

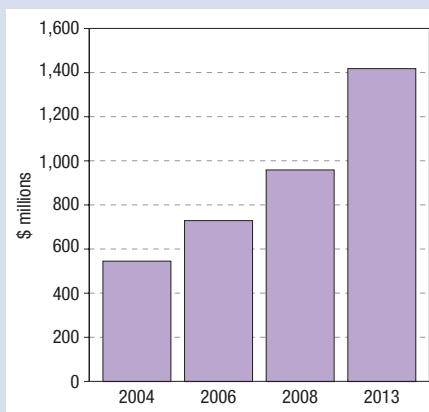
Diverse applications drive growth in the spectroscopy market

New advances in drug discovery and biochemistry, in particular the study of proteins (proteomics) cellular processes (metabolomics) and genetics (genomics and pharmacogenomics), promise lucrative business opportunities for spectrometer manufacturers, according to new research by Global Industry Analysts (GIA).

The company predicts that the global market for spectrometers, spectrophotometers and spectrofluorometers (including mass spectrometers and devices for X-ray diffraction and nuclear magnetic resonance) is projected to reach \$10.5 billion by 2010. Of that total, the company estimates that the global molecular spectroscopy market, which includes all types of infrared, Raman and UV-visible spectroscopy, is worth \$3.2 billion in 2008. Furthermore, this market is projected to cross \$4 billion in 2012.

Thanks to developments in instrument technology and capability, the range of applications using infrared, near-infrared, and Fourier-transform infrared spectroscopy is now gradually expanding. These instruments, which traditionally have been used in areas such as analytical chemistry, are increasingly finding uses in medical and pharmaceutical areas. Research efforts are now focused on the development of non-invasive near-infrared techniques to probe the haemodynamics of tissue samples *in vivo*. Ongoing efforts also explore the use of these techniques for blood delivery for injured tissues.

According to GIA, one of the main reasons for the molecular market growth is improved analytical instrument design. This includes the development of rugged optics, flexible fibre-optic sampling probes and solid-state detectors. The company predicts that Raman spectroscopy, in particular, is set to make a substantial impact on clinical applications by generating more biochemical information, including



Global value of process spectroscopy market through 2013.

the distribution of proteins and nucleic acids. Further, advancements in high-throughput spectrographs have expanded the applications of surface-enhanced Raman spectroscopy to polymer analysis.

The market for visible and UV-visible spectrophotometry has followed a different dynamic, and for many products it is either flat or declining. However, advances in technology are continuing. Diode-array detectors have offered great advantages to spectrophotometry, in particular in the UV-visible. Diode-array systems offer similar detection abilities to conventional designs but at a higher speed, as they can detect an entire spectrum simultaneously.

The infrared spectroscopy market, on the other hand, is seeing stronger growth. According to GIA, several companies are using near-infrared spectroscopy to quantify blood glucose levels without taking a blood sample, paving the way for the development of non-invasive systems. Regions in the developing world are also expected to drive the future market for infrared spectrometers.

Near-infrared techniques are being applied for quantitative measurement of moisture, protein and fat content in agriculture products. These techniques are now being applied in the chemical, petrochemical and pharmaceutical industries as well. Fibre optics is replacing manual sampling and offline measurement.

One of the fastest growing areas of application for near-infrared spectroscopy is in process analysis, where near-infrared spectroscopy is integrated into a production line. The rise, says GIA, is due to improvements in software, and probe and analyser technology. Near-infrared spectroscopy applications are generally concerned with the measurement of product purity, and the detection of contaminants or impurities and moisture down to the level of parts per million. There are other specific applications such as in food processing, where near-infrared spectroscopy is used to measure alcohol and water content in beer, and water and oil content in cheese and other foods.

Another market analyst firm, BCC Research, agrees that process spectroscopy is on the rise. The company says that, two rapid growth areas are diode-array spectrometers and Raman-scattering spectrometers. Diode-array spectrometers have a projected compound annual growth rate for 2008 to 2013 of 36.6%, and the projected rate for Raman-scattering spectrometers is 14.0%. However, the company warns that for diode-array spectrometers this spectacular growth is unlikely to continue at its current rate as deployments rise and the technology matures. Raman-scattering spectrometers are also relatively new in their use for process spectroscopy, but as this technique is more mature, a more modest but sustainable growth rate is expected for several more years.

Varian reports sales increase

Varian, a supplier of scientific instruments including spectrometers, has reported revenues of \$248.2 million for the second quarter of 2008, representing an increase of 7.9% over revenues of \$229.9 million in the second quarter of fiscal year 2007. The increase was broad-based, with growth in sales of products for life science and industrial (including environmental, food and energy) applications. Sales increased in all geographic regions, with double-digit growth in Europe and Latin America.

Thermo Fisher Scientific expands

Thermo Fisher Scientific has acquired the Analytical Technologies and Environment Instrumentation divisions of Chemito Technologies (Mumbai, India). Chemito is India's largest local supplier of analytical instruments for life sciences and environmental monitoring applications. In addition, Chemito manufactures its own analytical instruments, including gas chromatography, atomic absorption and UV-visible spectroscopy.

Chemito's Analytical Technologies and Environment Instrumentation divisions

have annual revenues of about \$10 million, and will be integrated into Thermo Fisher's Analytical Technologies Segment. Thermo Fisher Scientific has reported that revenues increased 9% to a record \$2.55 billion in the first quarter of 2008, compared with \$2.34 billion in the same quarter of 2007. Marijn Dekkers, president and chief executive officer of Thermo Fisher Scientific said, "Recognizing that there is economic uncertainty in the world today, we remain confident that our balanced mix of markets, geographies, products and services puts us in a strong position to deliver on our financial goals for 2008."