



Spring 2019 Newsletter Vol. 28.1

\$1000 Award for Academic Research Safety



For too many years, EHS departments at colleges and universities have inspected laboratories solely to identify unsafe conditions and unsafe practices. They look for violations of campus regulations, policies and procedures. It's a negative approach, and it's time for change.

In a prior issue we talked about achieving a balance of carrots and sticks, rewards and discipline. LSI created a hall of fame for institutions that reward good lab safety performance.

We advocate having the EHS inspectors select the best staff member of the month and having the provost, dean or VP of research send a letter of congratulations and a certificate. At the end of the year, the president invites all the winner and their lab workers to a luncheon to add his or her congratulations.

How about naming the best of the year and providing a cash prize?

Now LSI is going one step further. Thanks to support from my wife

and I, LSI is sponsoring an award for academic research safety for the next five years. The award will be administered by the American Chemical Society Division of Chemical Health and Safety, ACS DCHAS.

The award is called the Laboratory Safety Institute (LSI) Graduate Research Faculty Award. Its purpose is to recognize graduate-level academic research faculty who demonstrate outstanding commitment to chemical health and safety in their laboratories.

The award consists of an honorarium of \$1,000, an engraved plaque, and a certificate. The honorarium is intended for travel expenses to attend the award presentation at the Fall National ACS meeting. The certificate is mailed to the president of the recipient's institution for presentation on campus.

There are five eligible sources of nomination: self-nomination, subordinate (student/lab member), department chair, EH&S department, vice provost for research or another senior administrator, and peer.

Eligible nominees are faculty members who have responsibility for a graduate-level research laboratory, and who demonstrate values and behaviors consistent with the criteria of this award. The faculty member's laboratory may be part of any academic

department at the institution, provided that chemical use is a significant part of the laboratory's research.

The award criteria include the following six areas:

1. Sets safety compliance expectations
2. Monitors and provides safety information and training
3. Models safe behaviors
4. Assesses hazards and evaluates risks
5. Creates safety leaders
6. Promotes positive safety culture

For more information and/or an application form, please contact either the ACS DCHAS Awards Committee (awards@dchas.org) or the Laboratory Safety Institute (jim@labsafety.org).

..... Jim Kaufman

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Electronic subscriptions (three 16-page issues) are free. Inquire about printed copy subscriptions. Multi-year and bulk subscriptions are also available.

You are welcome to reproduce all or part of the newsletter. Please share it with your students and colleagues. We appreciate hearing how these materials are used.

Back issues may be purchased for \$6.00 each. Copies of all back issues (over 75) are available and can be purchased as a complete set in three-ring binders or electronically for \$300. Contact Connor Michael for more information.

The Laboratory Safety Institute (LSI)
192 Worcester Street, Natick, MA 01760-2252
Phone: 1-508-647-1900 Fax: 1-508-647-0062
Email: Info@labsafety.org
http://www.LabSafety.org

Staff

Ana Adams, Institute Operations Manager
Ana@labsafety.org

Molly Carraway, Operations Assistant
Molly@labsafety.org

James A. Kaufman, Ph.D., LSI Founder and President Emeritus, Jim@labsafety.org

Connor Michael, Webmaster
Connor@labsafety.org

Brandon Paradie, Operations Assistant
Brandon@labsafety.org

Rajeev Santhappa, M.D., Acting President
Raj@labsafety.org

Mary Thompson, Consultation Service Coord.
Mary@labsafety.org

Volunteers

Would you like to help LSI? Become a volunteer!

LSI Updates

Caio Gravina, LSI Operations Assistant, has accepted a new position at Verizon. We will miss his computer expertise and printing/packing/shipping skills.

Joining LSI this Spring is Brandon Paradie. He is a student/Intern from a local vocational technical school. If the name sounds familiar, that's because his older brother, Ryan, also interned and worked at LSI.

Connor Michael, LSI Webmaster, has given this newsletter its fresher look adding more color and photos.

Yuanyuan Gou is a new volunteer to help LSI with our outreach to China.

... Jim Kaufman

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FIVE INJURED IN 'EXPLOSION' IN COLLEGE LAB IN TRIPURA

At least five undergraduate students were injured when a chemical reaction caused an explosion at Dharmanagar College of North Tripura, India, on May 28. Three students were brought to Agartala Government Medical College (AGMC).

According to the report, the injuries were not serious but the chemistry department brought them to a medical college for better medical attention and senior officials of the department have been supervising their treatment.

The injured students were identified as Papiya Bhattacharjee, Satarupa Dutta, Raj Gupta, Susmita Das and Sunanda Paul. While Susmita and Sunanda were released after preliminary treatment, conditions of Papiya Bhattacharjee, Satarupa Dutta and Raj Gupta were stated to be critical. They were transferred to the medical college in Agartala.



The University of Utah's lab safety system is 'broken,' audit says

According to a report by the Utah Office of the Legislative Auditor General, issued May 14, the University of Utah's laboratory safety system is "broken" and needs better oversight.

The report faults university administration and its EHS department for relying on metrics such as



number of inspections or injuries as indicators of safety performance rather than looking at whether safety deficiencies were corrected. Of 110 research groups that had a major chemical safety deficiency identified in a 2016 or 2017 inspection, 54 groups repeated at least one of those deficiencies in a subsequent inspection, the legislative auditors found.

Obviously, a laboratory does not become safer simply by increasing the number of inspections. The problems identified by inspections need to be addressed, and that's where the university falls flat, according to the report. University administrators and lab personnel must take ownership of their lab safety responsibilities, the report adds. It also recommends that labs conduct self-assessments and undergo peer reviews.

The report does not identify who requested the audit. It says that "the requestor was interested whether sufficient policies and practices were in place, including an assessment of the monitoring system for assessing their performance." The audit follows an external review of the university's safety program commissioned by the school in October 2017. Recommendations from that review have not been implemented yet.

In response to the audit, University President Ruth Watkins said, "We recognize that it is imperative that all identified issues are addressed, and that the resulting solutions are timely, comprehensive, effective, and sustained."



Recently, a 19-year-old teenager in the UK suffered horrific injuries from doing her nails. She was removing her acrylic nails when a nearby lit candle mixed with the chemical fumes from a bowl of acetone she was using, lighting the bowl on fire. In an attempt to put the fire out, she accidentally lit a nearby shower curtain from which she then received third-degree burns.

Unfortunately, many people are not aware how flammable artificial nails are. In a U.S. National Library of Medicine paper titled “Beware Flammable Fingernails. Case Report: Synthetic Fingernails Result in Full Thickness Burn and Terminalisation” (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5241193/>), the first reported case in medical literature was noted. A woman had acrylic nails which ignited from a cigarette butt a short distance from her nails. She sustained a full thickness burn to her dominant left thumb, resulting in partial amputation.

The paper emphasizes that acrylic nails are very flammable and, once ignited, they burn to completion, even with the source of flame removed. The authors of the paper present a case report of a significant flame burn from an acrylic nail, and discuss their review of

the available literature regarding the flammability of artificial nails and the adhesive glue used to apply them.

An article in “ChemMatters” February 2001 (https://miamisprings-shs.enschool.org/ourpages/auto/2017/6/13/40888485/Demo_fingernailflame_CM2001article.pdf) reviews a research activity done that found artificial fingernails to be highly flammable, whether or not they were coated with nail polish. Results indicated that wearing artificial nails introduces potentially serious safety risks.

The article notes that the longer the nail, the more likely it is to accidentally ignite, producing a fiery ball of molten plastic. The natural reaction to shake the hand in the air only ‘fans the flames,’ making matters worse.

Application in Science Labs

Long artificial (acrylic) nails have been a fashion trend for several decades, and are still a popular cosmetic enhancement. Middle and high school students are on this fashion bus. For the science teacher who is having students use active flames such as Bunsen burners or candles, there is serious risk for students wearing acrylic nails.

Knowing this issue, the science teacher has a legal responsibility under duty of care to address it with students. As part of the safety training, science teachers need to alert students about the acrylic nail flammability hazard in working with active flames in the laboratory.

The laboratory safety acknowledgement form should also list this issue in the safety protocols. From the start, students working with active flames in a lab should not be allowed to wear acrylic nails or they should have heat-resistant gloves to wear during the lab activity. If gloves are not available, students should not be allowed to take part in the activity.

There also are other flammable issues specifically with student clothing. Students need to use caution when wearing long sleeve sweaters, shirts, jackets, etc. and working near an active flame in the lab. Safety training needs to include awareness of this issue and also how to deal with it should a fire be effected.

In the End!

Make sure prior to working with active flames in the science lab that students have received appropriate safety training and have reviewed/signed the safety acknowledgement form addressing the flammability issue. This includes the hazards presented by acrylic nails and clothing.

Editor's Notes:

Many vocational technical schools have cosmetology programs. Here again students face the same flammability issues with the acrylic nails and the flammable solvents.

In 2017 in the United States, there were 43,000 home fires due to the misuse of flammable household products. There were 2,000 injuries and 200 deaths.

Children need to learn in school about the hazards related to the use of chemical products.

Author:

Dr. Ken Roy, director of environmental health and safety at Glastonbury (CT) Public Schools, NSTA & NSELA safety compliance consultant. Email: Royk@glastonburyus.org

More Editor's Notes!

1. Ken is a past member of LSI's Board of Directors.

2. If you've been enjoying Ken's series, "Safe Science—Be Protected", you'll be pleased to know that LSI has published a collection of articles in a single volume (100 pages, 2002, \$24.95 plus s/h). A second volume of Ken's articles is now available.

3. LSI has a wonderful publication for elementary school science safety entitled, *Safety Is Elementary: The New Standard for Safety in the Elementary Classroom*. (\$29.95 plus s/h). Ken is one of the co-editors along with Peter Markow and Jim Kaufman. To order, contact Connor Michael, connor@LabSafety.org, or online at www.LabSafety.org.

Trial Begins for Student Disfigured by Science Experiment Gone Wrong



On June 10, a \$27 million civil trial began for a student at Manhattan's prestigious Beacon High School who suffered horrific injuries — including having portions of his ears burned off — during a science demonstration gone wrong.

Alonzo Yanes was in 10th grade on the morning of Jan. 2, 2014, when his chemistry teacher, Anna Poole, opened a jug of methyl to conduct a "Rainbow Demonstration." The demonstration, which involves igniting metallic salts to produce different colors of flames, has long been a favorite of science teachers. Sadly, almost every year, failure to take appropriate safety precautions when performing this demonstration has resulted in tragedies such as this one.

None of the students were wearing protective gear when the resulting fireball erupted, and Yanes, then 16, and a classmate were burned.

Yanes, now 21, was the most seriously injured, suffering third-degree burns on 30 percent of his body, including to his head, face, neck, torso and hands.

A onetime aspiring animator at the Upper West Side school, Yanes is now known as the "burn kid" and has no friends, his lawyer said. Yanes "no longer has the ability to feel, touch, distinguish hot and cold — his sweat glands burned away, [so he] can't regulate temperature. It will be with him for the rest of his life."

Yanes is suing the city, Department of Education and Anna Poole, the science teacher.

The suit alleges that the US Chemical Safety Board had previously distributed videos to schools warning that the rainbow demonstration posed "risk of severe injuries if performed" — but that the high school never passed it along to alert its teachers.

Mark Mixson, a lawyer for the defense, insisted that the tragedy was "an accident." "The fire was a lightning strike that no one could have prepared for," he told jurors.

The trial comes less than a month after the other burned student, Julia Saltonstall, received a \$750,000 settlement from the city. She was hurt on her forearms. A third former student suffering "psychological" damage also received \$400,000 in a settlement.



Improper performance of this "rainbow flame demonstration" led to Yanes' injuries.

BEIJING UNIVERSITY EXPELS DEPARTMENT HEAD AFTER FATAL LAB BLAST



Li Desheng, the head of the civil engineering department at Beijing Jiaotong University has been removed from his post after three students died in an explosion at a campus chemistry laboratory on December 26, 2018. Several other faculty members have been disciplined.

A joint investigation involving multiple government departments concluded that serious mistakes made by university faculty led to the deaths of the students.

The explosion occurred when three students were conducting an experiment on the purification of landfill leachate.

Previous reports said before the fatal accident happened, students had noticed large quantities of explosive materials in the laboratory.



A social media user who claimed to be a relative of one of the victims said in an online post that 40 bags of cement, 30 barrels of magnesium powder, 28 bags of sodium phosphate, and six barrels of phosphoric acid were inside the lab.

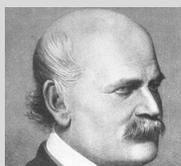
The official investigation found that during the stirring of magnesium powder and phosphoric acid in a mixer, the hydrogen generated in the hopper was ignited by a spark caused by metal friction in the mixer and then exploded. That in turn caused a further magnesium dust explosion, engulfing the rest of the magnesium powder and other combustibles nearby. The three students died at the scene.

All universities in Beijing have been asked to carry out safety inspections, clarify experiment regulations, improve the safety management system of laboratories and strengthen personnel training in order to prevent other incidents.

What's Your LSI-Q (Lab Safety Intelligence Quotient)



1. What is the difference between a deflagration and a detonation?



2. What made Philip Ignaz Semmelweis crazy?



3. What is the correct way to insert in a two-prong unpolarized plug into an electrical receptacle?

Send your answers to Jim@labsafety.org and win a copy of the Expanded Lab Safety Guidelines.

A Decade After a Fatal Lab Safety Disaster, What Have We Learned?

By Beryl Lieff Benderly



Sheri Sangji

It has been 10 years since Sheharbano “Sheri” Sangji undertook her last experiment. On 29 December 2008, the 23-year-old lab technician tried to transfer a small quantity of *tert*-Butyllithium, which ignites on contact with air. The attempt ended in a fiery catastrophe. She died 18 agonizing days later.

A subsequent 95-page state investigative report excoriated the lab’s principal investigator (PI), Patrick Harran, and the University of California, Los Angeles (UCLA), for allowing a recent college graduate to work alone on a risky and intricate task without the training, technique, equipment, or protective gear needed to perform it safely. Unprecedented criminal charges and a year-long legal case followed.

Apologists for the university called the fire a “tragic accident.” Yet the lab safety experts I spoke with at the time were unanimous that Sheri’s death was not at all a matter of chance. It was wholly foreseeable and preventable.

They also told me that, in contrast, safety standards in industry labs were stringent. The differences with industry, the experts I spoke with agreed, were priorities, practices, and training.

Far too many university lab chiefs prioritize “publishing papers and winning Nobel Prizes” over the safety of their workers, James Kaufman, founder of the Laboratory Safety Institute in Natick, Massachusetts, told me.

The more I learned, the more clearly I saw that the scandal involving safety practices in U.S. university labs stretched far beyond this single incident. As safety expert Neal Langerman wrote in the *Journal of Chemical Health and Safety (JCHAS)*, “most academic laboratories are unsafe venues for work and study [and] only by a major change in the way we practice laboratory safety can we improve the situation.”

In the years since, multiple investigative reports have documented that lab safety incidents are not one-off mishaps but symptoms of systemic institutional failure. Multiple prestigious bodies have issued reports advising institutions how to improve their safety cultures.

In what Kaufman calls “a miraculous change,” the American Chemical Society has declared lab safety a core professional value.

During those same years, however, a number of major lab safety disasters—including the death of an undergraduate at Yale University in 2011, as well as the maiming of a graduate student at Texas Tech University in Lubbock in 2010 and a postdoc at the University of Hawaii in Manoa in 2016—testify that the problem is still not solved.

It’s clear that “Sheri’s death established a legacy that honors her,” Langerman told me recently by email. Though predominantly hopeful, however, the legacy is neither simple nor uniform.

A mixed legacy

There were two things that should have happened in the fire’s aftermath: justice and change, said Sheri’s sister Naveen Sangji in a recent interview. A medical student when Sheri died, who is now finishing her training as a trauma surgeon specializing in burns, Naveen has tirelessly advocated for strong consequences for those responsible and for better safety standards everywhere—two factors that, of course, are closely related.

Serious penalties for those who permitted the conditions leading to Sheri’s death would have exerted an influence far beyond punishment of particular individuals or institutions. They would have put the scientific community on notice that lab workers’ safety is important.

Both the university and Harran faced felony charges for violations of state occupational safety laws, believed the first ever brought in an academic lab safety case. Conviction would have carried a potential of 4.5 years in prison for Harran.

Continued on Page 10

Laboratory Safety Guidelines

"Laboratory Safety Guidelines" was written while I worked for the Dow Chemical Company, in an attempt to share with schools, colleges and universities what I was learning about lab safety. In 1976, Dow sent copies to 2,000 college and university chemistry departments and received requests for 250,000 reprints!

Since then, Dow (1986), Fisher Science Education (1989), Carolina Biological Supply Company (1994), Fisher Safety (2012), and Workrite (2017) have produced co-branded editions of the Guidelines in various poster formats.

The Guidelines have been translated into 21 languages. In all, over six million free copies have been distributed and reprinted in various forms. The most recent new language is Braille. Our thanks to the Perkins School for the Blind for completing this translation.

In each issue of *Speaking of Safety*, we will publish one or two of the revised and expanded guidelines. The entire collection of revised and expanded guidelines is available in a 50-page booklet for \$8.95.



#37. DEVELOP A PROGRAM FOR DATING STORED CHEMICALS AND FOR RECERTIFYING OR DISCARDING THEM AFTER PREDETERMINED MAXIMUM PERIODS OF STORAGE.

Some chemicals have a short life expectancy. Others will remain good for a long time. Solvents which form peroxides are one example substances requiring periodic testing. Ethers, vinyl compounds, alcohols, ketones, and aldehydes are some of the peroxide formers. Your chemical inventory system should provide reminder dates.

Bottles should be marked when they are received and when they are opened. In addition, draw a line on the bottle with a china marking pencil or other marker to indicate the full level. This mark will serve as a useful guide to indicate how rapidly the material is being used up and to gauge the remaining amount.

Peroxide formers need a special label to indicate the required interval for peroxide former testing, the date the test is performed, and the initials of the individual performing the test and certifying that the test was

successful (negative).

For more information on the methods for testing for and removal of peroxides, please contact LSI. We look forward to hearing from you. (revised 06/04/19)



#38. DEVELOP A SYSTEM FOR THE LEGAL, SAFE AND ECOLOGICALLY ACCEPTABLE DISPOSAL OF CHEMICAL WASTES.

We recommend the establishment of a five part chemical management system. This system provides for the safe procurement, storage, use and disposal of chemicals.

Part One: Assumption of Responsibility

The system begins with the assumption of responsibility. Management needs to have written policies for the safe use and disposal of chemical and biological materials. A hazardous waste coordinator needs to be appointed to oversee the process and be thoroughly familiar with the state and federal regulations. The facility needs to function as a single site. Safe disposal of hazardous wastes needs to be everyone's responsibility.

Part Two: Inventory

Today, more than 40% of the chemical disposed of from laboratories are perfectly good unopened containers. A good chemical inventory is essential to avoiding the purchase of unneeded materials.

Part three: Purchasing

It's more effective to buy small quantities and discard empty containers. When the cost of disposal is factored in, the larger size may no longer be the most cost-effective. See the ACS Article "Less Is Better". Copies are available from LSI.

Part four: Waste Reduction

Adopt strategies for waste minimization. Eliminate hazardous materials where possible. Exchange unwanted surplus materials, recycle and reclaim by-products, substitute less hazardous materials and use smaller scale reactions when possible. Acid and base streams can be neutralized. Hazardous wastes can be processed in the collection vessel.

Continued on Page 10

Volunteer Internet Marketing and Operations Assistants

LSI is looking for volunteers to assist with both Internet marketing and operations activities. Internet marketing volunteers help by identifying the names and addresses of potential email recipients and by sending email announcements. Volunteer operations assistants help produce the materials that LSI uses at its training programs. This work is performed in our Natick office.

If you have one to four hours per week available, please contact Jim@LabSafety.org or call 508-647-1900.

Subscribers/Members

We need your help. Please consider increasing your support for LSI. If you are currently a subscriber, think about becoming a member. If you are a member, consider renewing early or becoming an organizational member. Donations made by "Friends" are tax deductible. In-Kind gifts of equipment, supplies, and services are also appreciated. To learn more about how you can help, contact Jim Kaufman at Jim@LabSafety.org.

LSI Seeks Corporate Sponsors

The Laboratory Safety Institute is seeking corporate sponsors. Assistance is needed to provide EH&S program development services to schools, colleges, and universities; and to fund scholarships for school science teachers. LSI also offers program reviews, facilities inspections, teacher professional development, and administrator awareness seminars with the help of corporate sponsors.

LSI needs your help in identifying Corporate Public Affairs and Community Affairs departments. Please

LSI Partners Network

Join the LSI Partners Network. Host an LSI course in your area. Volunteer to work with the Institute to offer one of our seminars or short courses for your colleagues and for others in the area.

LSI Partners help with the scheduling of facilities, audio-visual equipment, refreshments, and advertising. Contact Ana Adams (Ana@LabSafety.org), Operations Manager, for more information. See the sample seminar and short course schedules at LSI's website (www.LabSafety.org).

ICASE Update

News from the International Council for Associations of Science Education



ICASE will hold its next (2019) triennial world conference in Pattaya, Thailand the first week in December. For more information, visit the ICASE web site, www.icaseonline.net.

LSI is organizing a symposium on safety in science education and will offer a professional development course on safety in science education. We are looking for sponsors to make it free for science/STEM teachers.

Science educators from schools and higher education, lab technicians, lab managers, and scientists will be making

presentations and discussing laboratory safety issues.

The ICASE committee on safety in science education is being reorganized to have one representative from each ICASE region.

For more information about the ICASE-LSI symposium at the India conference or to express interest in contributing a paper please email me, jim@labsafety.org.

Bob Worley (bobworley4@gmail.com) from Great Britain is the new chair of the ICASE Standing Committee on Science Safety.

I've enjoyed chairing the committee for the past seven years. I look forward to working with Bob and the committee.

To become a member of ICASE: <http://icaseonline.net/membership.html>

Guidelines (continued from page 8)

Part five: Household Hazardous Waste

Do not forget the hazardous chemicals that we use at home. How are they being properly disposed? Does your town have a household hazardous waste day. Take a look at the free publication, *A Healthy Environment Starts at Home*, from the Massachusetts Water Resources Authority (www.mwra.com). It's available at the bottom of their home page.

The Laboratory Safety Institute's (LSI) seminars **Developing A Chemical Management System** and **Laboratory Waste Management** provide real world strategies for cost-effective reduction and disposal of hazardous wastes. LSI has published "The Golden Rules of Chemical Waste Disposal". It is available as an 11" x 17" black and white poster for \$1.00. Call for more information. (Revised 06/04/19)

Sangi (continued from page 7)

The state's **investigative report** found that UCLA "wholly neglected its legal obligations to provide a safe working environment" and that had Harran properly trained, supervised, and equipped her, "Victim Sangji's death would have been prevented."

In 2012, the university settled with the Los Angeles district attorney, accepting responsibility for the conditions leading to Sheri's death and agreeing to a number of reforms. Harran, however, asserted his innocence for another 2 years while the university paid his legal expenses, which ultimately totaled nearly \$4.5 million. He, too, then agreed to a settlement that Naveen considers a "travesty" and many in the scientific community criticized as far too lax. He accepted responsibility for the conditions leading to Sheri's death but avoided a guilty plea, paid a \$10,000 fine, and served 5 years' probation with community service. In September of this year, his probation was ended 9 months early.

The family received no notice of the hearing or any opportunity to comment.

"The justice part completely did not happen," Naveen says. The university chose the lab chief "over the lab tech that they had hired" while the academic community failed to "close ranks around Sheri ... as one of their own."

At the time that the criminal charges were lodged, Harry Elston, editor-in-chief of *JCHAS*, suggested that this step would make the consequences of serious safety incidents "intolerable and potentially career ending" for PI's. Instead, the scientific world watched

Harran remain at liberty and continue running his lab, his funding stream unimpeded. Clearly, the strong message Elston and other safety advocates hoped for has not arrived.

Forgetting already?

The change part, however, has nonetheless advanced, though with uneven results. Kaufman sees "very good signs of progress in some places," with institutions "taking this increasingly seriously," he recently told me.

Nathan Watson, CEO of BioRAFT, a company that sells safety management software, also sees institutions working actively to improve safety practice in their labs and safety culture across their campuses. Many have adopted a "dual focus," fostering shared responsibility for safety at all institutional levels while raising standards in their labs, he says. Rather than concentrating on "holding people to the line" through regulation, he continues, shared responsibility is "about people adopting ownership" of good safety awareness and practice and making these normal and integral parts of their work.

Other institutions, however, are only "trying to inch their way forward or are at an impasse," stymied by fear that improving safety will raise costs, increase administrative burdens, or both, Watson adds. "Not all PI's buy into their responsibilities yet, but that will come," Langerman says. Kaufman reports hearing people say, "We're improving our lab safety program one retirement at a time."

In a more pessimistic vein, however, Elston recently told *Science Careers* by email, "After 10 years and

Continued on page 12

Loose Threads

These questions, answers, and comments are taken from the Laboratory Safety Institute's mail, email, phone calls, and Internet discussion list.

Tilak Chandra wrote ...

Re: [DCHAS-L] Two follow up stories on December lab explosion in China

Magnesium powder, based on the particles size will quickly react with phosphoric acid/ water and will generate enough hydrogen to ignite. A suitable reaction set-up could have prevented this incident. Clearly, shows lack of safety training and proper resources to conduct the research.

Fine particles of magnesium can also become pyrophoric.

Monona Rossol wrote ...

Subject: Re: [DCHAS-L] Two follow up stories on December lab explosion in China

Interesting. It looks like Communist and Capitalist systems in universities suffer from the same two problems.

1) Lack of mandated, documented, and regular safety training of the students and faculty

2) Failure to require time-consuming and expensive training because party bosses and university administrators are appointed in the mistaken assumption that they can run science departments without understanding science.

Both of these comments are referring to the accident last December at a university in Beijing. LSI has reached out to the China Association for Higher Education to see if we may provide assistance. Discussions are

ongoing. We have provided our Lab Safety Guidelines in English and Mandarin.

The accident was described as follows in another article, *"Negligence blamed in deadly laboratory explosion on campus"*

Serious dereliction of duty led to the deaths of three students in a laboratory explosion at Beijing Jiaotong University in December, the Beijing Emergency Management Bureau said on Wednesday.

A joint investigation involving multiple government departments found that the students purchased and stored dangerous chemicals and carried out risky experiments in violation of regulations. University personnel also failed to oversee and manage the safety of laboratories and scientific research projects, investigators said.

On Dec 26, students from the urban planning and environmental engineering department were doing sewage treatment experiments in a laboratory building on the university's eastern campus. The explosion killed three students who were taking part.

The investigation of the blast was coordinated by the municipal Emergency Management Bureau, Public Security Bureau and Fire Services Department.

Public security authorities said Li Desheng, director of the research project, and Zhang Qiong, manager of the laboratory, will be investigated for criminal negligence.

The Ministry of Education and Beijing Jiaotong University punished 12 officials from the university, including Cao Guoyong, its Party chief, Ning Bin, its president and Guan Zhongliang, its vice-president.

Sangi (continued from page 10)
several high-profile academic research incidents after the Sangji fatality, ... the academy has failed to respond to what I see as an obvious gap in the education of the next generation of scientists”—namely, training in formal hazard and risk analysis.

What's more, he continues, "I've already had feedback from workshop participants along the lines of 'do we have to talk about UCLA again?' ... I'm very concerned that we will quickly forget Sheri Sangji's death and revert to 'business as usual' in the research enterprise."

A chilling incident at a recent safety training workshop that Kaufman conducted underscores this danger. After seeing the U.S. Chemical Safety and Hazard Investigation Board video "Experimenting with Danger" which highlights Sheri's story, a young workshop participant spoke up in surprise. "Last year I was a senior in college and I was doing a research project using *tert*-Butyllithium," he said. "I didn't know it was pyrophoric."

No one responsible for this student's safety, in short, had learned any of the lessons Sheri had so excruciatingly demonstrated years before.

There are, however, ways of changing this situation, these and other experts believe.

In the next issue in the second part of our series commemorating the anniversary of Sheri's death, we will examine some of them.

doi:10.1126/science.caredit.aaw2757



Beryl Lief Benderly writes from Washington, D.C.

Editors Note: We need to remember that Dr. Harran's election to the AAAS was withdrawn as a result of the incident.

2019-(20) Webinars

Chemical Handling and Storage: (Jan 31, May 8)
Complying with the OSHA Lab Standard: (April 24)
Compressed Gases: (June 19)
Electrical Safety: Aug 15; (Aug 28)
Chemical Labeling and GHS: Oct 4; (Oct 23)
How to Convince Others: Sep 19; (Jul 17)
Lab Ventilation & Fume Hoods: Nov 14; (Nov 20)
Leadership in Safety: (Mar 13)
Legal Aspects of Safety: (Feb 14)

All webinars and courses are available on request. Please contact Mary Thompson more information: mthompson@labsafetyinstitute.org.

LSI provides **free** webinars "Creating a More Effective Lab Safety Program" or "Safer Science Demos" for K-12 science teachers thru their state science department of education or state science teacher association. Please contact your local association and ask them to request these free science teacher webinars!

New Free Live and Web Q&A Sessions

This year, LSI is offering the opportunity to find out everything you wanted to know about lab safety but were afraid to ask. Free question and answer sessions every month are live on the Web, and most are available in-person in our classroom in Natick as well.

If you come to our classroom, beverages and snacks will be provided. On the Web, sorry it's BYO. ;-)

Space is limited to the first 100 on the Web and first 20 in our Natick office. Sessions held from 10:00 to 12:00 a.m. EST.

The dates are: Aug 23, Oct 18, Dec 13, (Jan 10, Mar 6, May 22, Aug 21, Oct 16 and Dec 11). Please let us know you are attending in person.

For more information, call Ana Adams, 508-647-1900, email ana@labsafety.org, or register online at www.labsafety.org

Seminar Calendar 2019 - 20

<p>Many courses offered are available live as webinars. Please call if you are “Remotely Interested”^(sm) in distance learning options.</p> <p>For LSI’s Full Schedule visit our website: www.labsafety.org/courses-calendar</p> <p>One-day Courses Offered in Natick, MA <i>(unless otherwise noted)</i></p> <p><u>Biosafety in the Laboratory</u> Sep 24; Feb 19, Apr 21, Jun 2 ...</p> <p><u>Complying with MA’s New OSHA Regulations:</u> Jan 23, Mar 24, May 5, Sep 29, Nov 3, Dec 2 ..</p> <p><u>Developing a More Effective Lab Safety Program:</u> Oct 3; Feb 20, Oct 19 ...</p> <p><u>How to Be a more Effective CHO</u> Aug 22, Oct 17, Dec 12; Jan 9, Feb 6, Mar 12, Apr 9, May 21 ...</p> <p><u>Lab Waste Management:</u> Sep 26</p> <p><u>Safety in the Laboratory:</u> Sep 25, Nov 13; Jan 21, Mar 18, .</p> <p><u>Safety in Secondary School Science Labs:</u> Jul 17, Aug 14, Oct, 2, Dec 4; Jan 22, Feb 18,</p> <p><u>Safety is Elementary:</u> Oct 1, Dec 3; Apr 23, Sep 10</p> <p>The following five courses are offered on request:</p> <ul style="list-style-type: none"> • 8-Hr HAZWOPER Refresher • Ergonomics • Fire Safety • Hazardous Waste • Laboratory Ventilation • Radiation Safety • Regulatory Compliance • Safe Labs Can Be Green Labs info@labsafety.org 	<p>2019 Two-day Short Courses</p> <table border="0"> <tr><td>Aug 20-21</td><td>Natick, MA</td></tr> <tr><td>Sep 4-5</td><td>Madison, WI</td></tr> <tr><td>Sep 17-18</td><td>Natick, MA</td></tr> <tr><td>Sep 25-26</td><td>Columbus, OH</td></tr> <tr><td>Oct 9-10</td><td>Burbank, CA</td></tr> <tr><td>Oct 15-16</td><td>Natick, MA</td></tr> <tr><td>Oct 23-24</td><td>Baltimore, MD</td></tr> <tr><td>Nov 6-7</td><td>Tampa, FL</td></tr> <tr><td>Nov 20-21</td><td>San Antonio, TX</td></tr> <tr><td>Nov 25-26</td><td>Natick, MA</td></tr> <tr><td>Dec 10-11</td><td>Natick, MA</td></tr> <tr><td>Dec 17-18</td><td>Raleigh, NC</td></tr> </table> <p>2020 Two-day Short Courses</p> <table border="0"> <tr><td>Jan 7-8</td><td>Natick, MA</td></tr> <tr><td>Jan 15-16</td><td>Burbank, CA</td></tr> <tr><td>Jan 29-30</td><td>Tempe, AZ</td></tr> <tr><td>Feb 5-6</td><td>Natick, MA</td></tr> <tr><td>Feb 12-13</td><td>Atlanta, GA</td></tr> <tr><td>Feb 26-27</td><td>New Orleans, LA</td></tr> <tr><td>Mar 10-11</td><td>Natick, MA</td></tr> <tr><td>Mar 18-19</td><td>Sacramento, CA</td></tr> <tr><td>Mar 26-27</td><td>Ft. 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For smaller groups, hosting will be more economical.</p> <p>And, it’s not too late to add other locations for 1-day, 2-day, and 24-hour programs.</p> <p>Contact <i>Ana Adams</i> to discuss: Ana@labsafety.org</p> <p>Hosting & Sponsoring If you would like to sponsor or host an LSI seminar or short course, please contact <i>Mary Thompson</i> to discuss your needs. Mary@labsafety.org</p> <p>Larger groups and programs that are shared by two or more sponsors are more cost-effective.</p> <p>To Register or for more info:</p> <p>The Laboratory Safety Institute 192 Worcester Street Natick, MA 01760</p> <p>Phone: (508) 647-1900 Fax: (508) 647-0062 register@LabSafetyInstitute.org</p> <p>Register online at: www.LabSafety.org</p>	Jun 24-27	Ithaca, NY	Jul 9-11	Kennesaw, GA	Jul 23-25	Boston, MA	Aug 6-8	College Station, TX	Aug 14-16	Moline, Illinois
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Job Opportunities in Qatar

In Doha, Qatar, the Bureau Veritas has a contract with the Qatar Foundation to provide a research safety team. LSI is working with them to help identify qualified candidates.

There is one remaining opening for a Laboratory Chemicals Safety Specialist who assists the Lab Safety Manager to accomplish activities that are

related to protection of human health. They assist with monitoring and implementation of compliance strategies, policies, procedures, practices, and maintenance of licenses. They must understand safety & health requirements and how research operations relate to those regulations.

For a copy of the full job description, please write to me at jim@labsafety.org.

Free Lab Safety Webinar

LSI has offered to provide every state's science supervisor with a free webinar for his/her state's K-12 science teachers. Contact your state science supervisor <http://www.csss-science.org/members/> or LSI for more information

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And, a very special thank you to our volunteers: Rebecca Fine and Sean O'Donnell. Their volunteer assistance provided invaluable support for LSI's mission. Call to learn about volunteer opportunities. In-kind gifts of equipment, supplies, and services are also appreciated. To learn more about how you can help, contact Jim Kaufman at Jim@LabSafety.org.

1001 Questions About Lab Safety

What every High School Science Teacher Should Know. Contribute your questions, answers and supporting resources to this important new LSI publication. Jim@labsafety.org

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**Everything you ever wanted to know
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**LSI now has free monthly Q&A sessions
via webinar and in our Natick office.**

See page 12 for more information