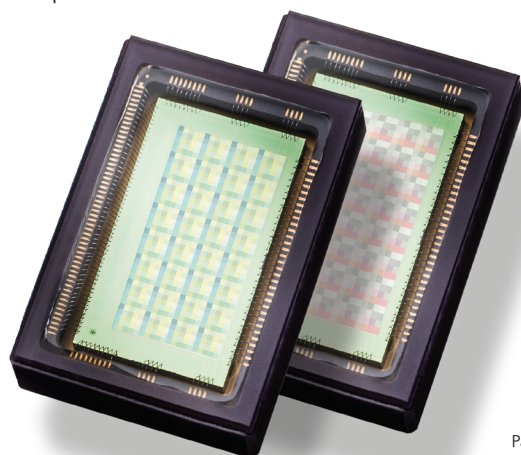# SNAPSHOT MOSAIC HYPERSPECTRAL EVALUATION SYSTEM

Imec's hyperspectral evaluation system offers simple, fast and easy application set-up for your hyperspectral scanning and analysis of sample materials. Our solution is flexible and designed to enable application development using hyperspectral imaging technology, delivering relevant test data already within a few days after initial installation. It includes all required components, from imager to camera, lens, cable interface and software and can be easily rebuilt into different configurations.

HYPERSPECTRAL TECHNOLOGY FOR REAL-WORLD APPLICATIONS

Hyperspectral cameras, compared to traditional cameras, divide the light spectrum in many small wavelength bands. Therefore, a hyperspectral camera captures the spectral fingerprint of an object, a unique spectral curve giving very detailed information about its exact constitution.

By combining imec's hyperspectral filters processing capabilities with its extensive image processing and systems design expertise, our engineers have developed a unique hyperspectral imaging evaluation system that matches with industrial end-application requirements.

KEY BENEFITS

- **Easy set-up** of the complete system

- **Ready-to-use solution:** instantly collect hyperspectral data from your samples and determine spectral band differentiators

- **Flexible configuration:** quickly modify the set-up once you get more acquainted with the hyperspectral imaging technology

- **Video-rate** acquisition of hyperspectral imaging data cubes

Packaged hyperspectral snapshot mosaic, 16 and 25 bands

APPLICATIONS

- Optical sorting in machine vision

- Chemical analysis of material composition

- Food safety and inspection

- Medical & healthcare

- Pharmaceutical manufacturing

- Semiconductor & photovoltaic

- Waste recycling

- Human machine interface

- Minerology & mining

- Precision agriculture

IMEC SNAPSHOT MOSAIC IMAGER SPECIFICATIONS

Number of spectral bands	16 bands in 460-620 nm range (SNm4x4 VIS version) 16 bands in 595 – 860 nm range (SNm4x4 RedNIR version) 25 bands in 665 – 975 nm range (SNm5x5 NIR version)
Bandwidth per band (FWHM)	<15nm collimated
Base imager type	CMOS imager, CMOSIS CMV2000 based
Spatial resolution	512 x 272 RAW per band (SNm4x4 VIS version) 512 x 272 RAW per band (SNm4x4 RedNIR version) 409 x 218 RAW per band (SNm5x5 NIR version)
Frame rate	Up to 180 hyperspectral cubes/second
Pixel pitch	5.5µm
Bit depth	10 bit
Optical input	(near) telecentric 35mm lens

HYPERSPECTRAL IMAGER & SOFTWARE

The current hyperspectral imager is built on a commercially available CMOS image sensor for the machine vision market. The imager specifications are listed here above.

The user interface of imec's in-house software is designed for user-friendly hyperspectral imaging operations.

THE EVALUATION SYSTEM CONSISTS OF THE FOLLOWING ELEMENTS:

- Imec hyperspectral imager

- USB3.0 xiQ camera from XIMEA

- Standard C-mount and selection of foreoptics available (35mm lens and cut-off/ blocking filters)

- Interface cables, tripod mount

- Reflectance tile

- Hyperspectral imaging software enabling HSI data-cube reconstruction rate video rates and on a user friendly USB3.0 laptop (laptop not included in the demokit)
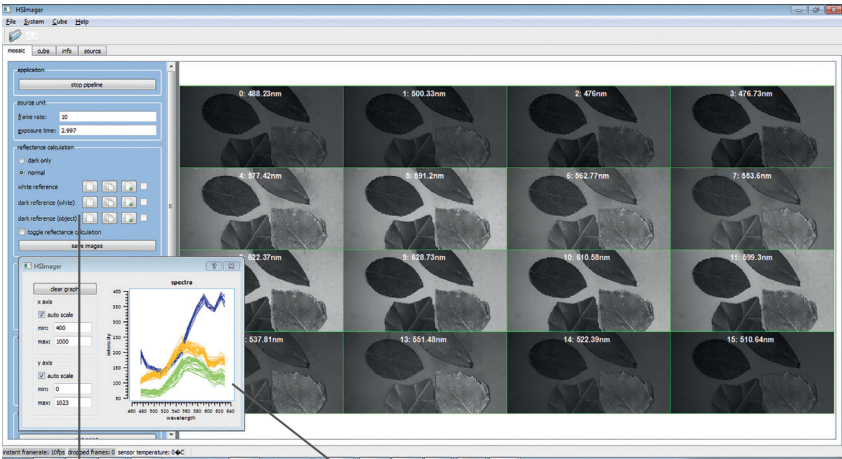

Main control pane

- Camera (fps, t)

- Cube/frame dump

- Refectance calculation

Visualization panel

- Speed synchronization

- Saturated pixels

- False color image

- Spectral plotting

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