

# THE IREM-III MICROSCOPE SYSTEM

## SPECIFICATIONS

### IREM-III Camera

- 1280 x 1024, 15µm pixels
- Detector Material: InGaAs
- Operating Temp: LN<sub>2</sub> Cooled, 77 K
- Spectral Response: 1.10 µm - 1.54 µm
- Cryogenic Hold Time: >18 hours

### Motion System

- Resolution: 25nm Standard
- Motion Range (X,Y,Z):  
100mm/100mm/ 100mm
- Isolation Frequency: <2Hz
- Isolation Damping: Q <5

### Power Requirements

- 1 kVA Max (International Power Configuration Available)

### Features

- High Resolution, High Sensitivity Image Acquisition with SIL and Other Optics
- AIRIS Software with 3RD Party Software Interfaces
- Wafer Probing Capability
- High Repeatability: <0.5 µm
- High Reliability: > 97%
- Tester Docking Design: Allows docking with almost all testers for improved flexibility
- Modular Upgrade Path: IREM designed to enable upgrades to match customer development

### Systems Dimensions Stage

- 810mm x 876mm x 813mm
- 160kg

### Electronics Rack

- 610mm x 1283mm x 762mm
- 90kg

### Auto Fill Tank

- 508mm x 1169mm x 813mm
- 50L Capacity
- 65kg

Magnification	Numerical Aperture	Design Wavelength (µm)	Working Distance (mm)	Optical Resolution (µm)	Pixel Resolution (µm/p)	Crash Protection (SW/HW)	Illumination
1x	0.13	1.10-1.54	80.00	5.631	15.00	SW	Ring
10x	0.26	0.48-1.80	30.50	2.815	1.50	SW	Ring
25x	0.26	0.48-1.80	30.50	2.815	.075	SW	Ring
20x	0.50	1.10-1.54	14.00	1.464	.060	SW	Ring/Coax
100x	0.70	0.48-1.80	10.00	1.046	.15	SW	Ring/Köhler
380x	3.00	1.10-1.54	SOLID IMMERSION	0.244	.04	SW/HW	Köhler

## CUSTOMER SERVICE PARTNERSHIP

IRLabs offers a comprehensive service and support program to help ensure maximum up-time, efficiency, quality of your FA operations and continuous utilization of your IREM investment. Our Service & Support program is designed to meet your individual service requirements by offering various levels of service and support, which can be tailored to your technical support and training needs. Our programs cover In-House and Field Service including Preventative Maintenance (PM) visits and training as well as telephone and email support for all subsystems of your IREM.



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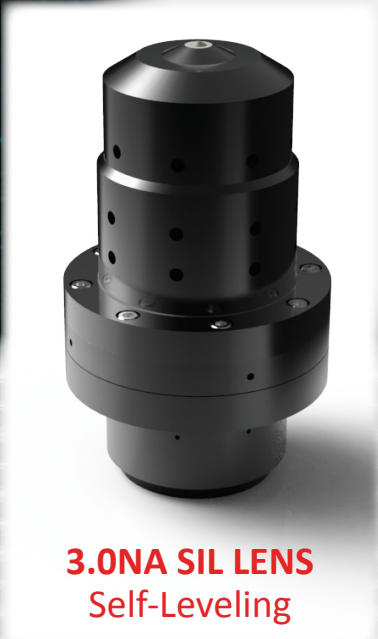
# IRLabs

A SUBSIDIARY OF INFRARED LABORATORIES, INC.

## IREM-III Photon Emission Microscope System

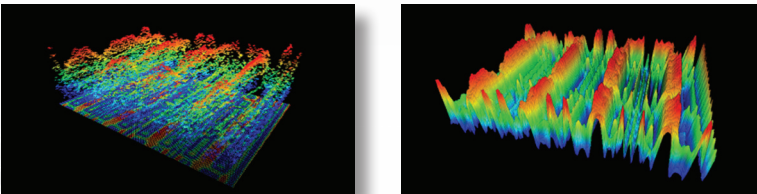


IRLabs invented the gold standard in IREM cameras. The IREM-III/ 3.0NA SIL delivers the sensitivity you expect with higher resolution, over 4x the viewing area. Our 1280 x 1024 array combined with self-leveling SIL lets you see more in less time.



3.0NA SIL LENS  
Self-Leveling

AIRIS SOFTWARE  
3D Mapping



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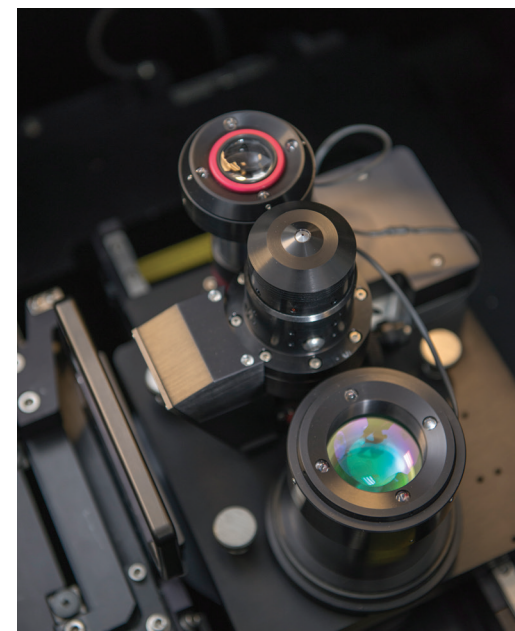
# INFRARED EMISSION MICROSCOPE SYSTEM

Solid immersion objectives provide the highest resolution for imaging through silicon. The new SIL 3.0 lens is our highest resolution lens ever. Custom designed for the IREM-III camera, it provides high resolution over a large field of view. Our innovative tip design delivers the lowest contact force on the market, providing non-destructive measurement, even on delicate thinned wafers. This eliminates complex and expensive tip-tilt tables, so your imaging can move quickly from site to site.

- **Numerical Aperture: 3.0**
- On-Axis Strehl: 95%
- Field-of-View: 50.5  $\mu\text{m}$  x 40.4  $\mu\text{m}$
- Color-Correction: 1.10  $\mu\text{m}$  to 1.54  $\mu\text{m}$
- Full-Field Strehl: 90%
- Transmission: > 80%



**3.0 NA SIL Solid Immersion Lens**



IREM cameras have always led the industry with the lowest noise/highest sensitivity performance. Our new IREM-III Photo Emission Microscope Camera brings this same performance in a large format design. We combined our proprietary sensor with upgraded readout electronics and an improved dewar design. Added to the new SIL 3.0 lens, this camera delivers uncompromising resolution and sensitivity over a large field of view.

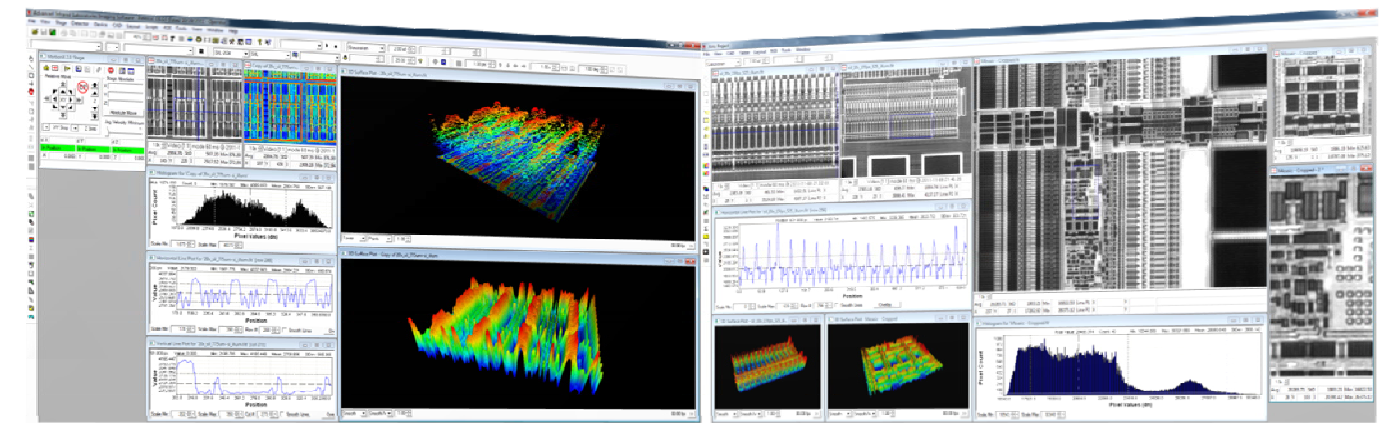
- **1280 x 1024 15  $\mu\text{m}$ /pixel InGaAs**
- LN<sub>2</sub> Cooled, 77 K Operating Temperature
- System Incorporated Pump Out Port
- Spectral Response: 1.10  $\mu\text{m}$  to 1.54  $\mu\text{m}$
- Cryogenic Hld Time: >18 hours
- Stainless Steel Construction
- FPA Dark Current < 1e-
- FPA Read Noise: < 10e-



**IREM-III Camera**

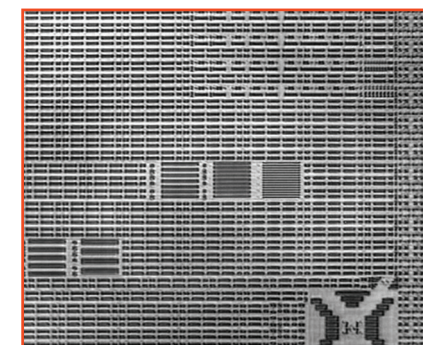
## AIRIS Software

**EASE OF USE – MAXIMIZED THROUGHPUT**

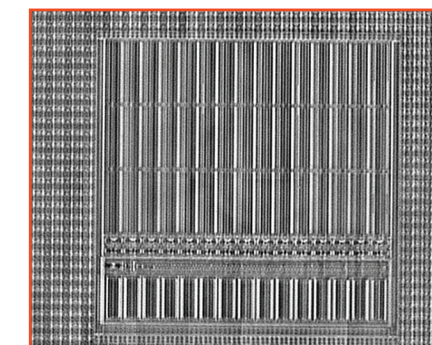


Working over 18 years in development with customer engineers, AIRIS powerfully threads the IREM camera and IREM-Optics together utilizing them to their fullest. AIRIS provides the IREM tool operator the freedom to effortlessly perform large scale mosaics, click and pan navigation, CAD overlay functions, as well as view intensity plots, 3D profiles, deconvolution, emission overlays and much more. AIRIS gives you and your team the interface needed to achieve both outstanding productivity and superior results.

**HIGHEST RESOLUTION**  
Solid Immersion Lens



**MOST SENSITIVE**  
22nm 3D Tri-Gate Transistor Device



**LARGEST FIELD OF VIEW**  
Custom Optics

