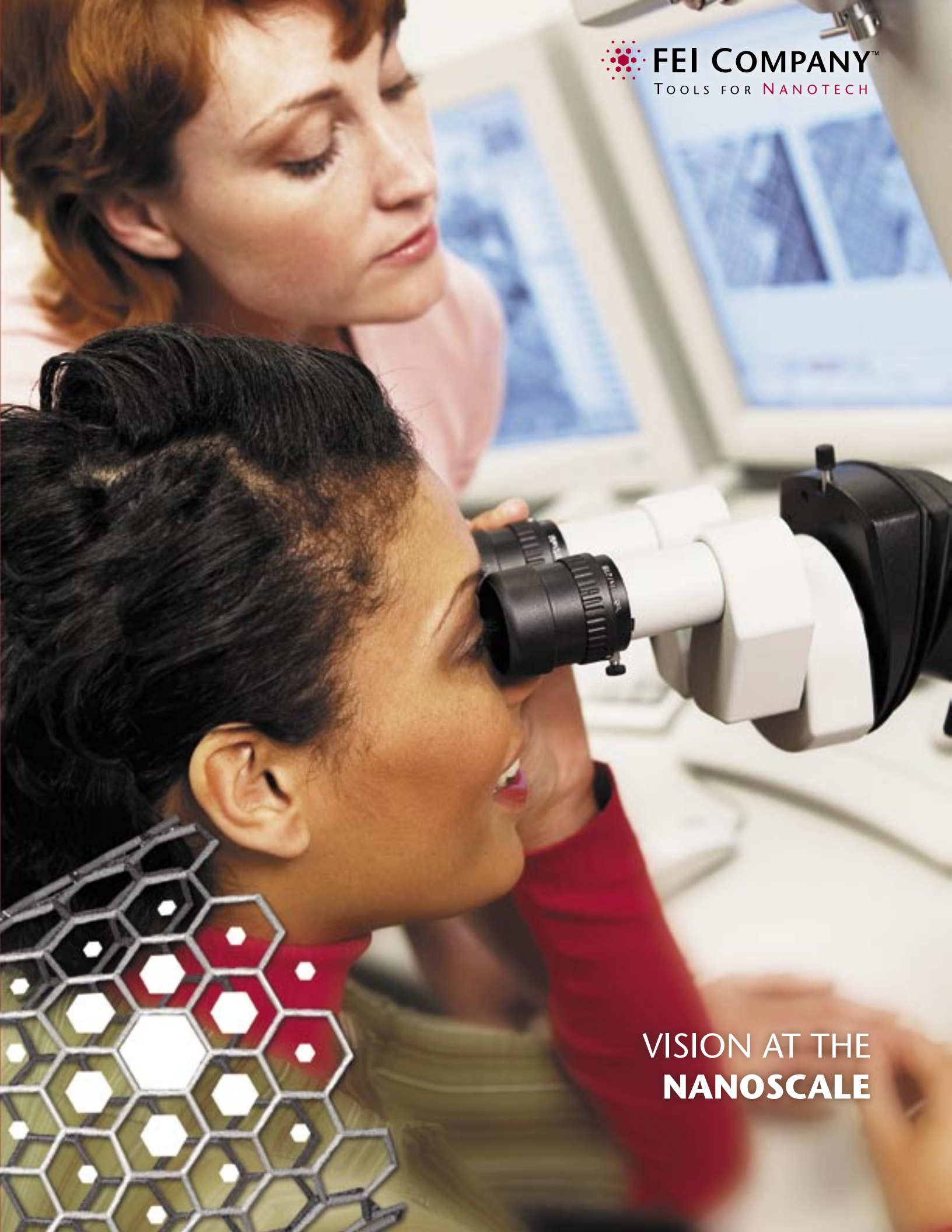

FEI COMPANY™
TOOLS FOR NANOTECH
VISION AT THE
NANOSCALE

TOOLS

TO THINK BIG YOU'VE GOT TO WORK SMALL

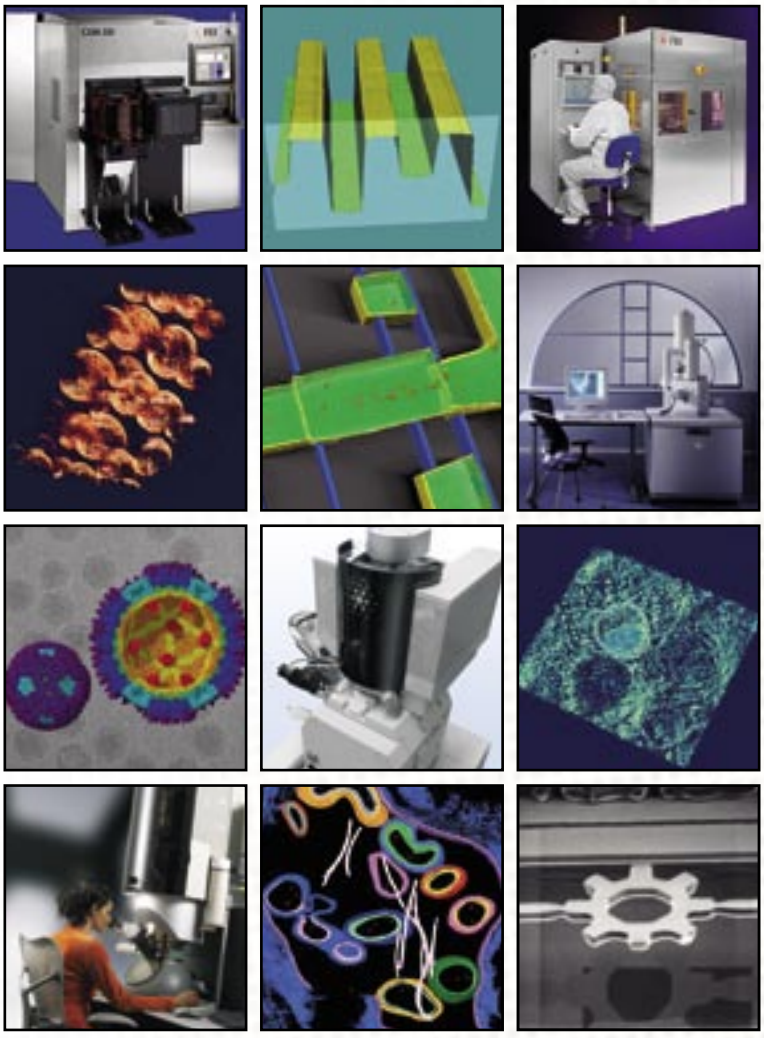
A new universe of discovery is taking place at the nanoscale. From smaller, more powerful electronic devices to super-strength materials, from smart drugs to the dream of nano-machines for *in vitro* treatments – some of the greatest innovations of the century begin at the nanoscale. And the nanoscale begins with FEI. We are the world's leading enabler of nanoscale exploration, discovery and engineering today.

EXPLORE

DISCOVER

BUILD

FOR NANOTECH



3D NANOCHARACTERIZATION FOR RESEARCH AND DIAGNOSTICS

3D NANOMETROLOGY FOR PROCESS CONTROL

3D NANOFABRICATION FOR PRODUCT DEVELOPMENT

NANOTECH LEADERSHIP FROM THE START

A new era of possibilities is opening up and the basic building blocks of the universe are within our grasp. Now the smallest features and structures of our world can be explored, discovered and controlled at the nanoscale – thanks to nanotech leadership from FEI.

Long before the nanotechnology era was widely acknowledged, FEI and its products were being used extensively for the science of characterizing, analyzing and measuring structures below the submicron level, even down to the atomic level.

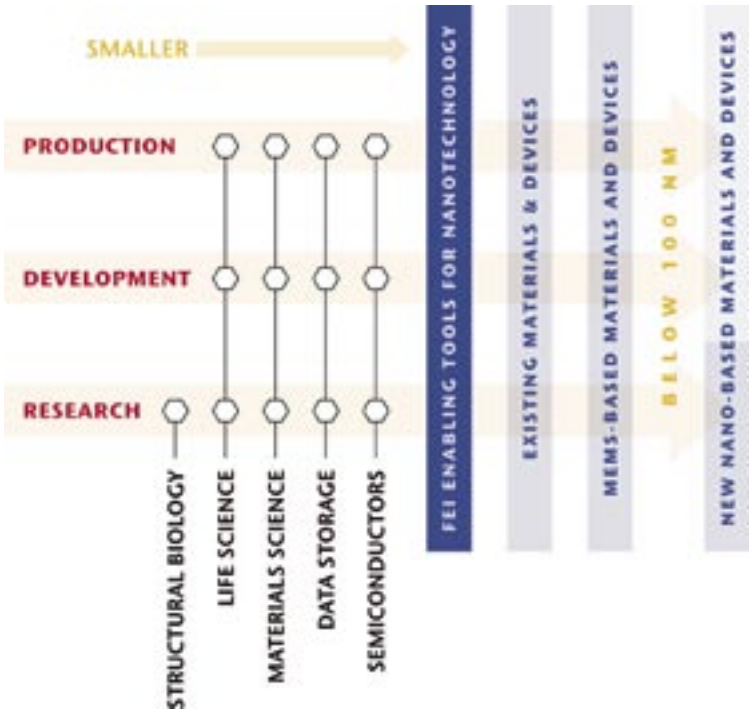
Today, FEI's market-leading systems and software enable researchers and manufacturers to push the boundaries of discovery towards breakthroughs in biotechnology, pathology, materials science, semiconductor manufacturing, and data storage.

At FEI, experience, leadership and innovation are built on our commitment to deliver the right Tools for Nanotech, taking customers where they need to go today – and in the future.

The world is thinking bigger because FEI lets it work so small.

3D TOOLS FOR NANO-DRIVEN MARKETS

FEI products have been paving the way for nanotechnology since 1949. With enabling technologies for nano-driven markets, FEI tools will continue to play a vital role in the development of new nanoscale materials and devices that will replace traditional products.



FIRSTS

FEI'S HERITAGE OF NANOTECH FIRSTS

1949
PHILIPS ELECTRON OPTICS INTRODUCES ITS FIRST PRODUCTION TEM

1958
10-ÅNGSTRÖM BARRIER IS BROKEN

1966
SOLID-STATE 5-ÅNGSTRÖM TEM DELIVERED

1977
HIGH-RESOLUTION SEM INTRODUCED

1978
TWIN LENS TEM

1986
COMPUTERIZED CM TEM SERIES

1989
ENVIRONMENTAL SEM RELEASED

1993
WORLD'S FIRST DUALBEAM™ (FIB/SEM)

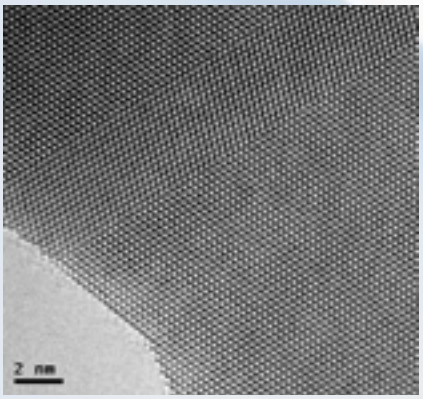
1998
ALL-IN-ONE INTEGRATED TEM INTRODUCED

2000
WORLD'S FIRST SMALL-STAGE DUALBEAM™ SYSTEM INTRODUCED

2003
INDUSTRY'S FIRST SEMICONDUCTOR FAB DUALBEAM™ METROLOGY SYSTEM INTRODUCED

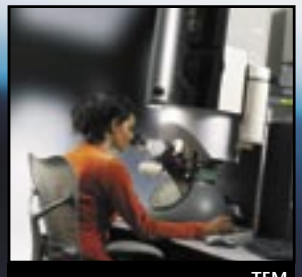
2004
FEI BREAKS THE 1 ÅNGSTRÖM RESOLUTION BARRIER WITH SUB-ÅNGSTRÖM IMAGING OF ATOMS

TOOLS
FOR NANOTECH



Every era of technological advancement requires visionaries who pursue new ideas and those who provide the tools needed to turn ideas into reality. FEI delivers Tools for Nanotech. We build core technologies that create powerful enabling tools for the world's leading researchers and manufacturers who are pushing the limits of nanoscale discovery and enhancing the quality of our lives.

NANOSCALE VISION
FEI TOOLS PROVIDE USERS WITH IMAGING DOWN TO THE ATOMIC SCALE WITH SUB-ÅNGSTRÖM RESOLUTION


TEM


SEM


DUALBEAM SYSTEMS

FEI SYSTEMS AND SOFTWARE

FOCUSED ION BEAM SYSTEMS (FIBs)
FIB systems utilize a finely focused beam of gallium ions operated at low beam currents for imaging and high beam currents for site-specific milling. Their versatility make them popular for a wide variety of applications including advanced circuit edit, repair of semiconductor photomasks, and revealing below-the-surface defects in advanced materials and devices.

SCANNING ELECTRON MICROSCOPES (SEMs)
SEMs are used for inspecting topographies of materials with a magnification range that encompasses that of optical microscopy and extends it to the nanoscale. They also provide chemical composition analysis.

DUALBEAM™ SYSTEMS (FIB/SEMs)
DualBeam is the preferred solution for 3D microscopy and analysis serving material characterization, industrial failure analysis and process control applications. They are designed to deliver integrated sample preparation and microanalysis below 1 nm for high throughput semiconductor and data storage fabs and materials science and life science labs.

TRANSMISSION ELECTRON MICROSCOPES (TEMs)
TEMs use high voltage electron beams to acquire ultra-high resolution sample images down to sub-Ångström levels for analyzing the atomic structure, crystallographic structure and composition of specimens. Designed with a high level of integration and automation, these systems are available in multiple configurations for specific market and end-user needs.

FEI SOFTWARE
Specifically written to operate with FEI's hardware using independent and internally consistent calibrations that result in data that are reproducible and accurate, FEI software offers total solutions. Systems and applications programs guide users with a clear workflow optimized for ease-of-use and faster time-to-results.


DUALBEAM SYSTEMS


FIB

GLOBAL NANO-DRIVEN MARKET EXPERTISE

Whether working to shrink existing geometries, unravel complex biological systems or build new materials through molecular construction, FEI is enabling some of the biggest advances the world has ever known for customers in NanoElectronics, NanoBiology and NanoResearch and, ultimately, for consumers around the globe.

NANOELECTRONICS

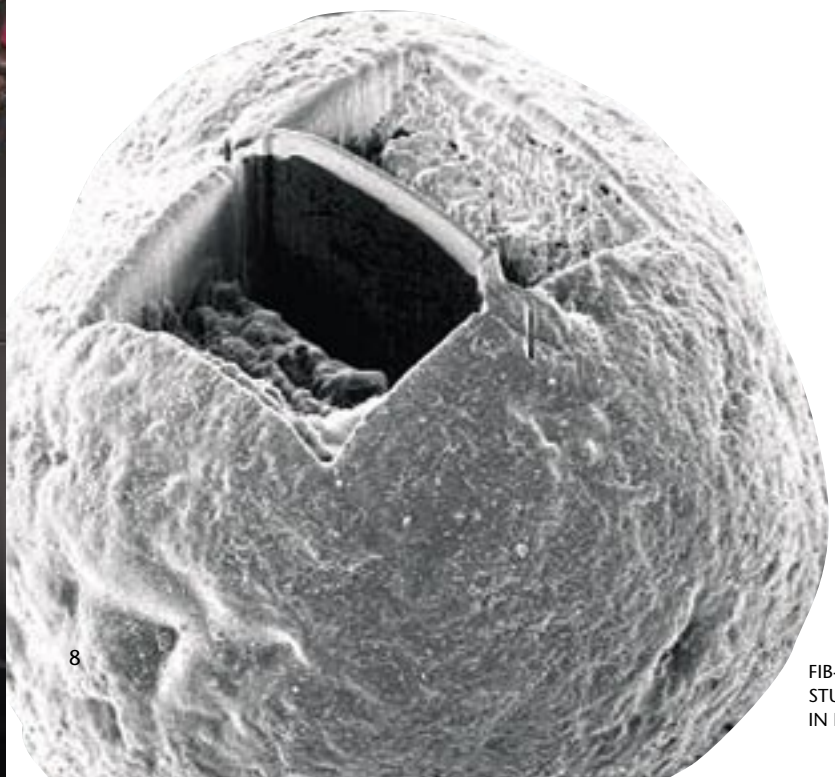
The computing and electronics industries were working at deep sub-micron scales long before the term nanotechnology came into vogue – and FEI has been a primary enabler of their ability to research and manufacture at the nanoscale. FEI supports companies in the semiconductor sector currently engaged in attaining circuitry as small as 45 nm and companies in the data storage sector seeking to develop higher recording densities within shrinking dimensions.

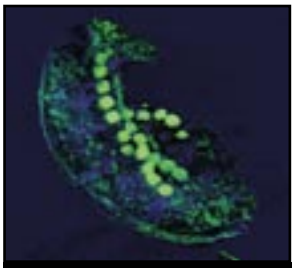
NANOBIOLOGY

Virtually every breathtaking advance now taking place in life sciences is directly linked to nanoscale biologic structures – and no one provides more leadership to exploring the nanoscale than FEI. Our pioneering work and continual progress in understanding the basic building blocks of life are enabling some big ambitions, from the rapid characterization of viruses, cells, DNA and proteins and the development of smart drugs, to dreams of developing in vitro devices for fighting life-threatening diseases.

NANORESEARCH

In the search for vastly lighter, stronger and safer materials; more efficient fuels and fuel cell technologies; and a wide range of better, more efficient products used by consumers every day – FEI works with university scientists and companies engaged in materials science, process control, and structural research applications – providing these specialists with the ability to image, characterize, analyze and manipulate objects with nanoscale dimensions.



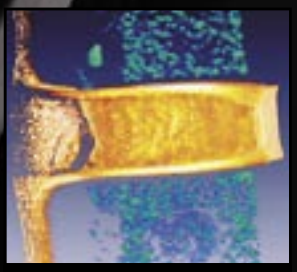


LIFE SCIENCE

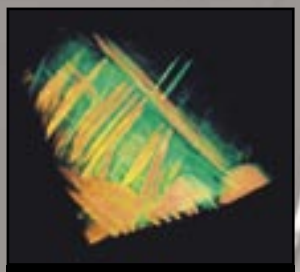
FIB-MILLED TEM SAMPLE PREPARED FOR STUDYING FLUID CATALYTIC CRACKING IN PETROLEUM REFINING.

VALUE
START TO FINISH

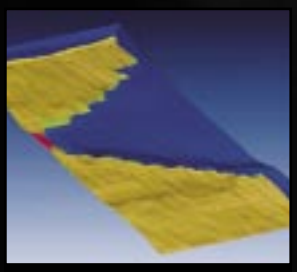
Providing nanoscale information rapidly and easily, FEI systems and applications deliver tremendous value to customers through faster time to discovery, shorter development cycles, higher production yields and faster time to market.



SEMICONDUCTORS



MATERIALS SCIENCE

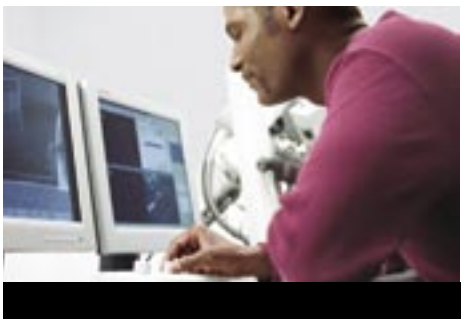


DATA STORAGE

CUSTOMER FOCUS, OUR PRIMARY FOCUS

Though our operations span the globe and the markets we serve are diverse, we are one company with the single mission of delivering value to our customers. We are committed to doing so by building an organization that remains technologically advanced and fiscally sound while remaining steadfastly focused on the continually evolving needs of our customers who require the most advanced enabling Tools for Nanotech.

FEI has built a global organization to serve customers with speed and efficiency. With more than 1,600 engineering, applications, service and corporate support employees around the world, we maintain R&D and manufacturing centers in North America and Europe, NanoPort technology centers in North America, Europe and Asia, and sales and support offices in more than 40 countries worldwide.



FEI COMPANY GRATEFULLY ACKNOWLEDGES THE FOLLOWING CUSTOMERS FOR CONTRIBUTING IMAGES THAT APPEAR IN THIS BROCHURE:

HANS-JÜRGEN ENGELMANN, AMD SAXONY, ***3D TOMOGRAPHIC IMAGE OF A MICROPROCESSOR VIA*** (PAGE 1, ROW 2, CENTER); XING ZHANG, STEPHEN B. WALKER, PAUL R. CHIPMAN, TIMOTHY S. BAKER, DEPARTMENT OF BIOLOGICAL SCIENCES, PURDUE UNIVERSITY AND MAX L. NIBERT DEPARTMENT OF MICROBIOLOGY AND MOLECULAR GENETICS, HARVARD MEDICAL SCHOOL, ***REOVIRUS-POLYMERASE*** (PAGE 1, ROW 3, LEFT); R. WEPT, BEIRSDORF, GERMANY, ***LAMELLIAR BODIES IN SKIN*** (PAGE 1, ROW 3, RIGHT); P. ZHANG, D. GERMAIN, T. ROUAULT AND S. SUBRAMANIAM, NATIONAL INSTITUTES OF HEALTH, ***FERRITIN DISTRIBUTION IN A SECTIONAL VIEW OF DEGENERATION OF MOUSE AXON*** (PAGE 1 ROW 4, MIDDLE); DR. KOBAYASHI, NATIONAL INSTITUTE OF ADVANCED INDUSTRIAL SCIENCE AND TECHNOLOGY, OSAKA, JAPAN, ***3D IMAGE OF MAGNETOSOME CHAINS IN MAGNETOTACTIC BACTERIA*** (PAGE 6, INSET).

FEI COMPANY™

TOOLS FOR NANOTECH

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TÜV Certification for design, manufacture, installation and support of focused ion- and electron-beam microscopes for the NanoElectronics, NanoResearch and NanoBiology markets.

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