

LEO 912AB



LEO
The power to resolve

LEO 912AB – the ultimate in imaging!

Latest technology for more information

LEO presents the LEO 912AB, a new version of the unique LEO 912 Energy Filter Transmission Electron Microscope. This instrument is configured for the demands of advanced bio-med applications. It delivers ultimate image quality for all specimen preparations and offers unlimited flexibility for consistent new imaging methods. The LEO 912AB combines top performance with ease of operation.

The key features:

- ▼ Uncompromising image contrast
- ▼ Superior specimen protection
- ▼ Unequalled ease of operation
- ▼ Full range of analogue and digital imaging and recording

Ultimate image contrast using elastically scattered electrons

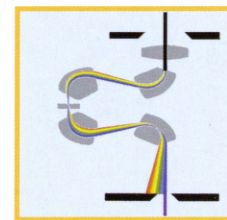
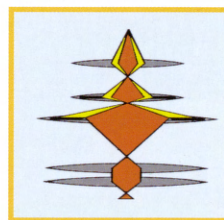
Improving image contrast for conventional images, means the use of an objective lens with long focal length, a small objective aperture and large defocus. This leads to considerable decrease in resolution. The only uncompromising method is elastic imaging. This is advantageous for all kinds of specimen and imaging methods.

Structure specific contrast using selected inelastically scattered electrons (ESI)

ESI enables imaging of unstained thin specimens with outstanding structure and element specific contrast along with new information. Biological fine structures, for instance, in combination with immuno- labelling, are imaged without artifacts produced by heavy metal staining.



Muscle. Digital image recording using a VarioSpeed Slow Scan CCD camera with 1024 x 1024 pixel resolution.



Highest performance through innovative Electron Optics

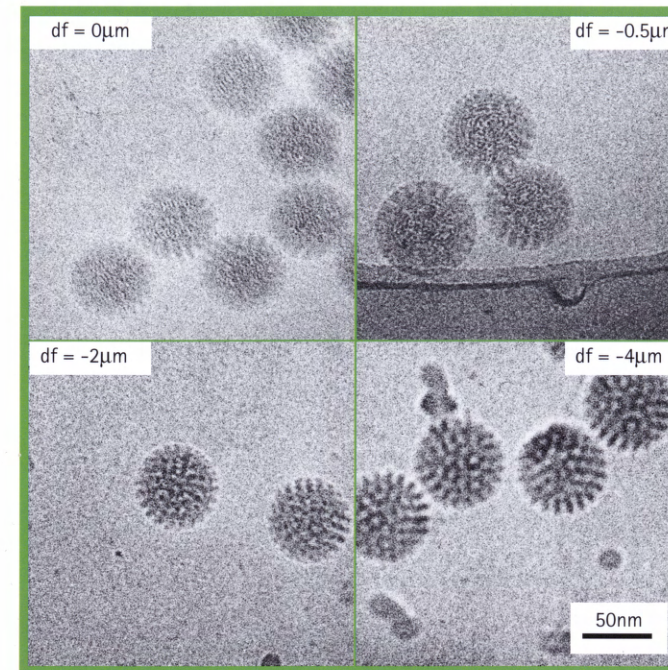
The LEO 912AB offers three major innovations in a clearly superior electron optical design: The unique in-column energy filter integrated into the projector lens system, the revolutionary Köhler illumination system, and the truly symmetrical single-field condenser-objective lens.

The LEO 912AB's electron optics impressively combines the benefits of superior performance with unlimited versatility, ease of use, and expandability for future applications.

Manifold imaging modes, full range of analogous and digital recording

The factory aligned patented OMEGA Spectrometer is an integral part of the microscope's optical system. It is not an attachment but it presents new additional imaging modes and thus applications. Filtered images contain clearly valuable information over a large field of view. They can efficiently be recorded by conventional film cameras* or digitally, using Image Plates* or any high resolution Vario Speed CCD camera*.

* = optional



Rota Virus, frozen at 100K. High contrast and optimum RNA structure resolution at Gaussian focus. The virus structure looks very different depending on the focus.



Digital imaging, processing, analysis and archiving

The LEO 912AB can be equipped with various image analysis systems in combination with different TV rate or Slow Scan CCD cameras. Thus high speed image acquisition, image processing, quantitative analysis, image archiving and data exchange via network is ensured.



Unprecedented user comfort for high speed operation

The expert operating system and the new menu structure of the LEO 912AB offers the user outstanding ease of use. It allows them to define computer controlled operation sequences which are optimised for this particular application. This advanced capability is extremely beneficial for routine work or imaging of highly sensitive specimens, as well as automatic specimen screening, image series, and documentation.

Maximum image contrast and superior specimen protection for frozen-hydrated specimens

High contrast even at Gaussian focus permits imaging with optimum resolution. Removing inelastic scattered electrons by energy filtering offers optimal contrast conditions and unsurpassed image quality for thin and thick frozen hydrated specimens.

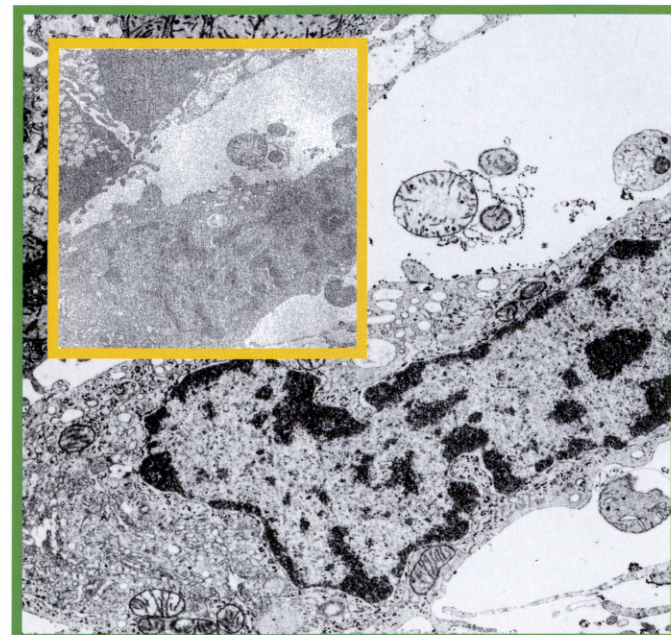
Superior specimen protection is made possible through ultra-clean vacuum, accurately calibrated dose measurement, user adjustable software for low dose control, and fast single button operation sequences by preprogrammed macros.

Top image quality even with thick specimen

High resolution, high contrast and high depth of focus can be obtained on specimens more than 1 μm thick. Comparable images can be achieved only by High Voltage Microscopy. The LEO 912AB with its filtering potential is ideally suited for automated tomography and stereo imaging.

Magic images performed by Contrast Tuning

Contrast Tuning with the LEO 912AB largely balances out contrast of large density variations in thick sections which can arise as a result of heavy-metal staining, knife marks and compressions. Contrast Tuning optimises contrast of specimen structures and increases image information.



Unstained section labelled with 5nm immunogold. Ultimate high contrast for biological fine structure and labelling using inelastic scattered electrons for imaging. Insert: Elastic brightfield image of the same specimen area. Specimen courtesy of Dr. L. Dini, Italy



Scales of green algae Mesostigma. 400nm thick section. Stereo images ±6°, elastic brightfield. By courtesy of Dr. Hans Ris, USA

Total user satisfaction...

LEO combines the very best of two leading electron microscope manufacturers, Zeiss and Leica. LEO, with its unique knowledge of innovative techniques and a deep understanding of customer applications, will guarantee a consistent and sustained programme in the advancement of electron microscopy.

The creation of LEO heralds a new era in the development, manufacture, sales and service of scanning and transmission electron microscopes.

LEO - committed to delivering excellent value to electron microscopists around the globe.



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