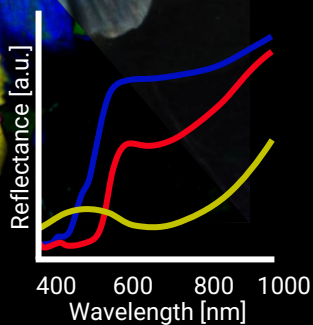


Reconstructed RGB from hyperspectral dataset

Classified hyperspectral image



HYPERSPECTRAL IMAGING FOR CULTURAL HERITAGE

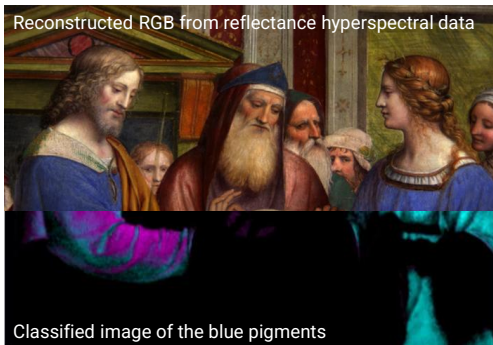
HERA Hyperspectral Camera

HERA is a **Fourier-Transform** hyperspectral camera available in four different models, covering a total spectral range from 400 to 2200 nm. It provides a high light throughput, thanks to the NIREOS's patented technology based on common path birefringent interferometer. Our technology extracts a hyperspectral data-cube without the need for image reconstruction and movement between the camera and the sample. The field of view covered can be adjusted from micro to wide-field. HERA is designed for reflectance (diffused or direct), transmittance and luminescence imaging.

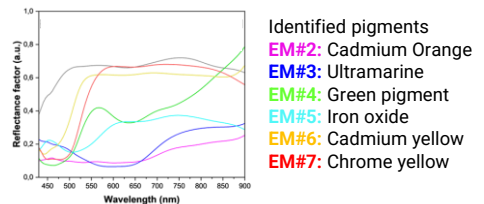
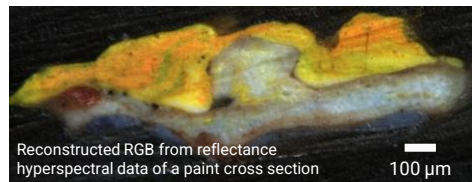
Key Features

- Four models, for a total spectral range from 400 to 2200 nm
- High light throughput
- Suitable for reflectance, transmittance, diffuse reflectance and luminescence
- Flexible, for wide-field, macro and microscopy measurements
- Portable and lightweight
- Stationary and non-contact
- Export data in ENVI format, user friendly software included (acquisition software and HyperLAB analysis software)

Examples



Read the full paper: *Coatings* **2025**, *15*(9), 1113;
DOI: 10.3390/coatings15091113



On the cover: hyperspectral images acquired 20th C. flower piece oil painting, executed in 17th C. Dutch style. In collaboration with Koen Janssens (University of Antwerp), Nouchka De Keyser, Francesca Gabrieli, Frédérique Broers (Rijksmuseum) and Matthias Alfeld (Delft University of Technology).

Configurations

Wide-field mode



Wide-field and macro imaging

HERA cameras can be used as a photographic camera, mounted on a tripod, for on-site measurements.

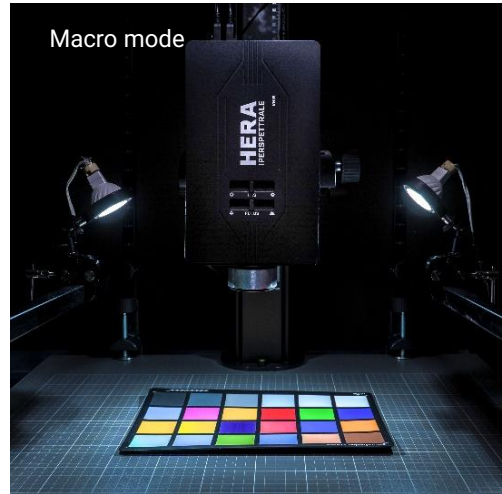
You can widen or narrow the field of view (FOV) as needed by simply attaching a NIREOS-compatible lens to the camera's threaded mount.



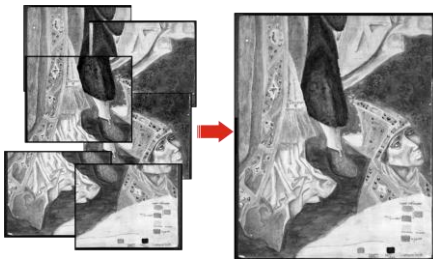
Microscopy imaging

HERA cameras can be mounted on any microscope equipped with a camera port using a NIREOS optomechanical adapter.

This allows you to turn your microscope into a hyperspectral microscope!



Macro mode



HyperLAB stitching extension

The stitching extension of HyperLAB analysis software allows you to load multiple hyperspectral datasets acquired on the same large object (such as large painting) at different positions, with an overlapping region between two adjacent images, and effortlessly create a hyperspectral panoramic image.

Image credit ©The Courtauld Institute of Art.

Technical specifications



HERA
Camera model

VNIR

SWIR

VIS-SWIR

eSWIR

Spectral range [nm]	400 - 1000	900 - 1700	400 - 1700	1200 - 2200
Sensor	CMOS	InGaAs	InGaAs	Extended InGaAs
Sensor spatial resolution [pixels]	1280 × 1024	640 × 512	1280 × 1024	636 × 508
Spectral resolution [nm]	<1.5 @400 nm <10 @1000 nm ¹	<5 @900 nm <16 @1700 nm	<1.5 @400 nm <20 @1700 nm	<10 @1200 nm <30 @2200 nm
Number of bits	12	14	12	14
Number of spectral bands	Selectable via software ²			
Horizontal Field of View	8 degrees ³	11 degrees ³	8 degrees ³	11 degrees ³
Working distance	60 cm - ∞	1 m - ∞	1 m - ∞	1 m - ∞
Dimensions [mm]	246 × 150 × 86.5	246 × 160 × 107	246 × 160 × 107	240 × 170 × 140
Weight [kg]	2.6	3	3	4.5
Software package	Acquisition App (HERA Acquisition App) & Analysis App (HyperLAB)			
Recommended system requirements	32 GB RAM, SSD drive suggested			

¹ Spectral resolution can be improved up to <1 nm @ 400 nm and <4 nm @ 1000 nm by requesting a separate 'Very High Resolution' option.

² HERA is a FT spectroscopy-based instrument, and the number of extracted spectral bands can be chosen depending on the needs. Pre-set scan modes providing different spectral resolutions (and numbers of bands) are available in the Acquisition App software.

³ The Field of View can be extended or reduced (macro imaging) by adding optional lenses in front of the camera. Availability varies by model.

Available accessories: Microscope adapter, FOV extender lens, Macro Lens, Illumination System, Laptop, SDK, Diffuse Reflectance Reference, Tripod.

HERA SWIR, HERA VIS-SWIR and HERA eSWIR are Dual-Use Product (Annex I of the EU Regulation 2021/821 and subsequent amendments, control code 6A003.b.4.a).