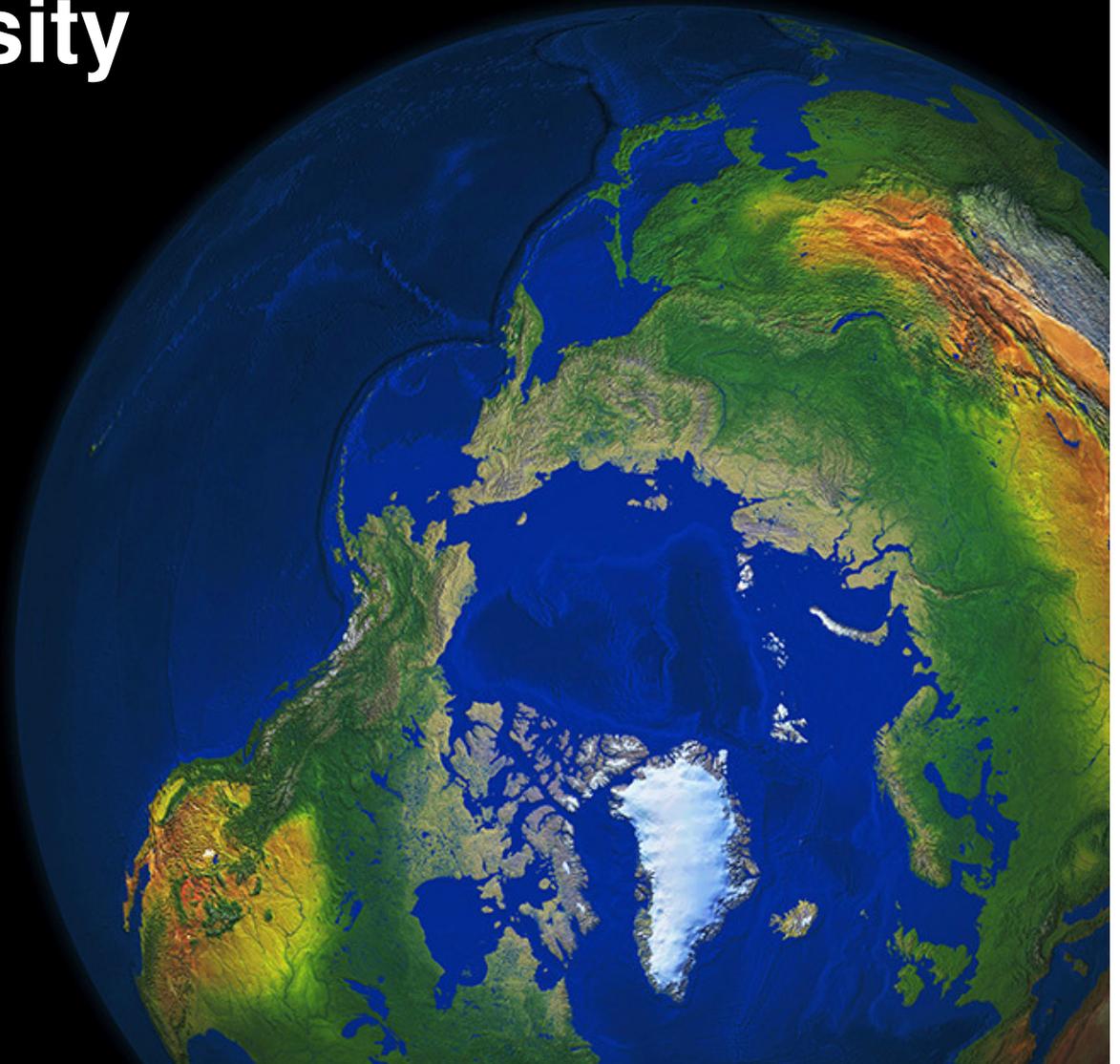


Microwave remote sensing at Aalto University

Jaan Praks, Dr.Sc.
Assistant Professor



Aalto University



Organization

Department of Radio Science and Engineering

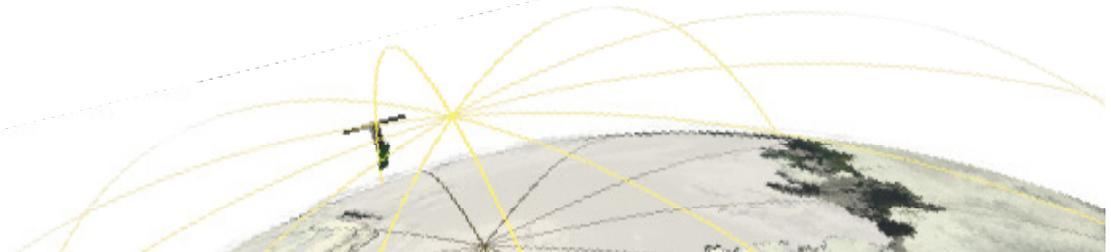
~**100** workers

- **11** professors
 - (including one dean and one vice president)
- **20** senior researchers
- **40** post graduate students



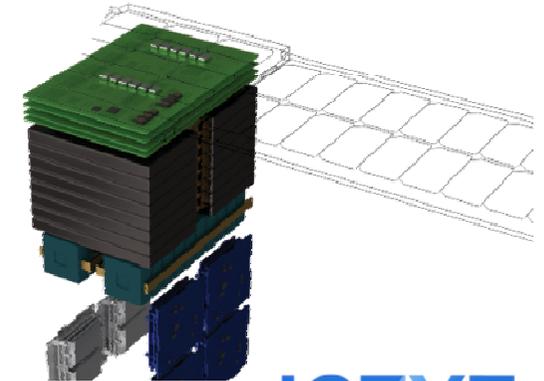
Strategy: Develop locally, apply globally

- Concentration on local and small scale studies
- Instrument development , concept level, technology demonstrations
- Active spin-off activities
- Global projects with partners

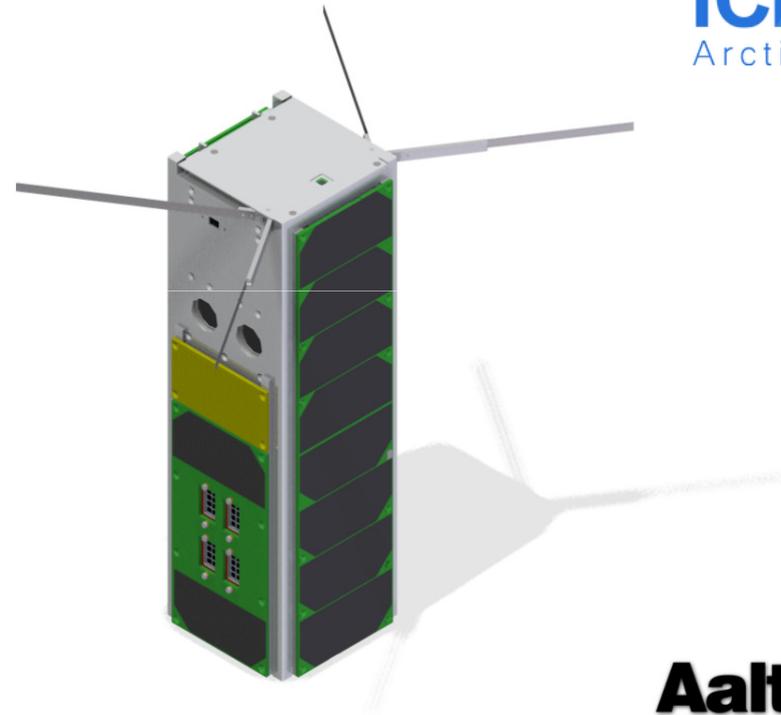


Current projects

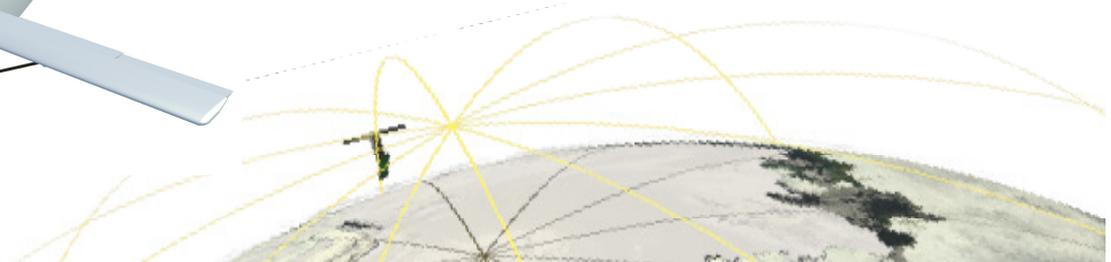
- Aalto-1 student satellite
- Aalto-2 satellite
- MMEA
- Infra Investment
- Skyvan Flying Lab
- ICEYE spin-off project
- Novel concepts
- Urban mapping
- SAR PollnSAR



ICEYE
Arctic Intel



Aalto-1
The Finnish Student Satellite



UUTISET: Joka kymmenes lapsi tekee töitä

Kauppalehti

ISSN 1161-1000
DINONUMERO 2.604, YHÄTTÄÄ 1.336/PV 169 90 / 2014
WWW.KAUPPALEHTI.FI / MOBIILE: M.K.L. / APP: KAUPPALEHTI
PERUSTETTU VUONNA 1998

TIISTAINA
13. TOUKOKUUTA 2014



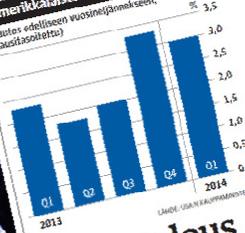
Matkalla avaruuteen

Antti Kestilän, Pekka Laurilan ja Rafael Modrzewskin yritys on ensimmäisenä suomalaisena lähdössä kaupallisille satelliittimarkkinoille. Arktista jääinformaatiota tarjoava yritys tähtää satojen miljoonien eurojen liikevaihtoon.

OMA YRITYS » 16-17

A UUTISET

Amerikkalaisten kulutuskysyntä
mittaus edelliseen vuosiin (tammi-kuu)



USA:n talous voi yllättää iloisesti

B REPORTAASI



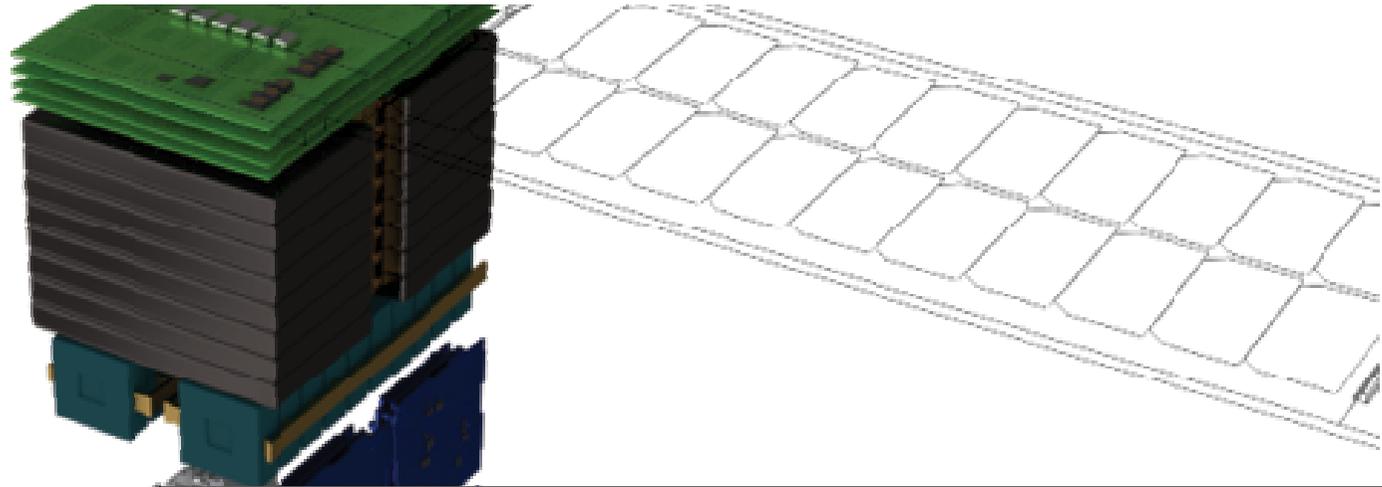
Japani käynnistää varovasti ydinvoimaloitaan

C PÖRSSI

Netflixiä naitetaan Appelle

OMXH +0,72%

ICEYE
Arctic Intel



ICEYE
Arctic Intel

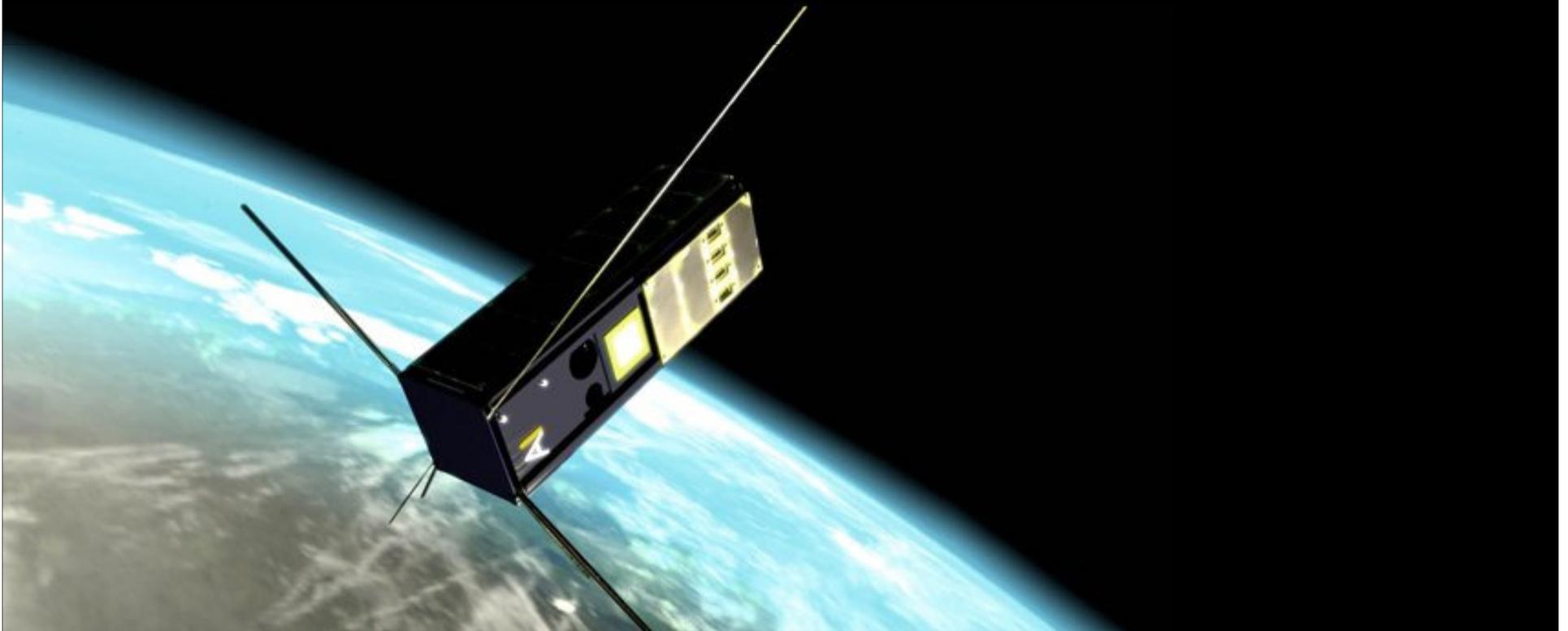


A!

Aalto University



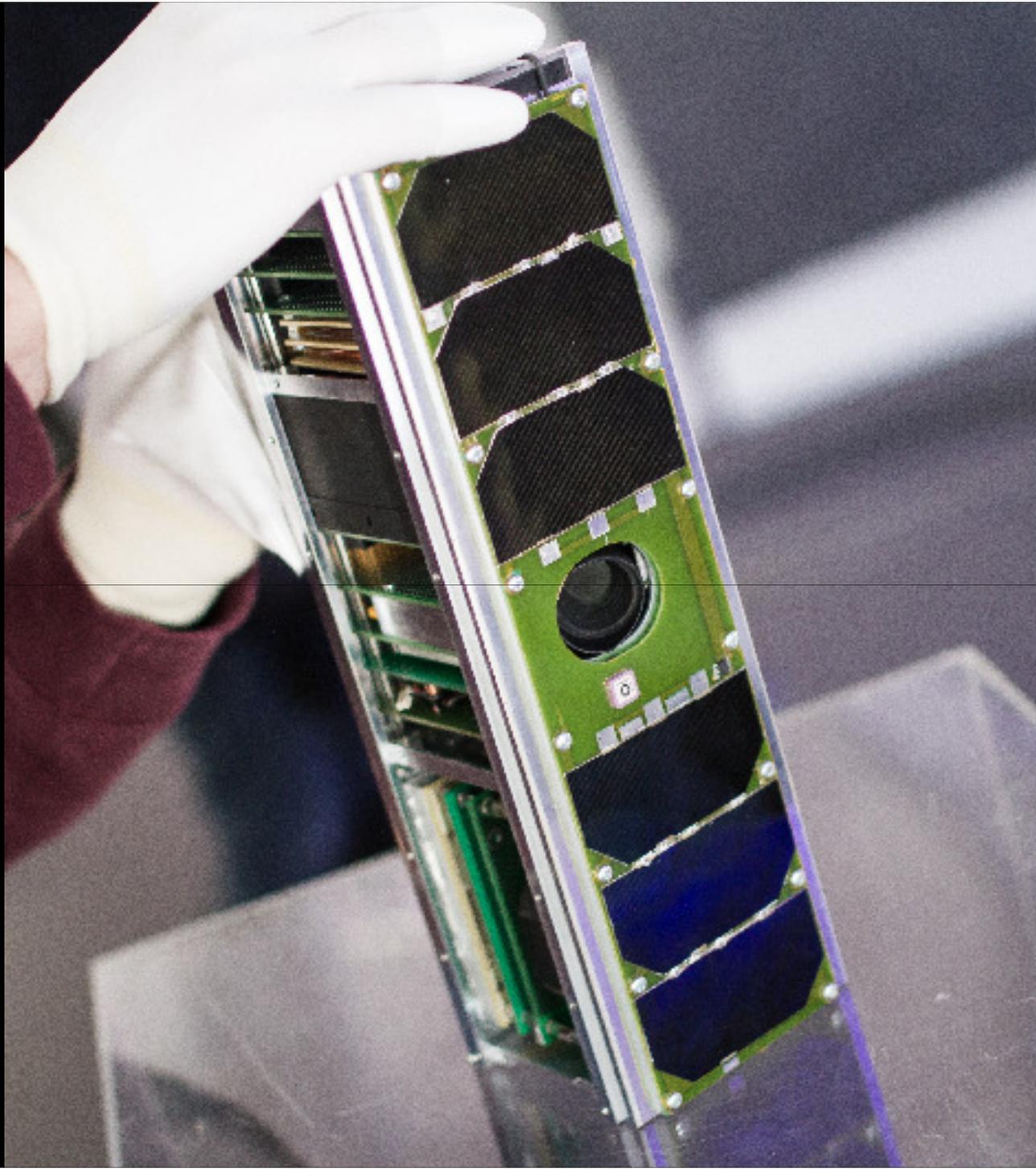
Aalto-1

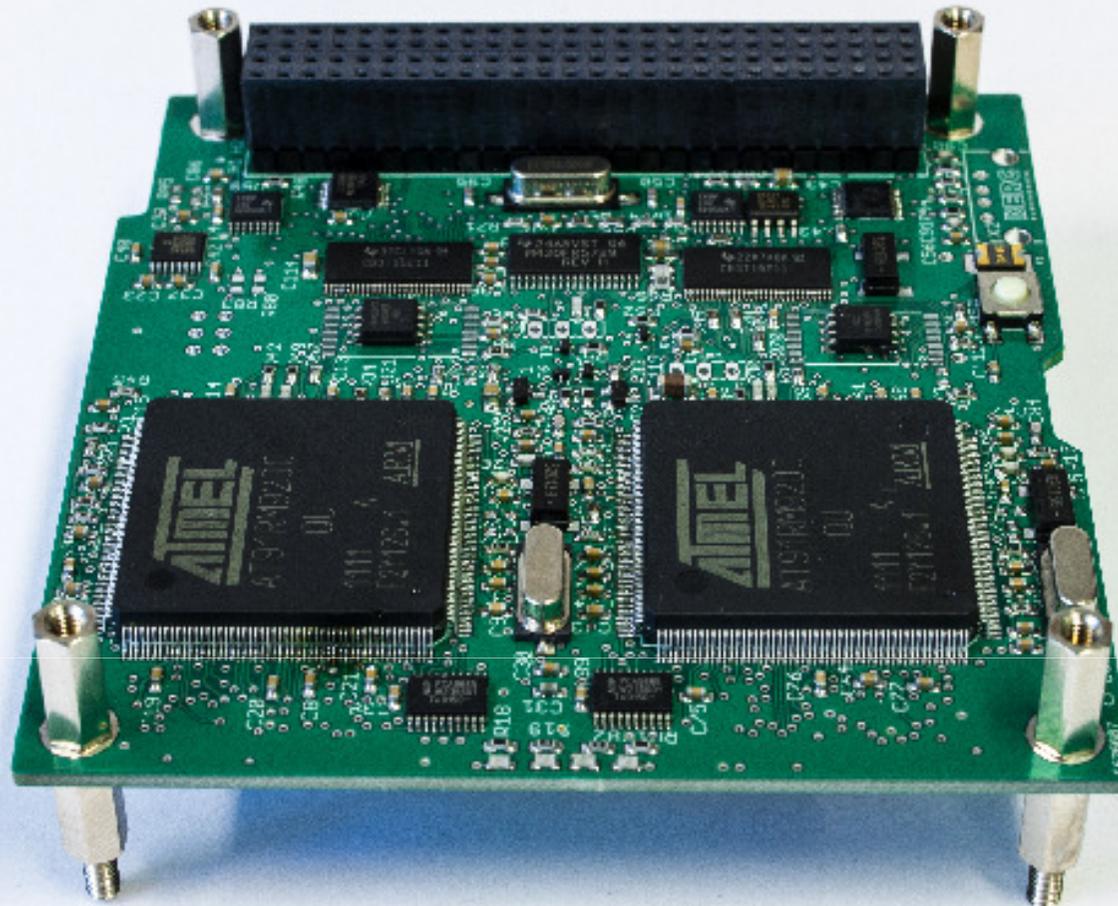




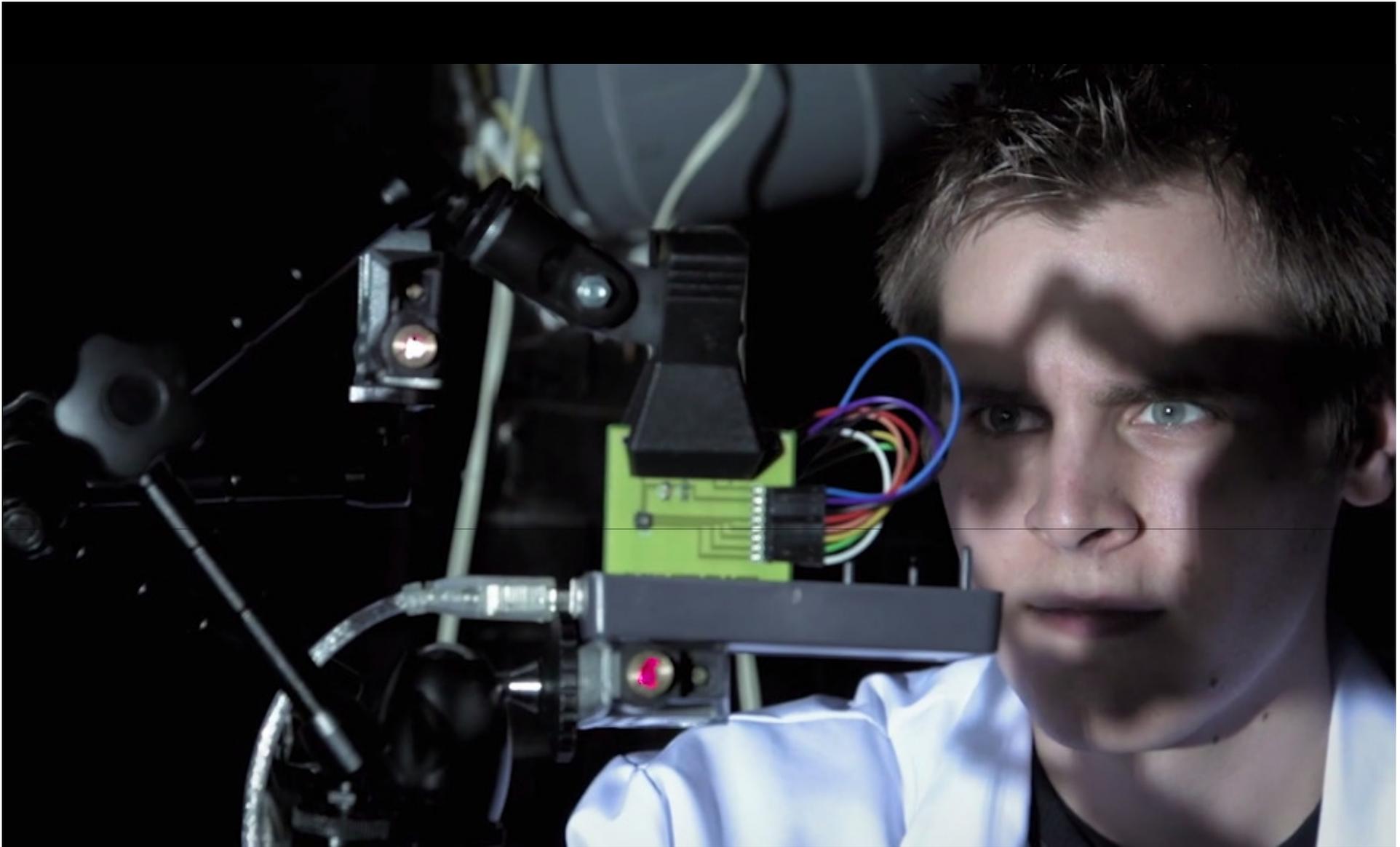
A!

Aalto University

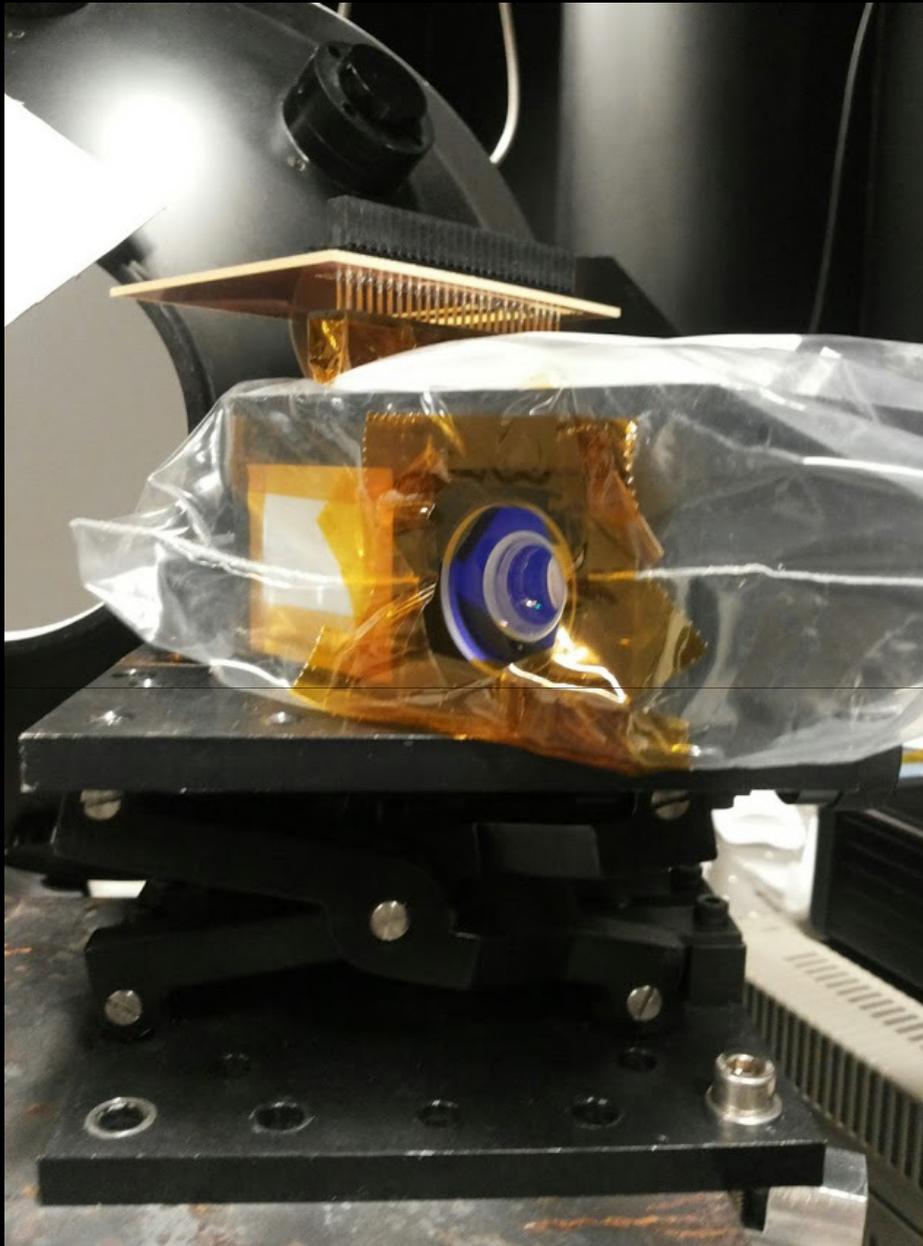




Aalto OBC EM

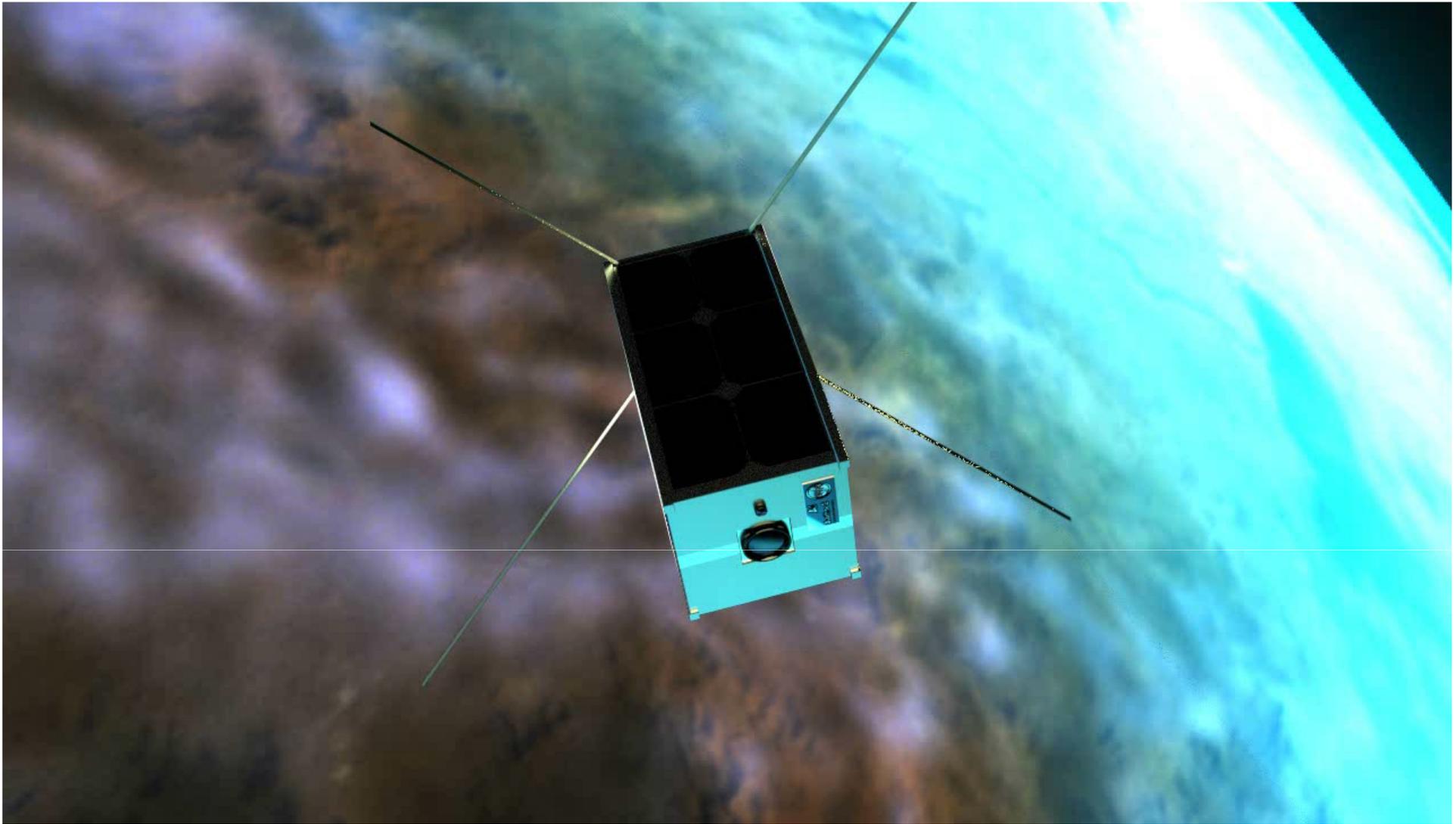






AaSI Spectral Imager EM





Aalto-2



Directions

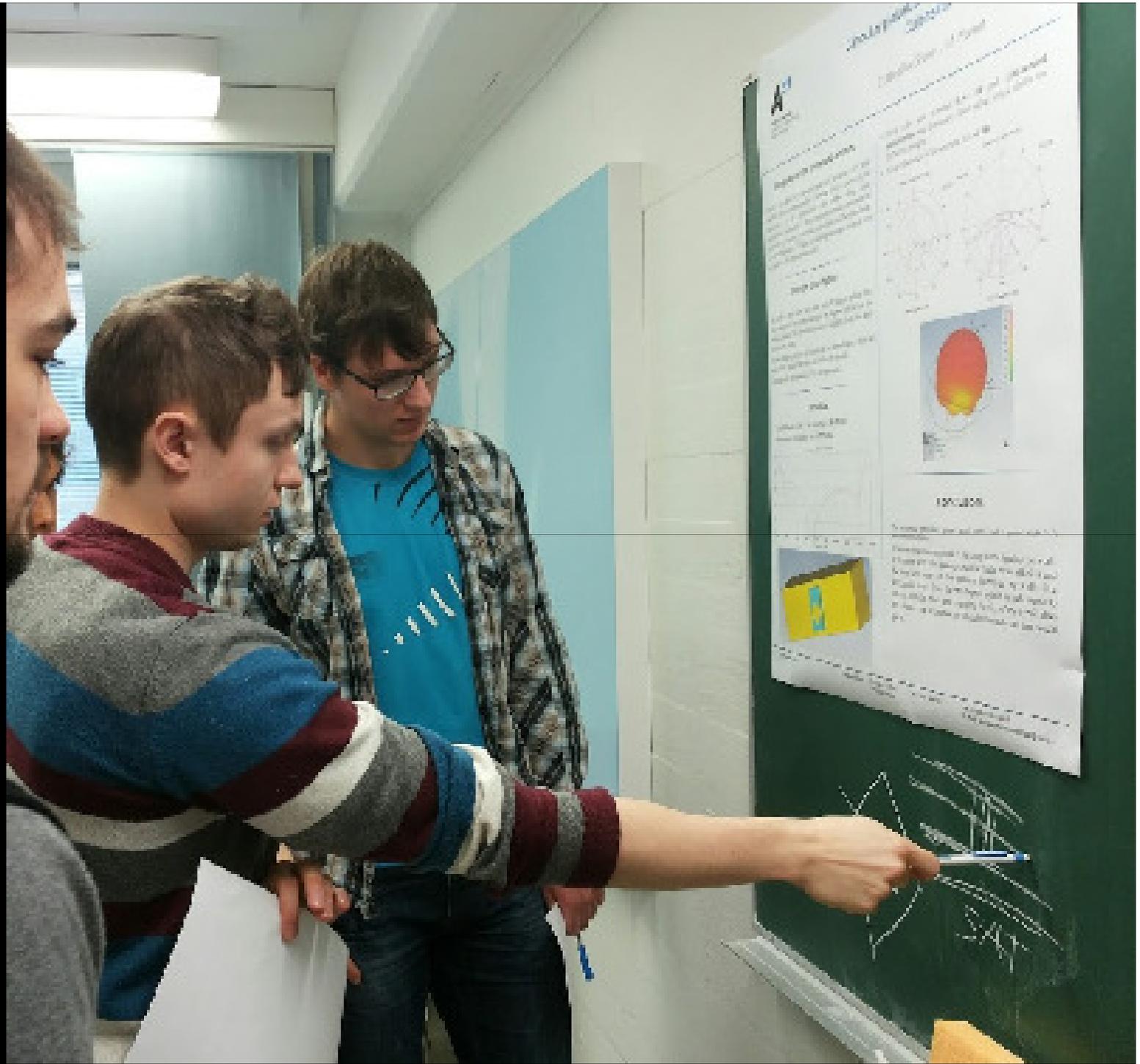
- Combining microwave remote sensing and small space platforms (RFI CubeSat study)
- Direction towards active systems and coherent data analysis methods (SAR, scatterometers)
- Following the trend in available spaceborne data in near future (Biomass, Saocom, Smap)
- Assimilation of passive and active multiband microwave data

Topics

- SMOS, RFI
- Boreal Forest, PolInSAR, tomography
- Grasslands
- Ice
- Urban mapping
- Instrument development

Education

Education



Aalto starts new Master programmes in 2015



A new Master programme on **Nano and Radio Sciences** starts in autumn **2015**.

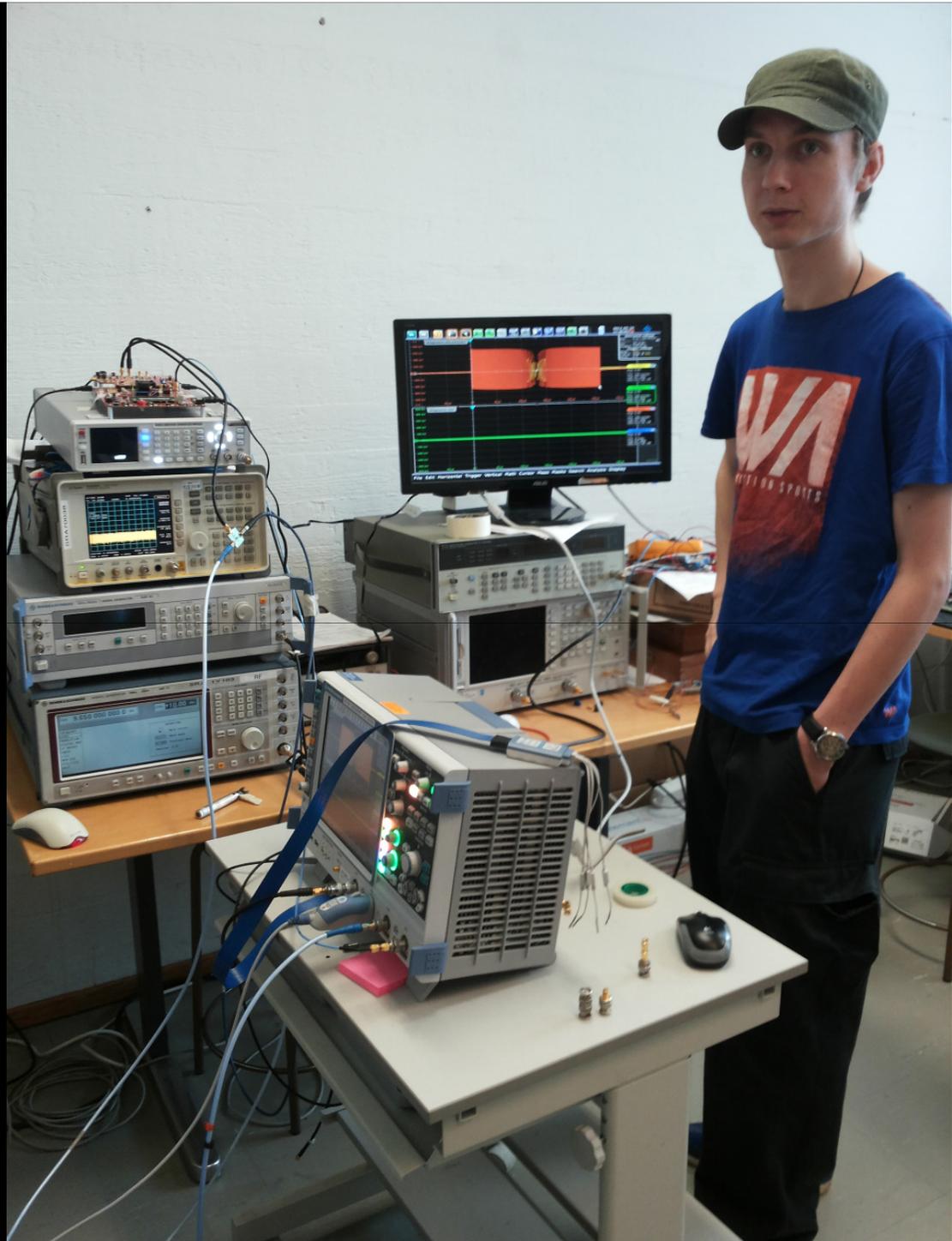
- New **Space Sciences and Technology** Major.
- Tight integration with radio- and nanosciences.
- Collaboration with Joint European ERASMUS MUNDUS Space Master programme.
- Collaboration with Nordic Five Tech.

mobile communications
student satellite
space weather
radio science
solar panels
cubesat
nanotechnology
integrated circuits
antennas
Aalto-1
sensors
wireless
microfabrication
radio astronomy

Aalto-1
The Finnish Student Satellite

Infrastructure

Upgrading Microwave LAB equipment





A!

Aalto University

Building Small Sat Test lab

Cleanroom
Thermal
Vacuum
Hardware In Loop

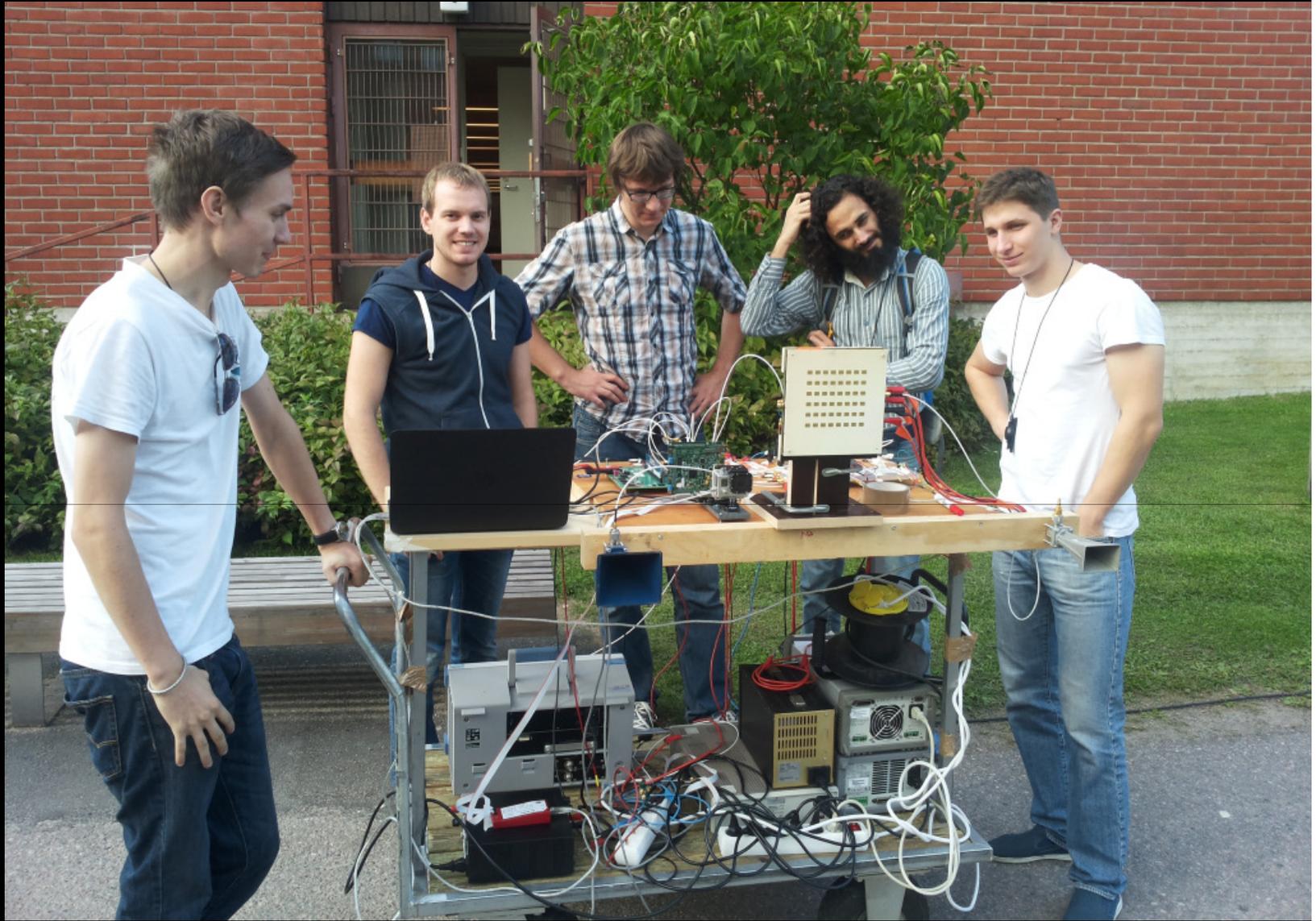


Short Skyvan aircraft



**Open for collaboration in scientific domain!
Developing new instrumentation.**

Novel Concepts



A!

Aalto University

Novel concepts



Airborne
L-band scatterometer
C-band scatterometer

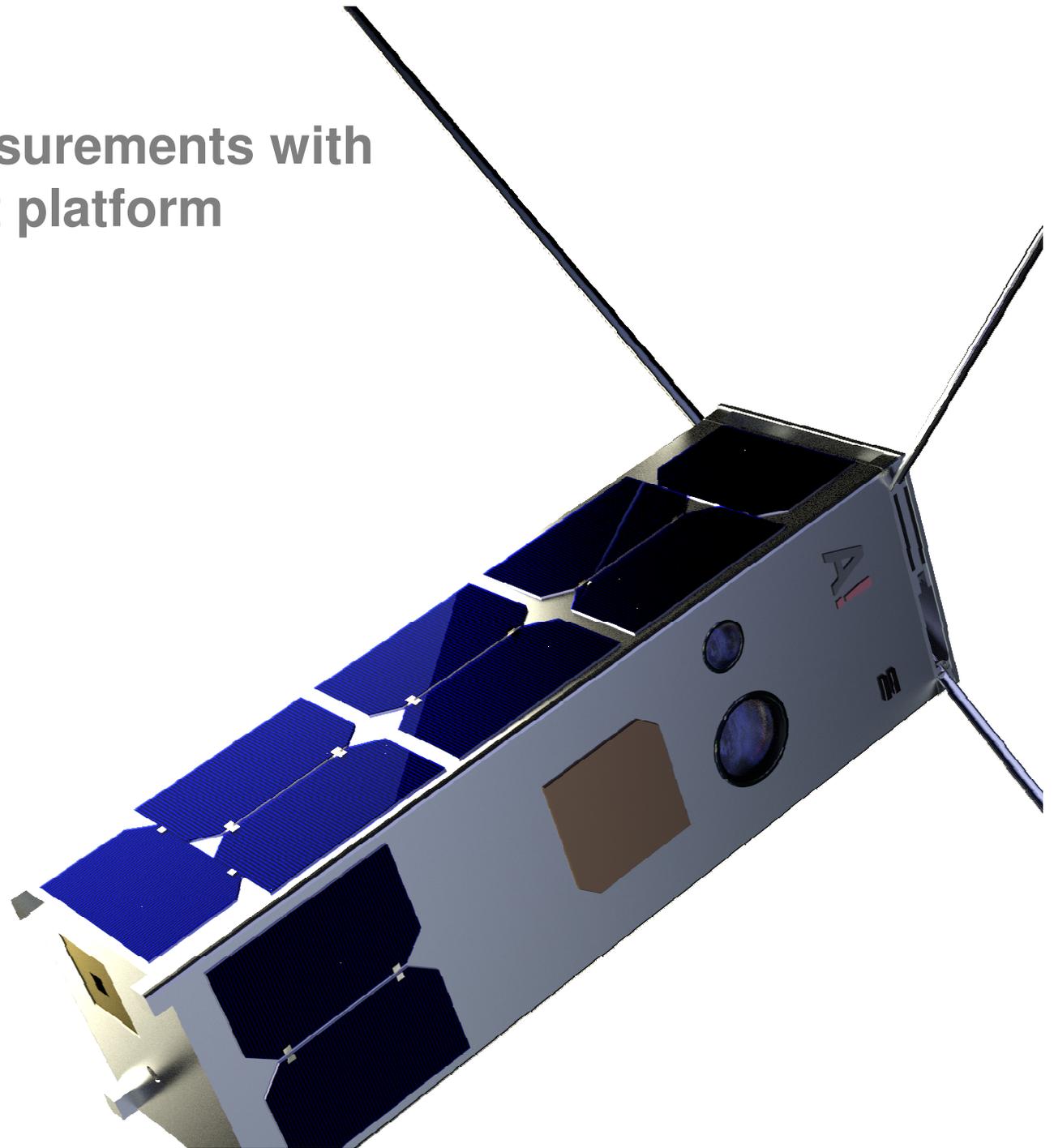
Novel concepts

New satellite communication and radio astronomy antennas to Metsähovi



Novel concepts

RFI measurements with
CubeSat platform



Co-operation

Looking for partners

Assets

- **Steady stream of young talented scientists and engineers!**
- SkyVan Airborne Lab
- Heritage Instrumentation HUT2D, HUTRAD, HUTSCAT, AISA
- Flexibility for various airborne instrument accommodation
- Modern Microwave Laboratory
- Cleanroom and test facilities
- CubeSat platform

