



SEP 19 2006

A Fast Read on the Latest in Lab Automation

Welcome

Greetings from Wiesbaden Germany – it is my pleasure to serve you as the Nominating Committee Chair for the 2006 ALA Board of Directors Election. It is that time of year again. We are now in the process of accepting nominations for candidates who seek election to the ALA Board of Directors. To learn more about the process, qualifications, guidelines and/or to apply, please [go here](#).

Auf Wiedersehen,

Reinhold Schäfer, Dr.rer.nat.
 Fachhochschule Wiesbaden - University of Applied Sciences
 ALA Vice President & Chairman of the Nominating Committee

Cross-Industry News

- “Nanowires Built to Fight Bioterrorism”
- “New Automated Tool to Remove Sample Tube Caps”
- “CDC Releasing Gene Blueprints for 650 Viruses”
- “New Test Could Keep Babies From Contracting Deadly Strep Infections”
- “Robotics Team Rolls Out Ballbot at Carnegie Mellon”
- “New in Nanotech: Self-Folding Delivery Boxes”
- “The Ups and Downs of Routing Fluids on Chips”
- “Homeland Security Research at EPA”
- “High Content Screening Making Inroads”
- “FDA Releases Draft Guidelines Regulating Complex Diagnostic Tests”
- “Area Hospitals Turning to Robotics, Automation to Cut Costs, Boost Quality”
- “Nanotechnology is Still in its Infancy in Central Florida”
- “Laboratory Automation Engineer (LAE) Blog Launched”

ALA News

LabAutomation2007 Deadlines Approaching– Applications for Innovation Ave/NEW, Late Night with LRIG and posters are still being accepted. Also, the early-bird discount registration rate for **LabAutomation2007** closes at midnight on Saturday, September 30.

Special Audio Message From Apollo 13 Fight Director Gene Kranz Take a moment to acquaint yourself with the **LabAutomation2007** Plenary Speakers and hear first-hand from NASA legend Gene Kranz. ALA will give away 13 DVDs of the movie Apollo 13 signed by Kranz. To qualify simply register for **LabAutomation2007** soon.

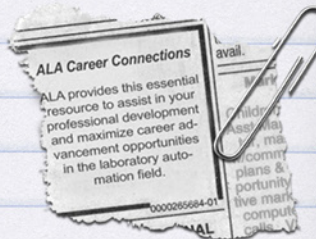
[Listen to Kranz audio.](#)

ALA Partners With American Association of Pharmaceutical Scientists In a joint initiative, ALA and AAPS are combining efforts to deliver a major recruiting initiative with a Career Fair at **LabAutomation2007**. Companies can post positions, network through a unique table-top forum, conduct confidential interviews and participate in interactive work trends sessions.

15 Organizations Join in Friends of the ALA Program The Friends of the ALA program offers associations, societies, special interest groups, and “Birds of a Feather” consortia unique opportunities to develop and deliver specialized education programs for their membership and aligned constituencies. NanoBioNexus is the newest member of this unique circle of Friends.



Lab Man Podcast



LabAutomation 2007

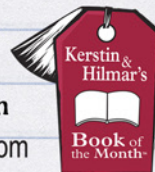
Where laboratory technologies emerge and merge

JALA World News Online

Reference a growing collection of product news, technical application notes and event listings.

- Application and Technical Notes
- Company News
- Meetings and Events
- Product News

Kerstin & Hilmar's Book of the Month



amazon.com

? Query of the Month ?

Does your senior management team believe that automation has provided the expected return, and why or why not?

Comments & Testimonials

“Have you seen my desk? It's full of notes, readings, observations... it's a mess! Thank goodness for LabSnap — it's full of organized, concise and important information. It really makes my days (and nights) brighter!”

— Galileo

Submit your “real” testimonial [here](#)

Your logo could be here.

To sponsor LabSnap, contact Julie at jford@labautomation.org.

Nanowires Built to Fight Bioterrorism

CNet (08/08/06) Olsen, Stefanie

The Lawrence Livermore National Laboratory has announced the creation of a nanowire-based system that can almost instantaneously detect the presence of anthrax, smallpox, and other deadly pathogens after they have been loosed in the air. Jeffrey Tok, lead researcher on the project, believes the creation of the technology will allow the lab to produce relatively small, portable, next-generation devices capable of quickly assessing air quality. The researchers created the nanowires by electrochemically placing metals in minute crevices on porous mineral solids. The next step was creating a striping pattern of silver and gold, similar to bar code patterns. Each of the striping patterns is assigned a specific antibody that binds to the nanowire; this antibody also binds to a specific, targeted pathogen—anthrax, for example. Thus, if the air contains the targeted type of pathogen, that pathogen will bind to the antibody on the nanowire. The antibody will also bind to other specific types of antibodies that have been fluorescently tagged, meaning that observers can tell when a pathogen has been detected, because the nanowire will be fluorescing. “Imagine 100 nanowires, each with a specific pattern and antibody,” says Tok. “You look for nanowires that are fluorescing and automatically you know which pathogens are present.” The current pathogen-detecting system being used for bioterrorism purposes is the Autonomous Pathogen Detection System (APDS). But compared with the nanowire system, the APDS has two big drawbacks: It only senses one pathogen at a time, and its large size makes it unwieldy for portability purposes.

[Back to the list.](#)

New Automated Tool to Remove Sample Tube Caps

PackWire.com (08/22/2006) Reymond, Emilie

ABgene, a lab instrumentation provider located in the United Kingdom, has unveiled its Alto-8 lab automation device targeting the drug discovery market. Alto-8 is capable of quickly opening and closing screw caps on eight sample tubes at once, taking fewer than 10 minutes to process a complete rack of tubes. Labs could save substantial time and money and minimize the risk of strain injuries by using such devices to handle repetitive tasks, while automation in general aims to eliminate human error, enable large-scale sample tracking, and enhance sterility.

[Back to the list.](#)

CDC Releasing Gene Blueprints for 650 Viruses

Associated Press (08/23/06) Stobbe, Mike

The U.S. Centers for Disease Control and Prevention, hoping to set an example for other countries to follow, has released the genetic blueprints of more than 650 naturally circulating flu viruses found in the United States on the publicly accessible GenBank database managed by the National Institutes of Health. The agency hopes that in doing so research on finding a vaccine against a potentially pandemic flu strain will be accelerated and that other countries will follow its lead. Some nations have refused to share bird flu data, mainly because they fear the information they provide will be used to make vaccines they cannot afford. Indonesia, after months of following this policy, recently changed its position and has sent samples abroad. As a result, about 40 genome sequences were added to GenBank.

[Back to the list.](#)

New Test Could Keep Babies From Contracting Deadly Strep Infections

Biotech Week (08/23/06) P. 693

Cepheid's new group B streptococcus test has become the first clinical molecular diagnostic test to receive approval from the Food and Drug Administration. The test aims to reduce instances of group B strep infection in newborns, who can contract the bacterium from the mother during birth. Infected newborns are vulnerable to sepsis, pneumonia, and meningitis, among other conditions, and could die as a result. Using a polymerase chain reaction, screening can be completed by health care workers during labor. About 240 women received the Cepheid test as part of a clinical trial at the University of Florida. According to Cepheid, the same technology can be used to test for bird flu and drug-resistant *Staphylococcus aureus*.

[Back to the list.](#)

Robotics Team Rolls Out Ballbot at Carnegie Mellon

Pittsburgh Post-Gazette (08/23/06) Templeton, David

Researchers at Carnegie Mellon University have developed a robot that can travel across a room balanced atop a urethane-coated aluminum sphere. The Ballbot is a self-contained robot that can travel in any direction, compactly swiveling and turning without falling down. While there are still many kinks left to work out, CMU research professor of robotics Ralph Hollis said that it demonstrates that robots can capably operate with just one wheel. Humanoid robots built with human-like legs are stable, but too expensive and complex for practical use in the home or office. When he was seeking to develop an alternative to the clunky three- or four-wheeled robots that are prone to tipping over when they accelerate too quickly or travel on ramps, Hollis concluded that a ball would be the best method of propulsion, though he still had to figure out how to make a tall, thin, and relatively heavy robot balance atop a soccer-ball-sized sphere. Fiber-optic gyroscopes give the Ballbot an internal sense of balance by measuring inertia, pitch, and roll angles, sending out hundreds of signals every second to a computer that controls the rollers that turn the ball, ensuring that the device is always in position to stand or roll, but not tip over. "It's more stable than the typical robot," Hollis said. "It doesn't like to tip over." Hollis is also working on a project involving haptics, using techniques such as magnetic levitation to endow the computer with a sense of touch. He kept the hardware as simple as possible, shifting most of the Ballbot's workload to the software. The robot carries the heaviest equipment at the top, drawing on the same principal that makes it easier to balance a broom by holding the end without the bristles in one's hand.

[Back to the list.](#)

New in Nanotech: Self-Folding Delivery Boxes

CScience (08/25/06) Vol. 313 , No. 5790 , P. 1032 ; Service, Robert F.

Researchers at Johns Hopkins University report that they have created nanotech-sized self-folding "delivery boxes" that can be used to deliver compounds to the places where chemists would like them to react. The tiny boxes start out as two-dimensional cutouts then fold themselves up into 3D containers such as porous cubes, and researchers say that they could find applications as drug-delivery vehicles as well as lab-on-a-chip reactors. Magnetic fields can even be used to maneuver metal versions of the boxes to their target sites. Developed by a team led by David Gracias and detailed in a paper published online in the *Journal of the American Chemical Society*, this new technology "brings an innovative element to the field of controlled release drugs," says University of Texas Health Science center nanomedicine expert Mauro Ferraro, although he said "it has a long way to go" before it could be used to treat patients.

[Back to the list.](#)

The Ups and Downs of Routing Fluids on Chips

Science News (08/26/06) Vol. 170 , No. 9 , P. 142

One of the problems frequently encountered with microfluidic chips is that their pipes often intersect, since they are all on the same level, which necessitates valves for controlling fluid flows. Now, researchers are looking to surmount this problem by building microscale pipes in three dimensions. One process for doing so makes use of a liquid polymer called polydimethylsiloxane that is applied thickly to a mold, then peeled off and adhered to a glass backing. Ridges in the mold create voids in the polymer, and these voids are then put to use as channels for fluids. University of Southern California researcher Emil P. Kartalov and colleagues have now extended this process to make on-chip pipes with upward and downward bends, allowing pipes to cross without their fluids mixing. The researchers' simple method of doing so is described in the Aug. 15 issue of Proceedings of the National Academy of Sciences.

[Back to the list.](#)

Homeland Security Research at EPA

Chemical & Engineering News (08/28/06) Vol. 84 , No. 35 , P. 26 ; Hogue, Cheryl

The Environmental Protection Agency (EPA) is a smaller player in the field of homeland-security research than other federal agencies, but its efforts touch on some key areas such as contamination detection and water-system cleanup. Homeland security research performed by the EPA covers chemical, biological, and some radiological agents, as well as the aftermath of explosive events that do not involve chemical or biological agents or radioactivity. The EPA's National Homeland Security Research Center is based in Cincinnati but operates in several locations around the country, focusing on different areas such as managing and cleaning up contaminated buildings and evaluating commercially available equipment for detecting and dealing with contamination. Among other things, scientists with the EPA are working on how to characterize and deal with potential threats to water and sewer systems, for which they are performing experiments on large loops of pipes that simulate water mains and distribution systems. Pipes can be decontaminated by flushing with water or by using chlorine, a surfactant, or a strong oxidizer, according to EPA research, which is also looking at how to make organisms inactive and decontaminate water, pipes, and home appliances that work with water. Meanwhile, at the EPA's Decontamination & Consequence Management Division in North Carolina, a researcher working with anthrax contamination in a couch, ceiling tiles, and other porous materials found that two autoclave cycles were needed to sufficiently kill off microbial spores. The EPA is also working to develop risk-assessment procedures to determine the risk posed by chemicals and by toxic microbes. The agency has also created a Response Capability Enhancement program to set up in-house laboratories that would offer analytical support after a terrorist attack.

[Back to the list.](#)

High Content Screening Making Inroads

Drug Discovery & Development (09/01/06) Shah, Anjani

Drug-development researchers have come to accept the concept of high content screening (HCS) in recent years, with low-cost entry-level imagers and better interpretation software making HCS a better proposition in the lab. These technologies include the cellWoRx imager introduced this year by Cellomics, as well as the HCS Workcell automated preparation system from Thermo Fisher Scientific. HCS uses computers and cameras connected to automated microscopes to track and analyze the behavior of fluorescently stained molecules within the cells under study. This enables researchers to gain more relevant in vivo information at an earlier stage of the drug-discovery process. Cell-based approaches to drug screening are becoming more important now that systems biology has come to the fore and scientists better understand the connections between different biological pathways. On the other hand, HCS has not managed to replace other, faster automated instruments, such as fluorometric imaging plate readers or fluorescent readers for large and diverse compound libraries. In addition, while there has been a push toward standardization and all-inclusive systems for HCS, some of the technology vendors' customers are still seeking more specialized HCS devices, and niche players such as Imstar are seeking to meet this demand. There is also a new HCS application that has not required innovations in imagers: RNA interference, or RNAi, which has helped push HCS adoption, particularly in academic laboratories.

[Back to the list.](#)

FDA Releases Draft Guidelines Regulating Complex Diagnostic Tests

News-Medical.Net (09/06/2006)

The Food and Drug Administration (FDA) has released draft guidelines for the FDA's oversight of regulating protein-based and gene-based, computer-driven diagnostic tests for breast cancer, ovarian cancer, and other conditions. The FDA is concerned about proving the accuracy of these new, complex computer-based tests, says FDA director of the FDA medical-device center Daniel Schultz. These tests, called vitro diagnostic multivariate index assays, use complex computer programs to analyze samples of a patient's proteins or genes to reach diagnosis. The FDA will look at "data" behind the development of these tests, says Schultz. The FDA likely will review each test using this pioneering method. Johns Hopkins University director of the Genetics and Public Policy Center Kathy Hudson hopes FDA balances to companies of verification with the need for verified accuracy.

[Back to the list.](#)

Area Hospitals Turning to Robotics, Automation to Cut Costs, Boost Quality

Lansing State Journal (MI) (09/11/06) Steele, Jeremy W.

Hospitals in the Lansing, Mi., region are employing automated labs and robotics to help improve efficiency and reduce expenses. The Ingham Regional Medical Center recently spent \$45,000 to revamp its clinical lab. Almost 60 feet of track surrounds the lab, and transports specimen vials to different testing machines, which collect the samples, perform their job, and send the vials to various places for sorting and archiving. Meanwhile, Sparrow Hospital utilizes robotics for certain surgeries and has automated its pharmacy so workers no longer have to place prescriptions in bottles for patients. In addition to lowering the number of employees required in certain areas, robotics can increase quality, according to officials from both hospitals. In numerous situations, robotics lower staff's exposure to possibly dangerous equipment and elements. A growing amount of new electronics in the healthcare sector means training programs must remain closely linked to healthcare personnel, according to Lansing Community College's Nursing Careers Department chair Margie Clark.

[Back to the list.](#)

Nanotechnology is Still in its Infancy in Central Florida

Orlando Sentinel (FL) (09/11/06) P. 16 ; Thomasson, Lynn

Nanotechnology is a nascent, growing science that companies as well as the federal and state governments are investing in for the future. Florida has begun investing in nanotechnology and recruiting companies to the region around the University of Central Florida's Nanoscience Technology Center. Corporate nanotechnology research there includes these diverse fields: creating an artificial model of the human immune system, military and defense weapons, satellite antennae usage, as well as applications in medicine, textiles, and electronics. Nanotechnology is scale-related research that incorporates multiple science disciplines, and which looks at matter at the scale of one billionth of a meter. This length is eight-to-10 atoms long, and matter acts differently at this nano-scale. Start-up company VaxDesign is exploring the use of nanotechnology to map the human immune system to create an artificial model that could substitute for live animals in vaccine and cosmetic research. "It is going to impact virtually every one of our business areas and products," says Lockheed Martin technology director Sharon Smith. The U.S. federal government has invested \$1.3 billion in nanotechnology research in fiscal 2006, and President Bush's fiscal 2007 budget contains over \$1.2 billion in further funding.

[Back to the list.](#)

Laboratory Automation Engineer (LAE) Blog Launched

In the June 2006 issue of The Journal of the Association for Laboratory Automation (JALA) an editorial titled, "Are you a Laboratory Automation Engineer," was published as the starting point of a discussion on the development of a field of engineering. In order to make that discussion real, a weblog has been set up at <http://www.delphinusdesign.com/lae-weblog/> with an extension to the editorial at <http://www.delphinusdesign.com/lae-weblog/lae/LAEoverview.htm>. The purpose of this on-going discussion is to develop a discipline of Laboratory Automation Engineering, how to educate those who want to work in it, the development of methodologies, best practices, and the technologies needed to advance lab automation. The weblog is a means of getting wide participation in the discussion; if lab automation is important to you, please join in the conversation.

[Back to the list.](#)