, a post-doctoral researcher in Harran's group, came in to clean up one of the lab benches, wrapped a lab coat around Sangji to try to put out the fire. "She was screaming and was moving around and I was attempting to wrap her tightly," Chen told Cal/OSHA investigators. Chen abandoned the lab coat when it started burning. He then started pouring water on Sangji from a nearby sink, while she sat on the floor. She suffered extensive burns over nearly half her body, and died from her burns 18 days later, on January 16, 2009.

Professor Harran told CAL/OSHA his lab followed Aldrich Technical Bulletin AL-134 for handling air-sensitive reagents. This document recommends using a 1 to 2 foot long needle. Sangji's needle was 2 inches. Harran stated that Sangji was trained by one of his post-docs. CAL/OSHA investigated the past experience of this post doc and found they had limited experience with tBuLi; the post-doc admitted he'd never read the Aldrich bulletin and the procedures he used when handling tBuLi were contrary to those outlined in the bulletin. They also investigated purchasing records and determined that a lab coat was never purchased for Sangji.

UCLA and Harran claim that Sangji was an "experienced published chemist." She received her BS in chemistry 7 months early and had 2 positions before going to work for UCLA in October 2008. CAL/OSHA interviewed her previous employers, undergraduate professors and found out she had no previous experience working with pyrophoric chemicals.

Two months before the accident an internal UCLA EHS lab inspection found more than a dozen deficiencies in Harran's lab: employees not wearing requisite protective lab coats and flammable liquids and volatile chemicals stored improperly. The report directed that the problems be fixed by 12/5.



EQUIPPED Davis dons goggles, gloves, and a flame-resistant lab coat to do experiments at Dow. <http://cen.acs.org>

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A recommended set-up for syringing tert-butyllithium includes inert gas supply and venting to a bubbler, as well as a glass syringe. <http://cen.acs.org>

The District Attorney's charges specifically cite regulations involving failure to correct unsafe workplace conditions and procedures in a timely manner, failure to require appropriate clothing and personal protective equipment, and failure to provide chemical safety training to employees. The three fundamental lab safety controls all fell short in this instance.

- 1) Administrative rules and policies: personnel should receive general safety and job specific training to ensure the individual knows how to respond if and when something goes wrong.
- 2) Engineering equipment: providing the right tools and knowing how to use them: functional safety showers and fume hoods. Fume hoods should have useable work area free from clutter and flammable materials.
- 3) Personal protective equipment: lab coats, gloves and eye protection should always be worn.

This case emphasizes the importance of developing not just a good training program, but a culture where people actually pay attention to safety – not just, “Yeah, I got my annual training and I’m done.”

Frontline supervisors have been held accountable for employee's actions in private industry, however Harron is the first professor to be charged this way. As society changes we are being held to higher standards. This case could change the way we view the responsibilities of professors and the board of directors in academia.

Machine Tool Safety By Shaun W. Savage

It has been nearly one year since the academic community learned of the untimely death of a Yale undergraduate student. While working alone in a science laboratory shop one evening, the student was killed when her hair accidentally became entangled in a lathe. The cause of death was asphyxia due to compression of the neck. The accident was believed to be easily preventable if basic safety measures had been applied.

As with many highly publicized accidents, it provides an opportunity to evaluate safety measures aimed at preventing a similar event. Tufts University has machines and tools such as lathes, drill presses, and table saws. The University understands that such equipment is critical to various functions; however, working safely with this equipment should not be overlooked. Prior to using such

equipment, it is critical that staff, faculty, and students are familiar with safe work practices. Examples include using machine guards, wearing personal protective equipment, and working with a partner or colleague. Despite these examples being standard practice for most machine and tool use, various pieces of equipment are more complex. As a result, prior to beginning work, the manufacturer's operating instructions should be reviewed and consultation with designated staff, faculty, or Tufts Environmental Health and Safety Staff (TEHS) should be performed. In addition, the Occupational Safety and Health Administration (OSHA), offers an eTool with general information. The link is located at:

<http://www.osha.gov/SLTC/etools/machineguarding/index.html>

As mentioned, there is a variety of machines and tools that if used incorrectly can cause harm. Learn from the unfortunate accident at Yale, and utilize the resources available to you prior to beginning work.

“there is a variety of machines and tools that if used incorrectly can cause harm.”



A manual metal lathe located in the Bray Laboratory Building machine shop is similar to the machine that killed Yale senior Michele Dufault on April 12. freerepublic.com