

CAMECA Recognized Among the Winners of the R&D 100 Awards

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- Next Generation Atom Probe Included Among 100 Most-Significant Developments in Research and Development
- LEAP 5000 Atom Probe Offers Precise Atom-by-Atom, Sub-Nanometric Analysis of Metals, Semiconductors and Other Materials

CAMECA, a unit of AMETEK Materials Analysis, was recognized among the winners of the 54th Annual R&D 100 Awards by the editors of R&D magazine for its development of the LEAP 5000. Launched in August 2014, the LEAP 5000 is the latest generation of atom probe microscopes, which offer precise atom-by-atom identification, 3-D spatial positioning, and accurate atomic-scale reconstruction of a material's microstructure.



Widely recognized as the annual "Oscars of Invention," the R&D 100 Awards were established by the editors of R&D magazine in 1963 and are presented annually to the 100 most-significant new developments in research and development as determined by an independent panel of judges and the editors of R&D magazine.

CAMECA, which pioneered the development of atom probe tomography (APT), was previously recognized with R&D 100 Awards for its Local ElectrodeTM Atom Probe (LEAP) technology in 2004, 2006 and 2008. R&D 100 Award winners over the years have included such widely recognized products as the automated teller machine (1973), the fax machine (1975), liquid crystal displays (1980), lab on a chip (1996) and high-definition television (1998).

"We are extremely pleased to again be selected for this prestigious award," comments Jean-Charles Chen, CAMECA Business Unit Manager. "It further recognizes the LEAP 5000 as a breakthrough research instrument, whose unique capabilities have enabled scientists and engineers to gain new insights into materials and processes and to accelerate the discovery and development of novel materials, products and devices."

LEAP 5000 Atom Probe: A New Standard in Advanced Imaging Technology

Atom Probe Tomography (APT or 3-D APT) is the only materials analysis technique offering extensive capabilities for both 3-D imaging and chemical composition measurement at the atomic scale. Since its development in the 1960s, the technique has contributed to major advances in materials science.

Exclusively developed and manufactured by CAMECA, advanced LEAP microscopes are used by the most prestigious research and development laboratories around the world. The LEAP remains the only nanoanalytical instrument capable of 3D location and isotopic identification of upwards of 80% of the atoms by volume of a specimen.

LEAP operates on the principle of field ionization, whereby a strong electric field applied to

a specimen is sufficient to cause removal of atoms by ionization. Proprietary single-particle detection enables isotopic identification by time-of-flight mass spectrometry and positional determination.

Atom ionization is triggered either by a voltage or laser pulse applied to the sample. The resulting ions are accelerated away from the sample and identified. By repeating the sequence thousands of times per second, atoms are progressively removed from the sample tip and a 3D atomic-scale image of the material reconstructed.

About CAMECA

CAMECA® has more than 60 years of experience in the design, manufacture and servicing of scientific instruments for material micro- and nano-analysis. Since pioneering Electron Probe Microanalysis (EPMA) instrumentation in the 1950s and Secondary Ion Mass Spectrometry (SIMS) in the 1960s, CAMECA has remained an undisputed world leader, while achieving numerous breakthrough innovations in such complementary techniques as Low-energy Electron-induced X-ray Emission Spectrometry (LEXES) and Atom Probe Tomography (APT).

Headquartered near Paris, CAMECA has a production facility in Madison WI, USA where the LEAP APT is designed and manufactured, as well as locations in Brazil, China, England, Germany, India, Japan, Korea, and Taiwan. CAMECA is a business unit of the Materials

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