PITTCON
IN THE WINDY CITY

The lake views show brighter times ahead.

Michael J. Felton
What has 4500 vendor exhibits, 3000 technical presentations in 500 meeting rooms, 21,000 attendees over a period of 5 days, and happens every year in late February or early March? The answer, of course, is Pittcon, or more formally, the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy. The atmosphere at Chicago’s McCormick Place this year (March 7–12) seemed to many to be upbeat after several years of hard economic times.

Different Angles
This year’s Pittcon hosted three prominent lectures: a plenary lecture by Larry Faulkner, president of the University of Texas at Austin, and lectures by Nobel laureates Koichi Tanaka of Shimadzu and Kurt Wüthrich of the Swiss Federal Institute of Technology.

Faulkner’s lecture provided an interesting perspective on chemistry’s role in society today. He did not talk about the traditional “chemistry makes life better” theme, but instead discussed how public policy is often now dependent on science and chemistry. “At every turn now, one encounters sharply debated issues and important public policies that rest on chemical information,” he said. He then highlighted global climate change, DNA screening, quality standards, and other chemistry-related topics at the forefront of public interest. His presentation pointed out how politicians differ from scientists, and how both need to understand that their disparate roles are unique and important. Faulkner made a key suggestion during his lecture for improving the interaction between the scientific community and the political one; He suggested that, although the National Academies do a wonderful job of providing unbiased research when asked by the government, no updates to their reports are initiated without government direction. This situation might significantly improve if scientific societies set up a method to revisit or conduct reviews of science and technology issues in an unbiased way outside the National Academies.

“There is also a growing need to find ways to support state and local governments as they grapple more frequently with technical matters,” Faulkner said. He also suggested that the press might be better served by these types of reports. The text of Faulkner’s lecture can be found online.
In Monday’s lecture, Koichi Tanaka, who shared the 2002 Nobel Prize in Chemistry with John Fenn and Wüthrich, discussed the events that led up to the development of matrix-assisted laser desorption-ionization (MALDI) technology. Tanaka began his talk by thanking the person who introduced him for not calling him Dr. Tanaka, because he is, in fact, an engineer and not an academic scientist with a Ph.D. He went on to say that his unique point of view allowed him to tackle the problem of getting large molecules to ionize because many chemists thought it was impossible—a fact of which he was not aware. Like many advances in science, Tanaka said, it was partly a “monumental blunder” during his team’s investigation that led to MALDI. “By mistake, I used glycerin instead of acetone to make a suspension, and I used the ruined preparation anyway.” Because he still tried an experiment he thought wouldn’t work, he discovered that unevaporated glycerin provided an excellent matrix and allowed him to detect large ions. Tanaka made it a point to acknowledge Michael Karas and Franz Hillenkamp’s further developments of MALDI. After the talk, Tanaka said he thought his winning the Nobel Prize may elevate the status of the Japanese engineer, showing that even nonacademic engineers may develop great ideas.

On Tuesday, Tanaka’s fellow 2002 Nobel laureate, Kurt Wüthrich, talked about the history of NMR and its current uses in proteomics. He began the lecture with fascinating images of the prion protein that causes mad cow disease and showed how the unstructured tail of the protein could cause it to tangle up with other prion proteins and disrupt the brain. However, one of the first proteins to be analyzed with NMR was myoglobin, and Wüthrich described his personal interest in the molecule. “I was a middle-distance runner and was short of breath, and so I was always interested in how my body consumed oxygen.” He went on to say that when he and his colleagues went to study myoglobin, they had to go to the health center for blood to be drawn, since they were a bunch of physicists.

Press Events
Pittcon continues to be the place where companies, from large to small, announce new products. During Sunday’s new product forums, one company new to Pittcon,
SLS Micro Technology, drew a large crowd for the introduction of the “world’s smallest” gas chromatograph, which is about the size of an extra-thick credit card. SLS and other companies new to Pittcon had booths in the New Exhibitors area. One of these was Nanostream, which is launching a parallel micro LC system.

Typically, press conferences deal with applications for the chemistry community, but Scientific Software announced a surprising new direction for its CyberLab product: outside the scientific community. The company suggests its software can be used to manage all kinds of content, not just scientific data. In other words, everyone from journalists to governments could manage their information with this product.

**Awards and Coblentz**

Winners of other awards at Pittcon include Peter Carr from the University of Minnesota, recipient of the Pittsburgh Analytical Chemistry Award; Paul Bohn from the University of Illinois at Urbana-Champaign, recipient of the Pittsburgh Spectroscopy Award; David Haaland at Sandia International Laboratories, winner of the Bomem-Michelson Award; Adam Heller from the University of Texas at Austin, recipient of the Charles N. Reilley Award; Jeffery Long from the Naval Research Laboratory, recipient of the Young Investigator Award; Weihong Tan from the University of Florida, recipient of the Pittsburgh Conference Achievement Award; Graeme Batten from Charles Sturt University (Australia), winner of the Tomas P. Hirschfeld Award; and E. Neil Lewis, founder and CEO of Spectral Dimensions, recipient of the Williams Wright Award.

On Monday, the Delaware Valley Chromatography Forum presented its Dal Nogare Award to Indiana University researcher Milos Novotny. This was the third time Novotny received an award at Pittcon. His award lecture focused on the importance of capillaries to the development of modern chromatography. While showing slides of the results of early gas-phase columns, he suggested that a former student, Milton Lee, probably supplied the urine for the test. Novotny also discussed recent work on organelle enrichment for allowing more proteins to be identified.

Also at Pittcon, Paul Wilks, Jr., received the third annual Pittcon Heritage Award. The award, sponsored by the Chemical Heritage Foundation and the Pittsburgh Conference, recognized that “his innovation and entrepreneurship during the past half century have made infrared spectroscopy more accessible and commonly used in industrial, academic, and research applications around the world.”

Wilks’s award for infrared spectroscopy corresponds to a set of sessions devoted to the 50th anniversary of the Coblentz Society. In fact, Wilks helped to form the society in 1954. The Coblentz Society was started to help vibrational spectroscopists cope with the rapidly advancing field of IR and Raman spectroscopy. It also helped set standards, promoted the sharing of spectra, and, much like Pittcon today, provided feedback to instrument makers on what improvements were needed. The Coblentz

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**The Centcom Breakfast**

Optimism was expressed not only in whispers throughout the sessions and the exhibit hall but also aloud by two Wall Street analysts at the annual morning meal. The speakers at the 26th annual Centcom breakfast were Lawrence H. Neibor, managing director for life sciences equity research at Robert W. Baird & Co., and Paul R. Knight of Thomas Weisel Partners.

Neibor opened with a very broad perspective by placing the analytical instrument industry in the context of the entire U.S. economy, and he showed that in the last six recessionary periods in the United States, the instrument market had similar drops and took three to four years to recover after the bottom of each recession. The recession seemed to bottom out in 2000, but he indicated that September 11, 2001, and the war in Iraq may have delayed the recovery. But on the basis of these trends, Neibor expects historical peak growth to resume in late 2005. On top of the historical trends, he explained that continued pharmaceutical investment, dramatic industrial growth, and healthy biotech funding may further strengthen the recovery, whereas slower increases in academic and government funding may not help recovery. All in all, Neibor said, “Spending is being driven by broad economic recovery combined with a period of reinventing... and we believe that nanotech funding will represent new opportunities for growth in the future.”

Knight stated that he was one of the first market analysts to attend Pittcon and has been attending since 1995. He said he suspects that this recovery may be more dramatic than past recoveries because of several factors, including the greater influence of China and the pharmaceutical industry. China may be a factor because instrumentation is a net export from the United States (3.8% of U.S. exports) and, as a result, the industry may benefit greatly from investment in research in China. He suggests biotech may be a factor that is becoming more important because the long-term investments that have been made in biotech may begin to start paying off, leading to more money to spend on additional research. There also may be a greater focus on services and managing labs rather than just on instrumentation.

As a result of these forces, Knight expects consolidation in the market, and he described GE’s purchase of Amersham as an example. In addition, as manufacturers fight outsourcing, technology and quality become more important, increasing the demand for instrumentation.
sessions discussed the history of the society and its namesake, William Weber Coblentz, as well as the latest advances in vibrational spectroscopy.

**Labs, LIMS, and LC**

The sessions at Pittcon span a tremendous range of topics. Sunday featured several workshops, one of which offered insights on how to build world-class analytical laboratories. John McConnell of Wysowl Consulting discussed how “you can have all the advanced equipment and technology in the world and still not provide excellent precision and service to your customers within or outside the company.” Ross Elliott described several “ailments” that many labs face and suggested methods of addressing them. One of the solutions was getting audited by a third party, such as ISO, because “we are all human and need motivation,” Elliott said.

This was also the second year in which the LIMS Institute held its annual LIMS Informatics conference as a “show within a show” at Pittcon. *TCAW* Editor James Ryan gave an invited talk at the LIMS conference, and he has recapped his presentation in this issue for those who could not attend (see page 34).

Another returning Pittcon fixture was the Waters Symposium, held on Monday afternoon. This year’s topic was gel permeation chromatography (GPC), better known as size exclusion chromatography. The guest speakers covered several topics: the beginning of GPC, presented by James Waters; GPC commercialization, presented by Robert Limpert; product R&D and problem-solving, presented by Theodore Proder; and closing the gap between GPC and rheology, presented by Clay Enos.

Following Novotny’s award lecture, Jim Jorgenson of the University of North Carolina gave a well-attended talk concerning his group’s latest work on superhigh-pressure LC using very small diameter columns and particles. The goal of this work is to obtain GC-like performance, such as high peak capacity, with an LC column. In one 30-min run, the group obtained more than 600 peaks using a femtomole sample. It found that when separating proteins, there was no protein left in the column after the run, unlike conventional columns. He suggested that this may be due to denaturing caused by the high pressure.

**Dino DNA**

There were also some scientific but light-hearted sessions, such as DNA from Dinosaurs. Matthew Collins discussed the use of the protein osteocalcin to determine information from prehistoric bones. The protein may survive much longer than DNA and has been used to see a difference between a cow and a 47,000-year-old bison. Hendrik Poinar from McMaster University discussed DNA preservation from ancient sources and suggested that the best source of data is coprolites, better known as fossilized feces. It seems that coprolites contain not only the excreter’s DNA but also DNA from consumed plants and animals.

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**KEY TERMS:** biotech, data handling, GC, LC, MS, materials/nanotech, pharmaceutical, separation science, spectroscopy