

BIOSYSTEMATICS MICRO-IMAGING SYSTEM

Biosystematics successfully secured a R1.5 million National Research Foundation National Equipment Programme grant to purchase a micro-imaging system. The system consists of i) a Zeiss Axio Zoom.V16 microscope and ii) a Zeiss Axio Imager.M2 compound microscope with Differential Interference Contrast (DIC) and fluorescence. Both microscopes are fitted with an AxioCam MRc high resolution camera and Z-stack that are motorised for reproducible settings and automatic procedures, both essential for producing high quality images of large reference collections. The equipment will enable micro-imaging of biological samples ranging from a few micrometres (fungi, some insects, nematodes) to several centimetres (arachnids, insects, some fungi). The micro-imaging system is also available to outside users.



The unique features of the Axio Zoom.V16

- The Axio Zoom.V16 defines a new class of instruments called the Zoom Microscopes.
- The aperture of this microscope provides much higher resolution at low magnifications. For example, at a 1.0x magnification the aperture is 0.25 N.A giving a resolution of 744 lp/mm, almost twice as much as conventional stereo microscope.
- The Axio Zoom. V16 closes the gap between the standard overview object fields of the stereomicroscope and the higher magnifications achieved by the compound microscope, but with much better resolution.

The unique features of the Axio Imager.M2 (motorized research Microscope with Fluorescence)

- All manual and motorised nosepieces and reflector turrets of the Axio Imager.M2 are coded. This means that the microscope user always has precise information about the position of the nosepiece/reflector turret for standardisation.
- All objectives are achromatically corrected and minimise stray light to give superior contrast for small samples. The large numerical aperture of the 63x and the 100x is 1.40 and a lot more information is captured by the objective from the sample resulting in very high resolution images, and a field of view of 23 mm.
- Homogeneously illuminated DIC image from 5x to 100x magnification.
- Calibre High-performance LEDs (Light Emitting Diodes) take the place of a white light source as the reflected light illuminator for Fluorescence. Each individual LED delivers a precisely defined range of the spectrum. No undesired light is emitted. The result is extremely high-contrast images with a high dynamic range.



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Bookings

Tentative booking by ARC personnel can be made on line through the intranet (<http://www.arcnet.agric.za/Research-Development/BiosystematicsMicroscopyImagingSystems/SitePages/Home.aspx>). An internet based booking system for outside users is still being developed. Booking will be confirmed by a member of the operational team. For all other enquiries please contact a member of the operational team.

Operational Team Members

The operational team consists of the following people:



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Costs

Non-ARC users, with supervision, R 200 per hour (2014-2015).

Special rates apply to users from ARC institutes.

Rates will be reviewed on an annual basis.

Contact Operational Team Members for further information



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