cosine | measurement systems

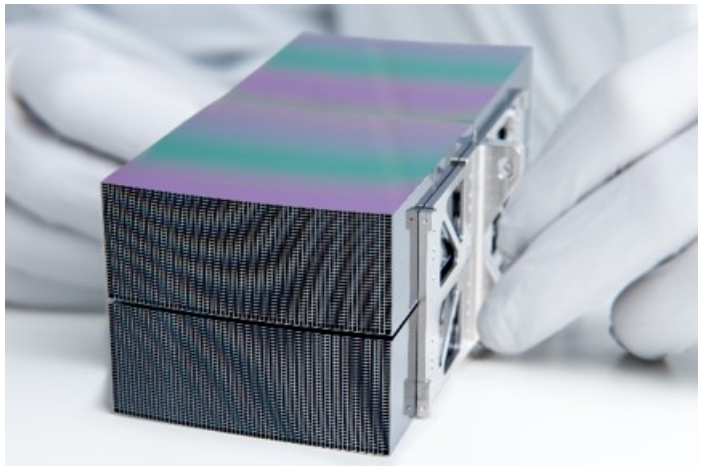
cosine measurement systems

Prof. Dr Marco Beijersbergen
cosine measurement systems

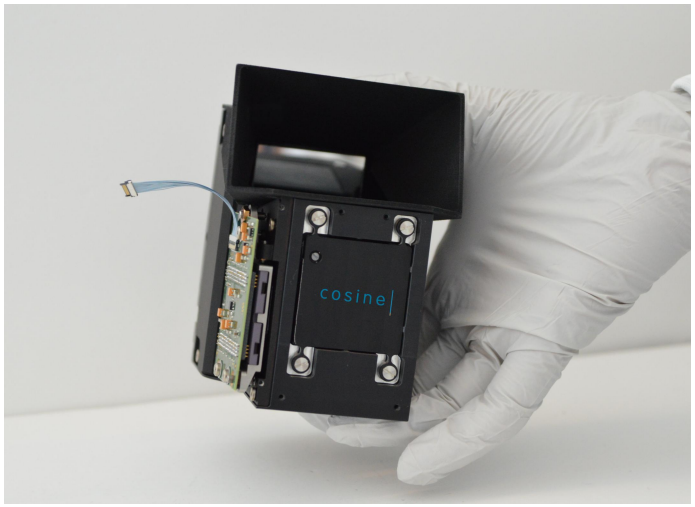
cosine

- Development and supply of measurement systems
- Founded in 1998
- 40 scientist-engineers
  - advise and design
  - develop and build
  - hardware and software
- Office and labs in Warmond
  - clean rooms
  - assembly and test facilities
  - electronics and radiation facilities
- Management
  - Prof. Dr Marco Beijersbergen
  - Dipl.-Ing. Max Collon

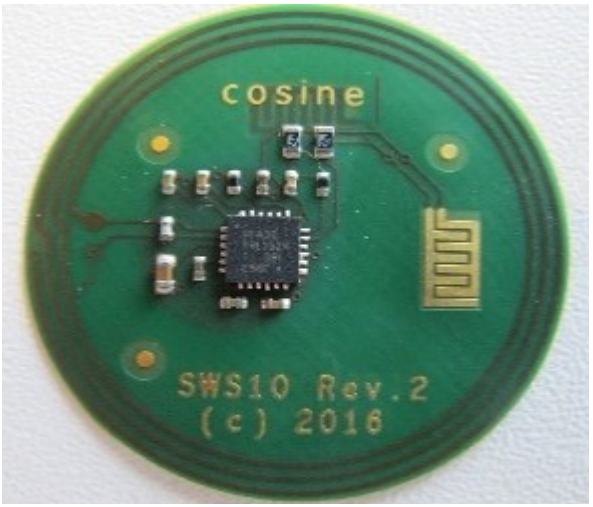
Business lines



High-energy optics
X-ray and gamma-ray optics
for
Astronomy, Material Analysis and Health



Remote sensing systems
Space and air-borne spectral cameras
for
Science, Agriculture, Environment and Disaster Management



Inspection systems
Spectral imaging, radiation detection & in-situ sensors
for
Science, Health, Energy, Agri, Food & Pharma

Portfolio


esa


Netherlands
Space
Office

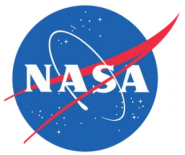

MPE


DLR


SELEX GALILEO


AIRBUS


OHB


NASA


IBM


SAINT-GOBAIN
CRYSTALS


H
HEEREMA


CHDR


condi food
hyperspectral food inspection


vodafone


SURREY
SATELLITE TECHNOLOGY LTD


PTB


SOFRADIR


PHOTONIS


Verpakapotheek
Medicatie op maat


e2v


leti


Halin
Group


DUTCH FLOWER
GROUP


FINMECCANICA


efacec


ISIS


NISSIN

Strategy

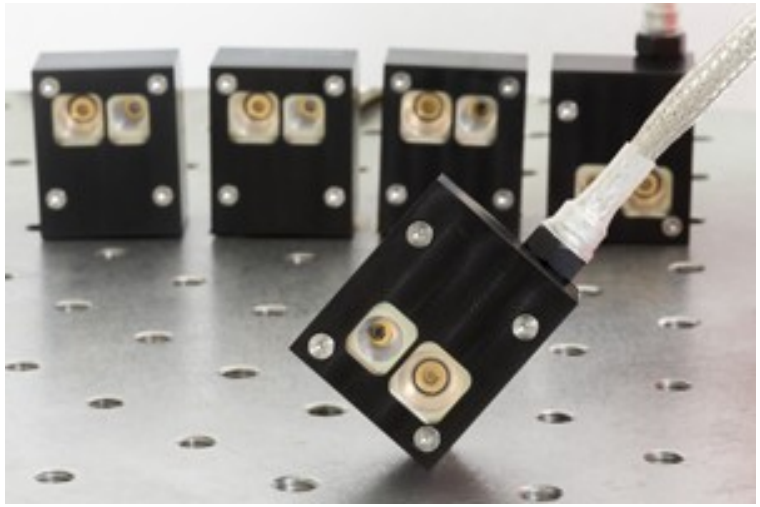
- cosine develops new technology for & with strategic customers
  - space, science, energy, food etc
  - for ESA, small and large companies, institutes and universities
  - with clusters of high-tech companies, universities, institutes
- Based on this, cosine builds custom measurement systems
  - Spectroscopic imaging, thermal infrared to gamma-ray
  - In-situ sensors
- If there is a business case, a spin-off is set up for a specific product-market combination
  - 3D-one BV for multi-camera spectral imaging hardware
  - condi food BV for inspection cameras for food quality and safety


credits: ESA


credits: ESA


NightPod Large
Lens Support
ATTENTION
Remove batteries
before stowage
NightPod Left Leg
NightPod Right Leg

Optical proximity sensors on MASCOT lander of Hayabusa2



- Developed in 8 months
- Launched Dec '14
- Lands on asteroid 1999 JU3 in 2018


esa


credits: ESA

Stereoscopic camera systems

- 4 Mpix CMOS camera pair
- Computer-controlled optical zoom (20x), iris, focus
- Cross-calibrated and synchronised

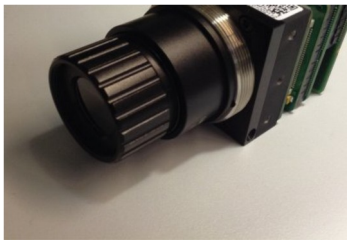
Multifunctional spectral imaging platform

Multicamera spectral image processor

Up to 6 spectral cameras
Synchronized, cross-calibrated
On-board FPGA
On-board embedded PC
Real time display

3D-ONE

thermal



IR

vis

UV

X-ray

gamma-ray

ionizing particles

FTS Camera

Hyperspectral camera to recognize and date blood stains on a crime scene

cosine

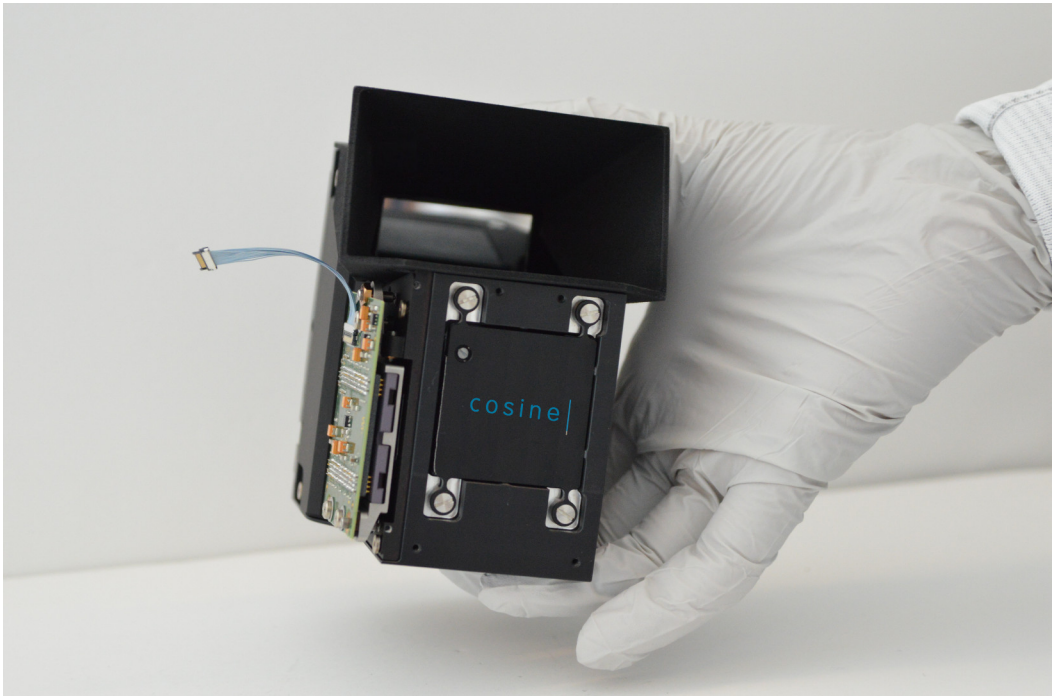
CONDI® continuous optical non-destructive inspection

Airborne hyperspectral imaging

IRIS®

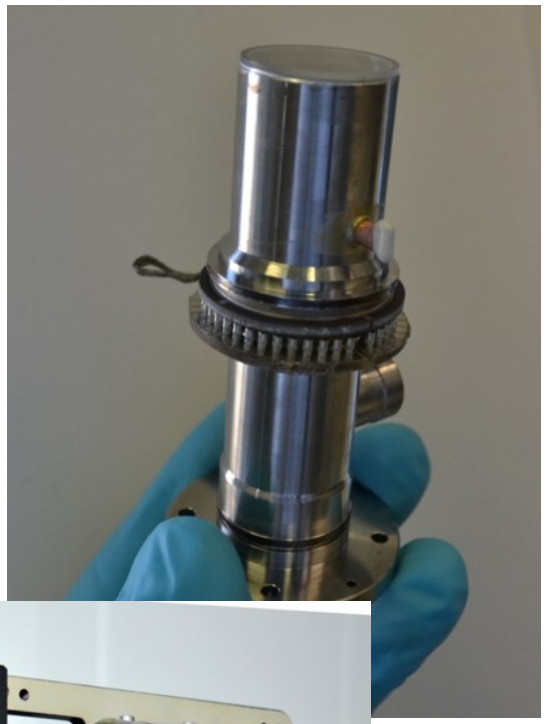
HyperScout

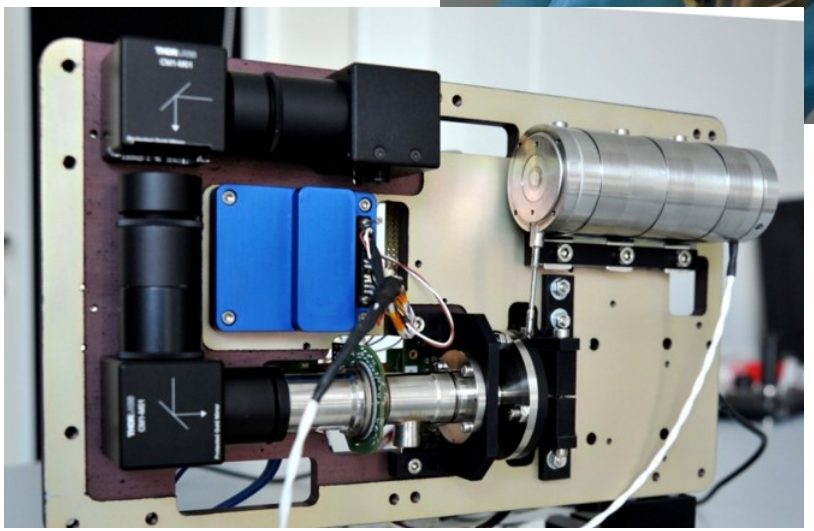
- Hyperspectral imager vis-NIR
- Nanosat and add-on for larger satellites
- State of the art technology
  - Free-form optics
  - Lithographic filters
  - On-board processing
- 20 m ground resolution
- Up to 200 bands
- Ready for launch early 2018



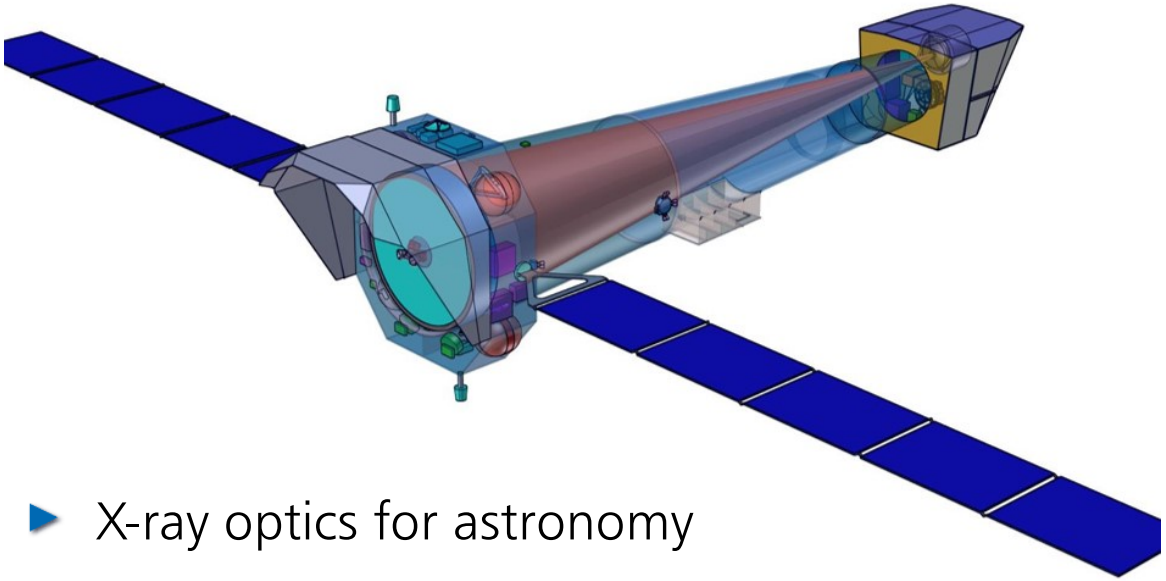
IR spectroscopic imagers

- Miniaturized IR spectroscopic imager
- For small satellites
- Harvest Horizon joint venture
  - Agriculture

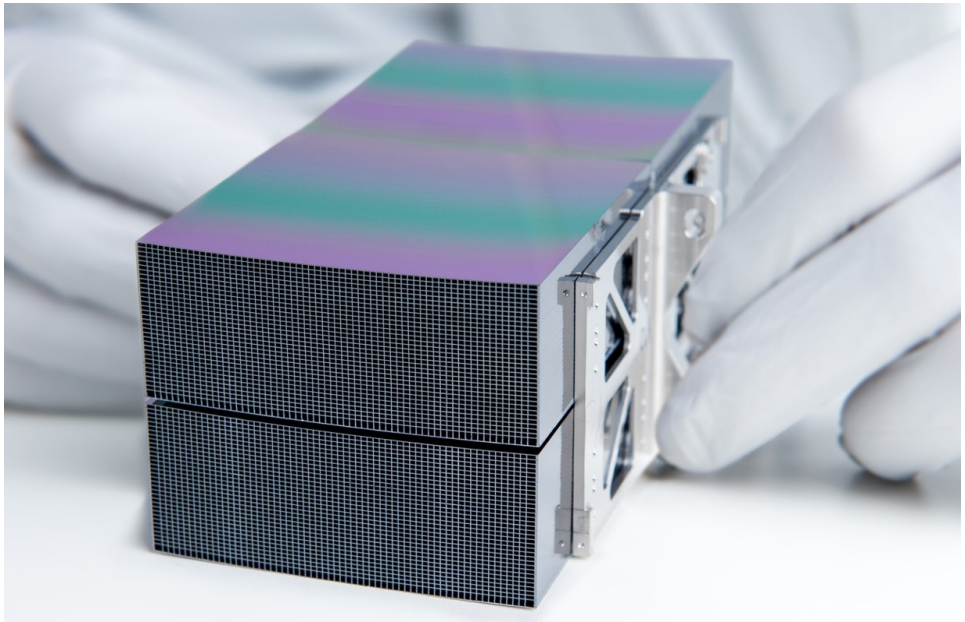




Big science: high-energy optics



- X-ray optics for astronomy
  - Athena
- Other missions
  - Arcus, …
- High-energy optics for other applications
  - Beam lines
  - Material analysis
  - Medical



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cosine
Oosteinde 36
2361 HE Warmond
The Netherlands

tel. +31 71 5284962
info@cosine.nl