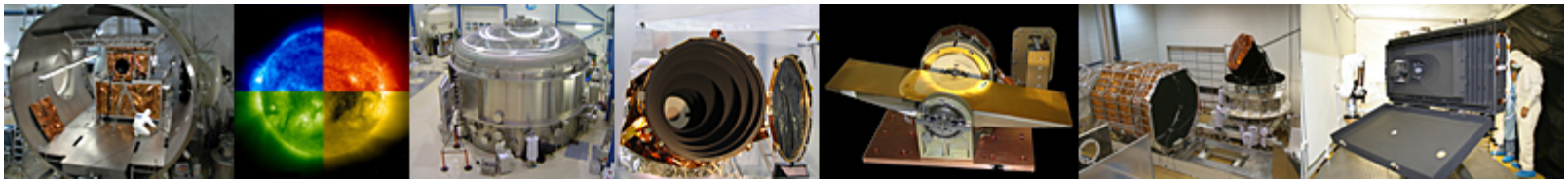
Laboratory of Electronics

STAR Workshop 15/09/2017



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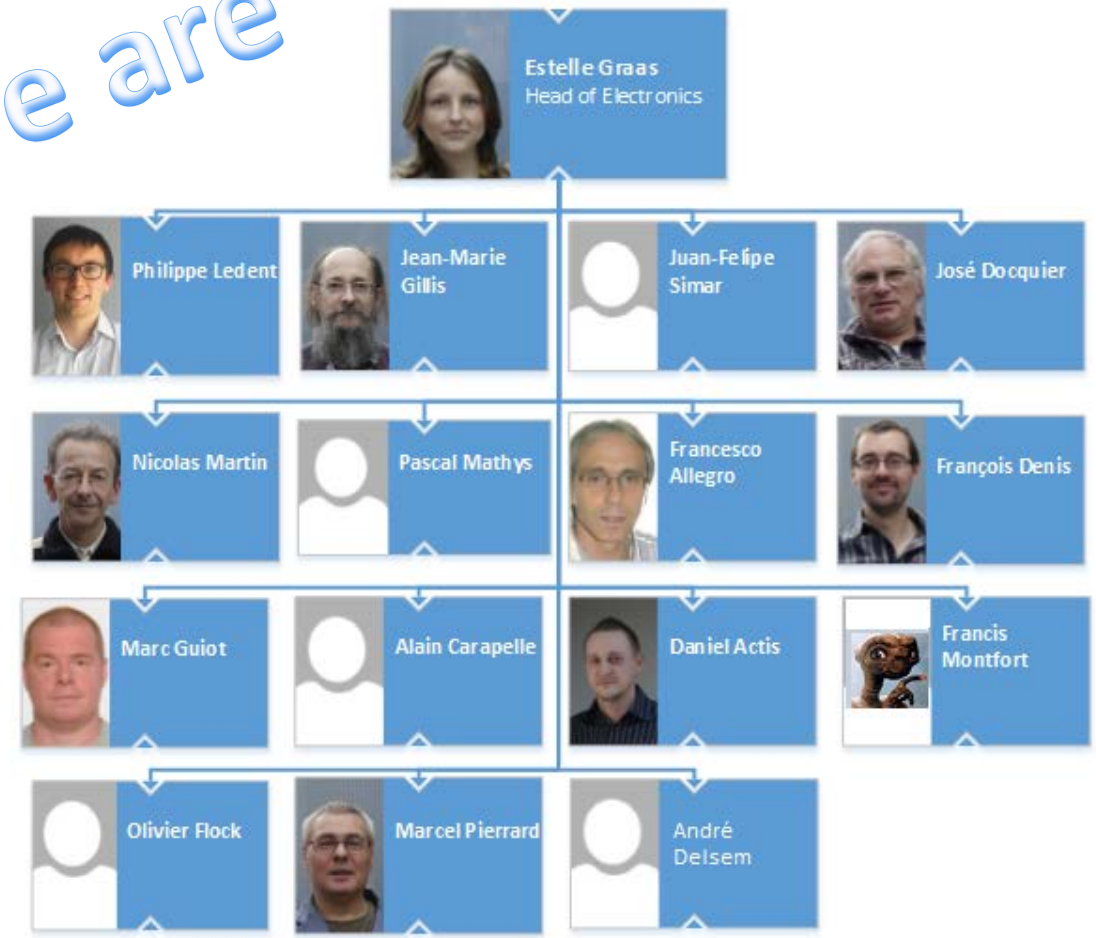
Who we are



8 engineers

6 technicians

1 physicist

1 alien

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What we do

- We design electronic circuits/products for:
  - aerospace and defence applications
  - research applications
  - industrial and commercial applications

- Our skills are:
  - Analog and digital electronics
  - Power electronics
  - Embedded software (µC, µP, DSP, FPGA…) and computer software
  - Electronic system engineering

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What we do

- We specialize in:
  - designing **high reliability electronics** for harsh environments: temperature, shock, vibration, vacuum, radiation…
  - participating to the activities of **qualification** of flight equipment and components – in two areas:
    - ❖ Radiations (simulations, testing, shielding…)
    - ❖ Electrical Ground Support Equipment (EGSE)

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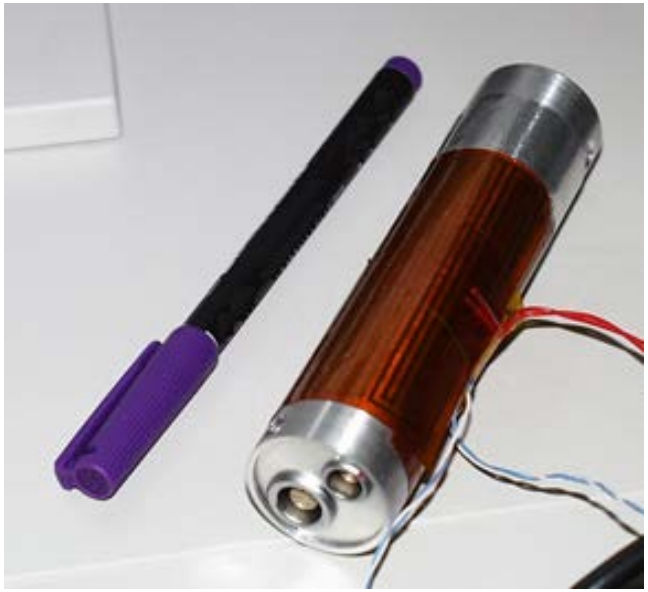
Examples

Highly stable photometry cell



Designed and tested within the framework of MERIS (MEdium Resolution Imaging Spectrometer).

MERIS is aboard ESA's Envisat satellite.

MERIS was measuring the solar radiation reflected off the Earth in 15 separate bands of visible and near-infrared light.

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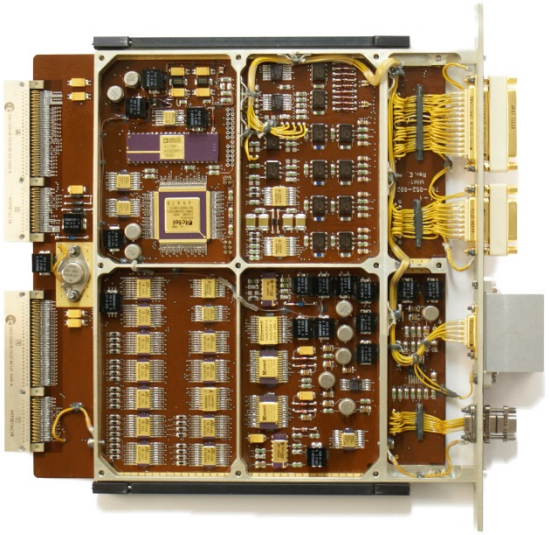
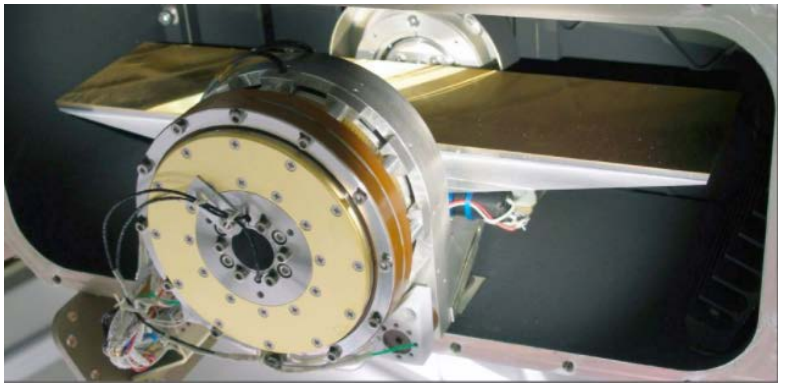
Examples

Driving a cryogenic motor for the Herschel space mission





Grating assembly of the PACS instrument

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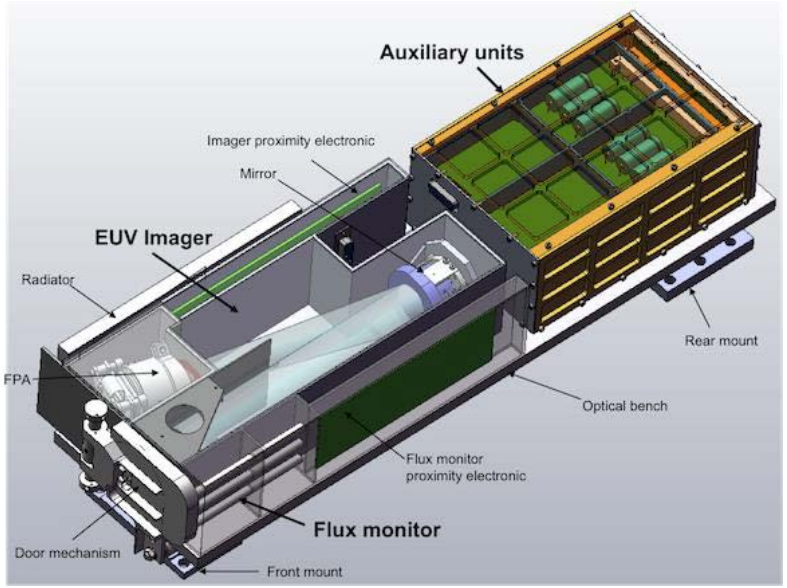
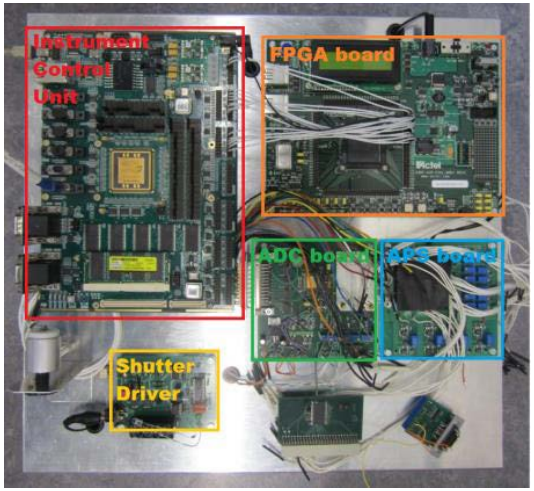
Examples

Study and breadboarding of a space weather payload (ESIO – ESA GSTP project)





ESIO electronics breadboard with CMOS APS image sensor

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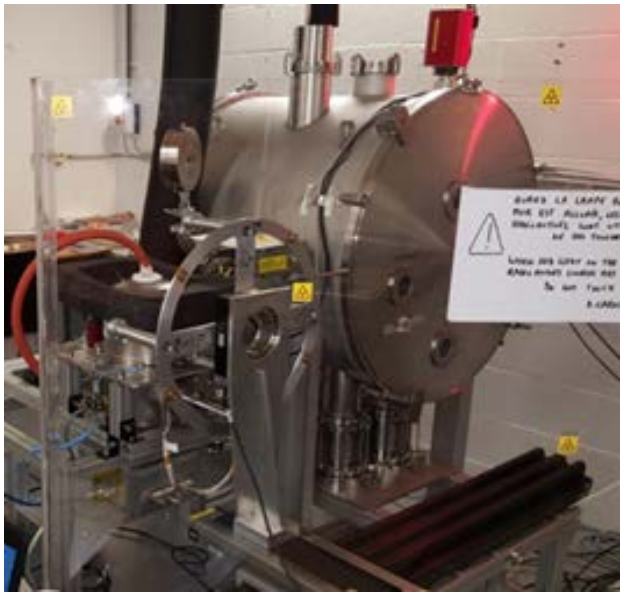
Examples

Focal e

Low electron flux test facility



Developed within the framework of JUICE mission (JUpiter ICy moons Explorer):

- Electron beam [0 – 3,5] MeV
- Flux [0 – 6000] e-/cm2.s
- Under vacuum or at atmospheric pressure
- At ambient or liquid nitrogen temperature
- High resolution electron spectrometer

It measures:

- Electron absorption in shielding
- Electron-induced signal in detector (MAJIS)
- Electron Quantum Efficiency (UVS MCP)

for Jupiter missions, GEO orbits…

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Examples

EGSE

for the automated tests of MIRI

EGSE for MIRI ICE

Designed to control and to provide loads to the Instrument Control Electronics (ICE) of the Mid-InfraRed Instrument (MIRI) of JWST

It emulates all interfaces to the ICE :

- Simulates the commands from the on-board computer of the telescope
- Simulates all components of the MIRI instrument (motors, sensors, etc…) with full monitoring capabilities and interfaces to the customer Automatic Test Equipment (ATE) control system

MIRI ICE

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Studying

Prototyping

Qualifying

Manufacturing