ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

ALMA MATER STUDIORUM UNIVERSITÀ DI BOLOGNA

2021/2022

FROM 1088 TO THE FUTURE

1088 — THE BIRTH OF THE UNIVERSITY

ALMA MATER STUDIORUM UNIVERSITÀ DI BOLOGNA

XII CENTURY — FREEDOM OF RESEARCH

XIII CENTURY — ONE CITY, MANY NATIONS

XIV-XV CENTURY — BROADENING THE HORIZONS OF KNOWLEDGE

XVI-XVII CENTURY — FROM BOLOGNA TO THE WORLD, FROM THE WORLD TO BOLOGNA

1888 — THE MOTHER OF ALL UNIVERSITIES

XX CENTURY — NEW CHALLENGES

1988 — AN INTERNATIONAL AGREEMENT

1999 — 1999 BOLOGNA PROCESS

2016 — THE UNIVERSITY LOOKS TO THE FUTURE

2019 — 20th ANNIVERSARY OF THE BOLOGNA PROCESS

MULTICAMPUS UNIVERSITY

MULTICAMPUS UNIVERSITY

THE MAIN VOCATIONS

CESENA

- AGRIFOOD
- ARCHITECTURE
- ICT AND BIOENGINEERING
- PSYCHOLOGY

FORLÌ

- ECONOMICS AND SOCIAL SCIENCES
- MECHANICAL AND AEROSPACE ENGINEERING
- TRANSL ATION AND INTERPRETING

RAVENNA

- ENVIRONMENT AND SEA RIGHTS
- CULTURAL HERITAGE
- RIGHTS

RIMINI

- SUSTAINABLE DEVELOPMENT AND WELL-BEING
- SER VICES FOR INDIVIDUALS, BUSINESSES AND COMMUNITIES
- TOURISM AND FASHION

STUDENTS

TOTAL NUMBER OF STUDENTS ENROLLED ON UNDERGRADUATE AND POSTGRADUATE DEGREE PROGRAMMES

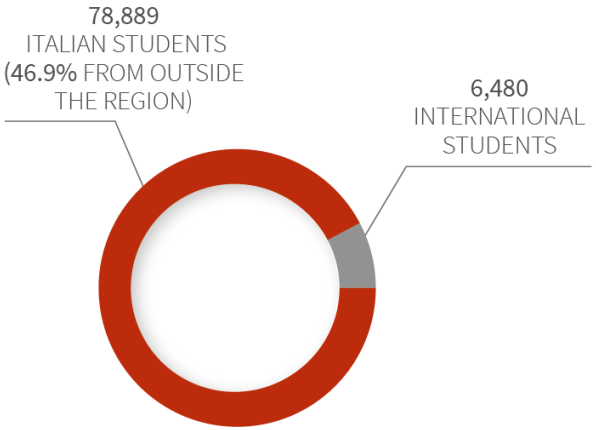
90,291

OF WHICH INTERNATIONAL STUDENTS

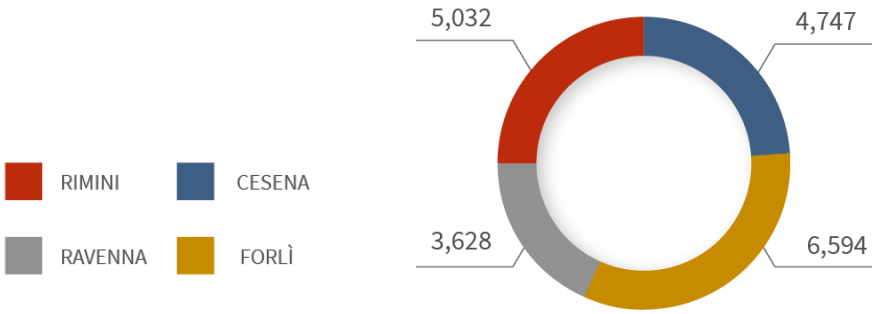
7,062

TOTAL NUMBER OF STUDENTS ENROLLED ON DEGREE PROGRAMMES:

85,369



TOTAL NUMBER OF ENROLMENTS BY CAMPUS: 20,001 (23.4%)



TEACHING

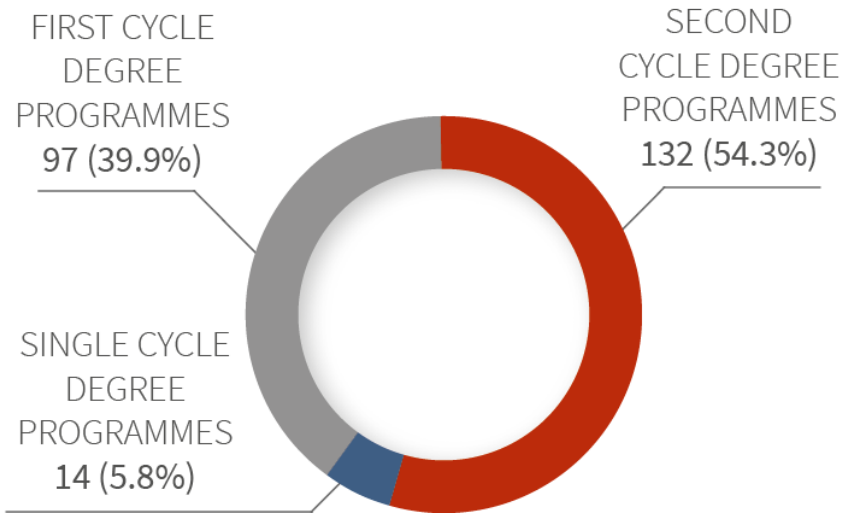
A.Y. 2021/2022

DEGREE PROGRAMMES (A.Y. 2021/2022)

243

OF WHICH 96 INTERNATIONAL:

56	TAUGHT IN ENGLISH
23	TAUGHT IN ENGLISH DOUBLE/MULTIPLE DEGREES
17	DOUBLE/MULTIPLE DEGREES NOT TAUGHT IN ENGLISH



- Bachelor's Degree in Aerospace Engineering
  Bachelor's Degree in Astronomy
- Master's Degree in Aerospace Engineering (with "Space" curriculum – taught in English)
  Master's Degree in Astrophysics and Cosmology (taught in English)
- Ph.D. in Aerospace Science and Technology
  Ph.D. in Astrophysics
- Second-level Master in SPace mIssions sCience dEsign and applicationS (SPICES)

RESEARCH

Knowledge areas:

Agri-food, bioeconomics, natural resources, agriculture and the environment

Culture, creativity and inclusive societies

Health

Climate, energy and mobility

Digital, industry and space

Public safety

INDUSTRIAL RELATIONS

47 active framework agreements with major businesses and business associations

7 Joint Research Laboratories with businesses

5 Advanced Vocational Training schools for employees of companies

1 COMPETENCE CENTRE in the context of the National Industry Plan 4.0. BI-REX

Placement services. In 2021, more than 7,000 Italian and international companies were registered

37 ACTIVE AND ACCREDITED SPIN-OFFS IN 2020

12 ACTIVE AND ACCREDITED START-UP BUSINESSES IN 2020

BUSINESS INCUBATION AND DEVELOPMENT:
Almacube, Cesenalab, Innovation Square, Basement Club

SPACE RESEARCH: DEPARTMENTS AND INTERDEPARTMENTAL CENTERS

The research skills in the **space field** are expressed through several Departments and Interdepartmental Centers of the University:

- Department of Industrial Engineering (DIN)
- Department of Electrical, Electronic and Information Engineering (DEI)
- Department of Civil, Chemical, Environmental and Materials Engineering (DICAM)
- Department of Computer Science and Engineering (DISI)
- Department of Physics and Astronomy (DIFA)
- Department of Chemistry (CHIM)
- Department of Biological, Geological and Environmental Sciences (BiGeA)

- **Interdepartmental Centre for Industrial Aerospace Research - CIRI AERO**
- Interdepartmental Centre for Industrial ICT Research - CIRI ICT

CIRI AERO: COMPETENCES

1. UO Aeronautics, Aerodynamics and Propulsion

- Aerodynamics and Fluid dynamics
- Plasmas
- Thermo-fluid dynamics
- Aerodynamic Plasma Control
- Propulsion
- Virtual Reality and Simulation
- Lightweight Structures and Composite Materials
- Flight Mechanics

2. UO Space Science and Technology

- Astrophysics and Cosmology
- Astrobiology
- Earth Observation
- Microsatellites and Space Systems
- Satellite Ground Station
- Radio Science and Planetary Exploration

www.unibo.it/en/research/projects-and-initiatives/competences-on-horizon-2020-research-topics/space

COMPETITIVE PROGRAMMES

EUROPEAN PROGRAMMES

> 148 MLN €
HORIZON 2020

> 10 MLN €
OTHER EUROPEAN FUNDING (INTERREG, LIFE, CREATIVE EUROPE)

2,3 MLN €
Joint initiatives (JPG, ERANET, PRIMA, ECSEL)

NATIONAL PROGRAMMES

> 113,8 MLN €
DEPARTMENTS OF EXCELLENCE

> 20 MLN €
PRIN 2017 AND PRIN 2020

> 2,5 MLN €
NATIONAL OPERATIONAL PROGRAMME (PON) FOR INNOVATION RESEARCH

> 1,3 MLN €
FISR 2019-2020

REGIONAL PROGRAMMES

33 MLN €
POR-FESR 2014-2020
PSR 2O14-2020
ADVANCED SKILLS

PLANS FOR COOPERATION WITH NEREUS

3 pillars:

- Pushing for regional interests through NEREUS to engage in political dialogue with relevant institutions (European Parliament, European Commission, ESA)
- Networking with Full and Associate members for joint proposals/projects
- Involve NEREUS in Communication and Public Outreach Promotion and awareness-raising activities in the context of HEU proposals

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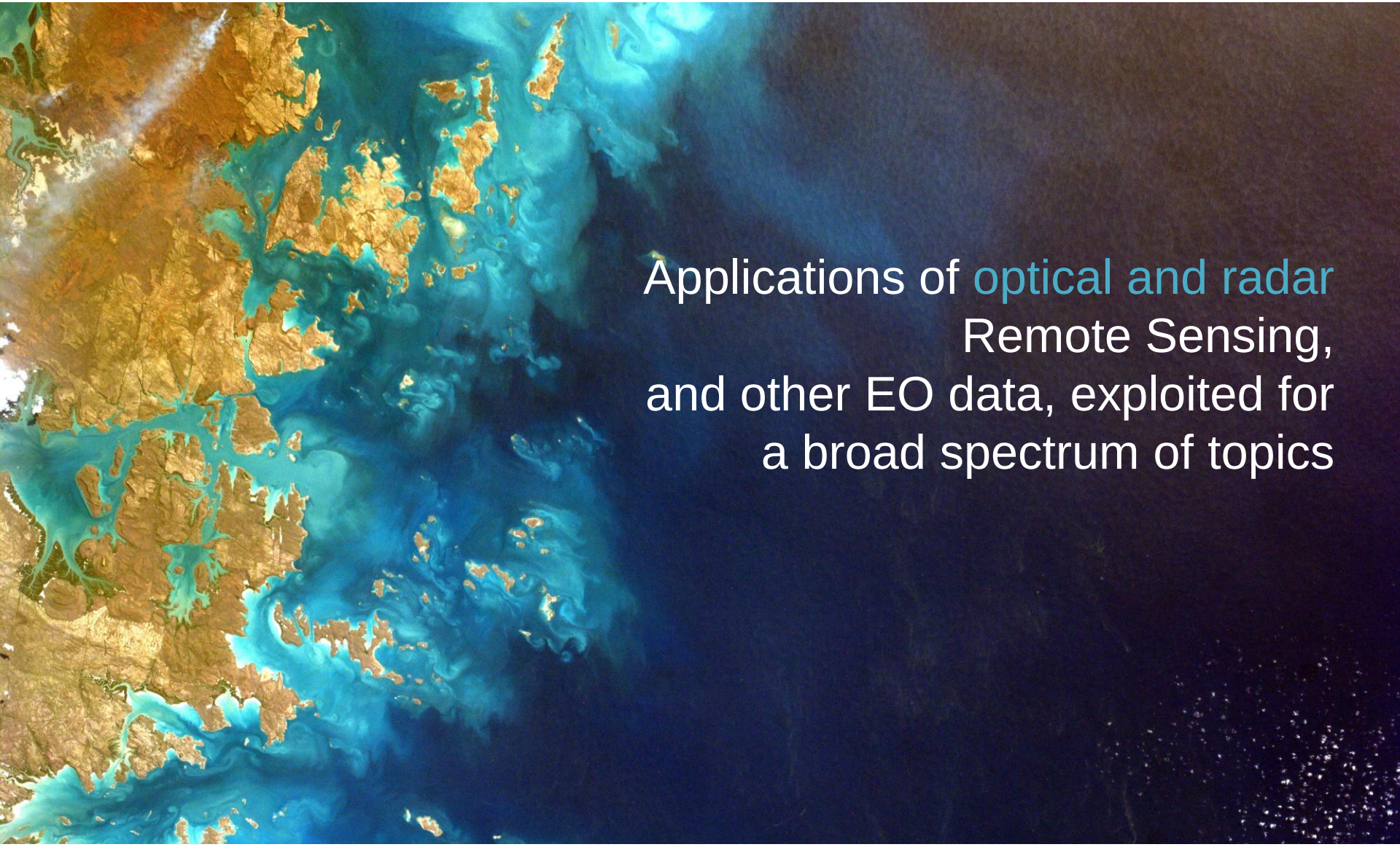
Backup Slides on UNIBO Space Research Pillars

ASTRONOMY, ASTROPHYSICS AND COSMOLOGY

SPACE AND COMMUNICATION SYSTEMS AND NETWORKS

The communication system is a key and critical element for space applications, as satellites are built to gather data through sensors or to serve as relay for users in a network

EARTH OBSERVATION APPLICATIONS

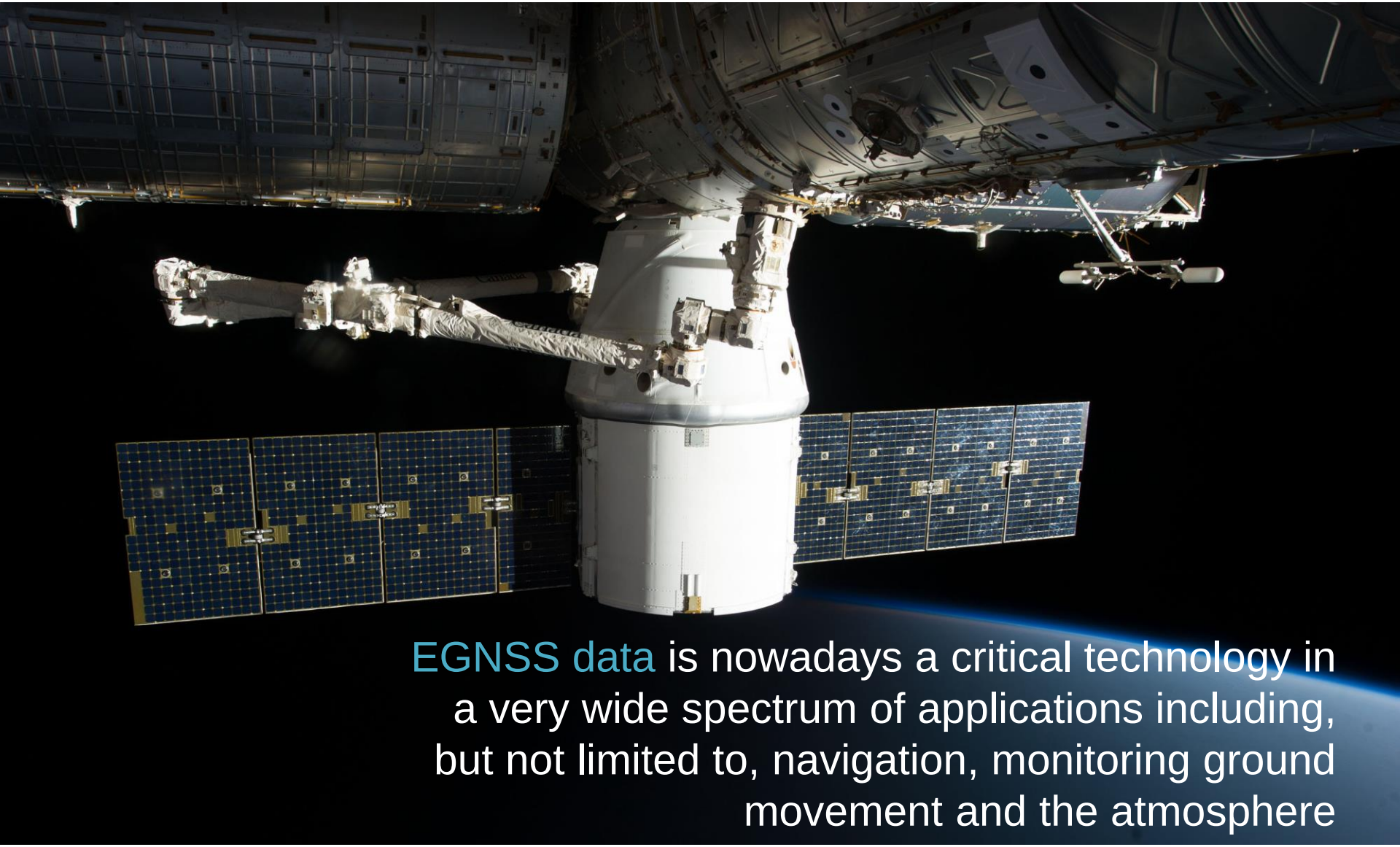


Applications of optical and radar Remote Sensing, and other EO data, exploited for a broad spectrum of topics

EARTH OBSERVATION TECHNOLOGIES

Application and development of innovative data acquisition, modelling, processing solutions for EO data, with the aim to improve the quality and the type of the products

EGNSS SERVICES AND APPLICATIONS

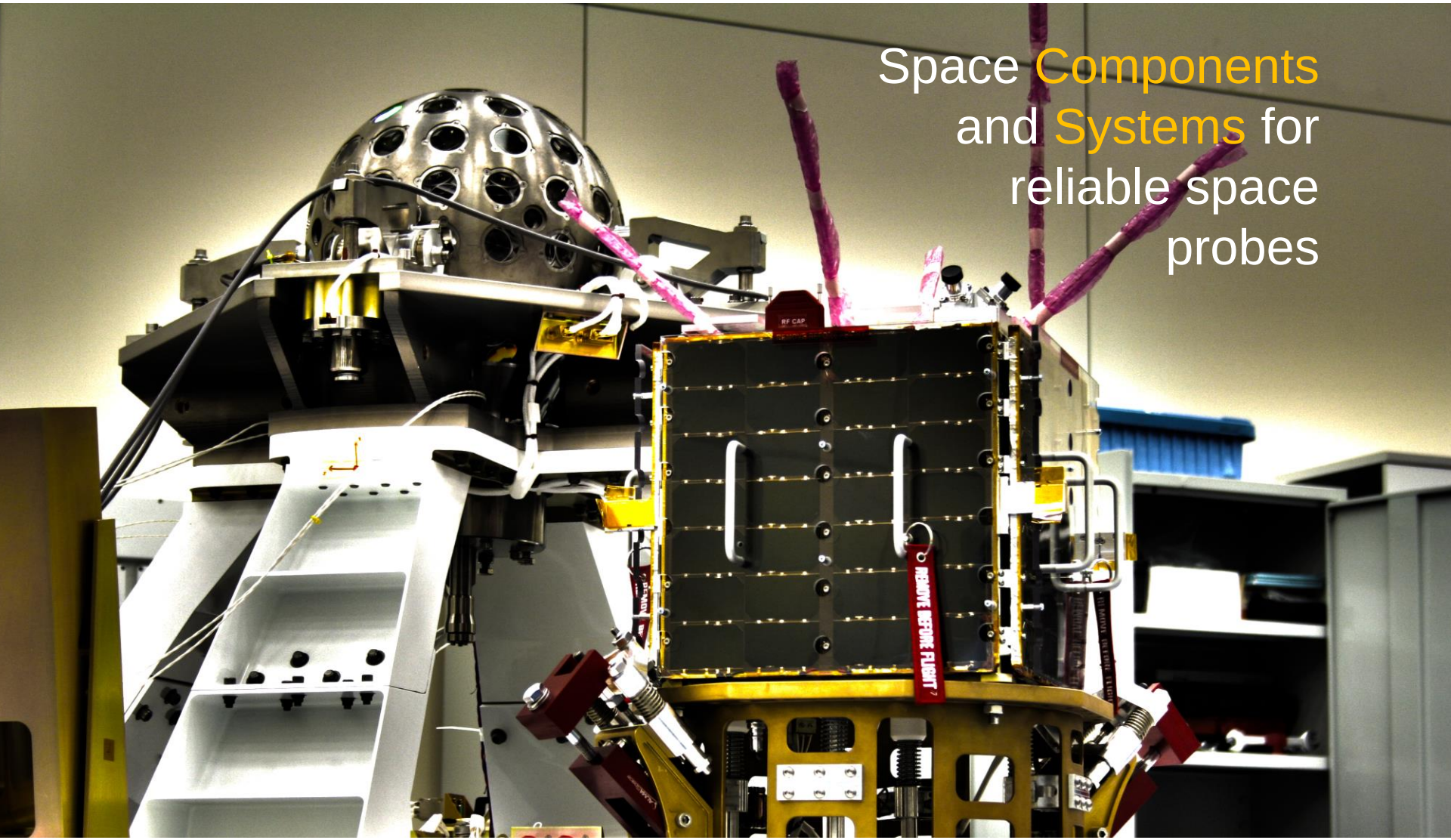


EGNSS data is nowadays a critical technology in a very wide spectrum of applications including, but not limited to, navigation, monitoring ground movement and the atmosphere

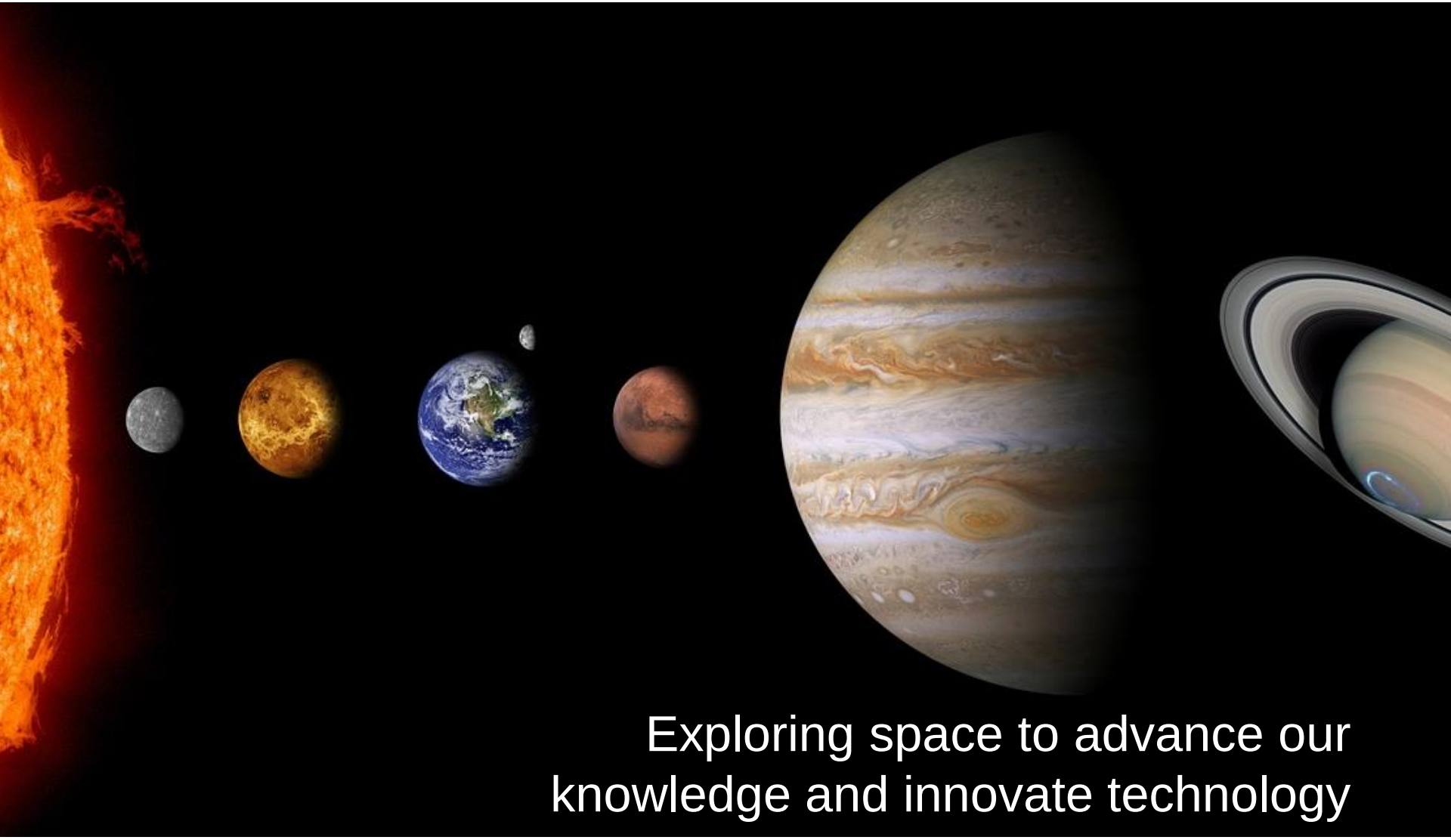
SPACE PROPULSION, POWER AND THERMAL SYSTEM

Space Propulsion, Power and Thermal Systems are essential tools to enable space exploration, in particular at large distances from the Sun and in extreme environments

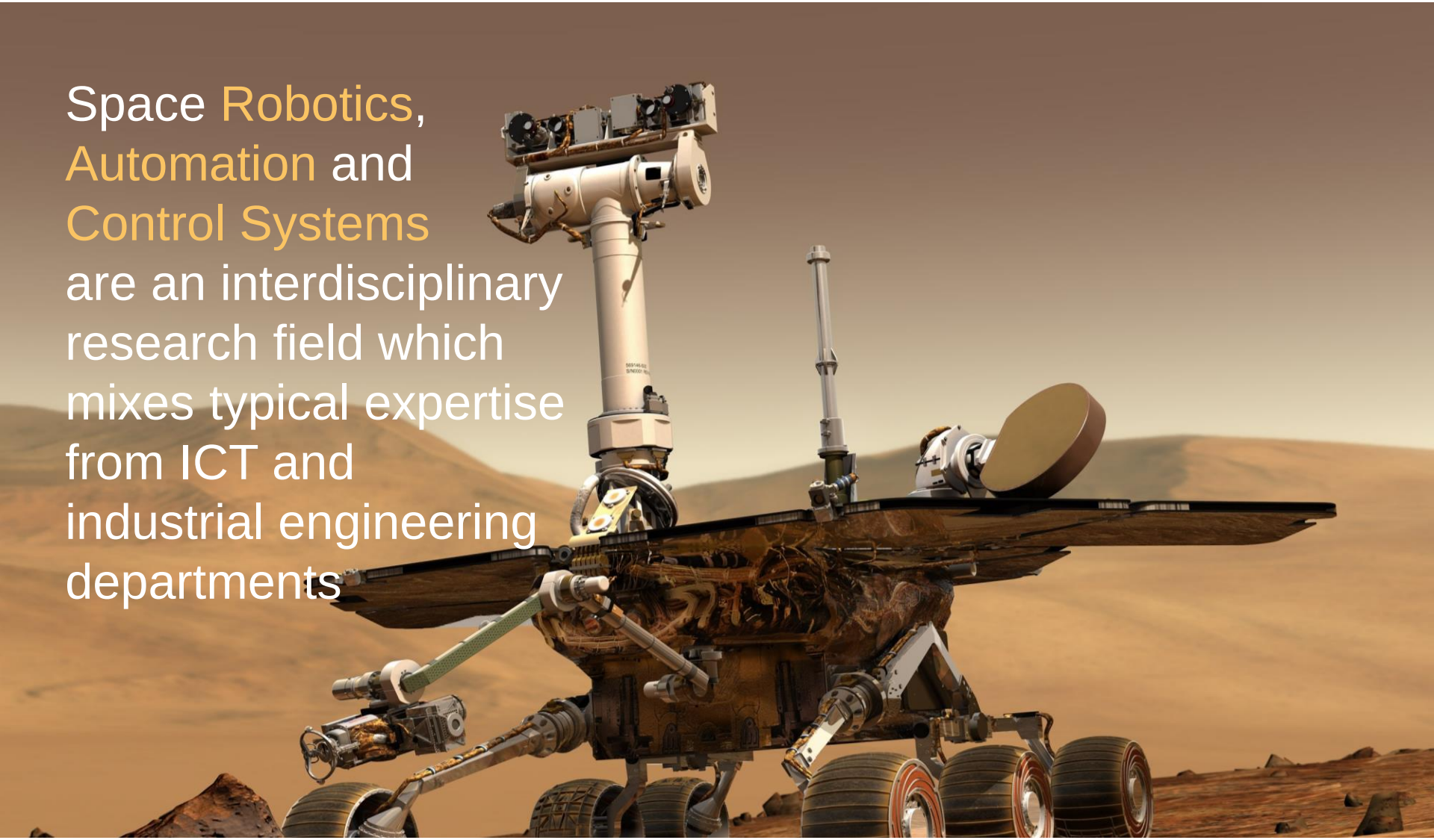
SPACE COMPONENTS AND SYSTEMS



SPACE EXPLORATION



SPACE ROBOTICS, AUTOMATION AND CONTROL SYSTEMS

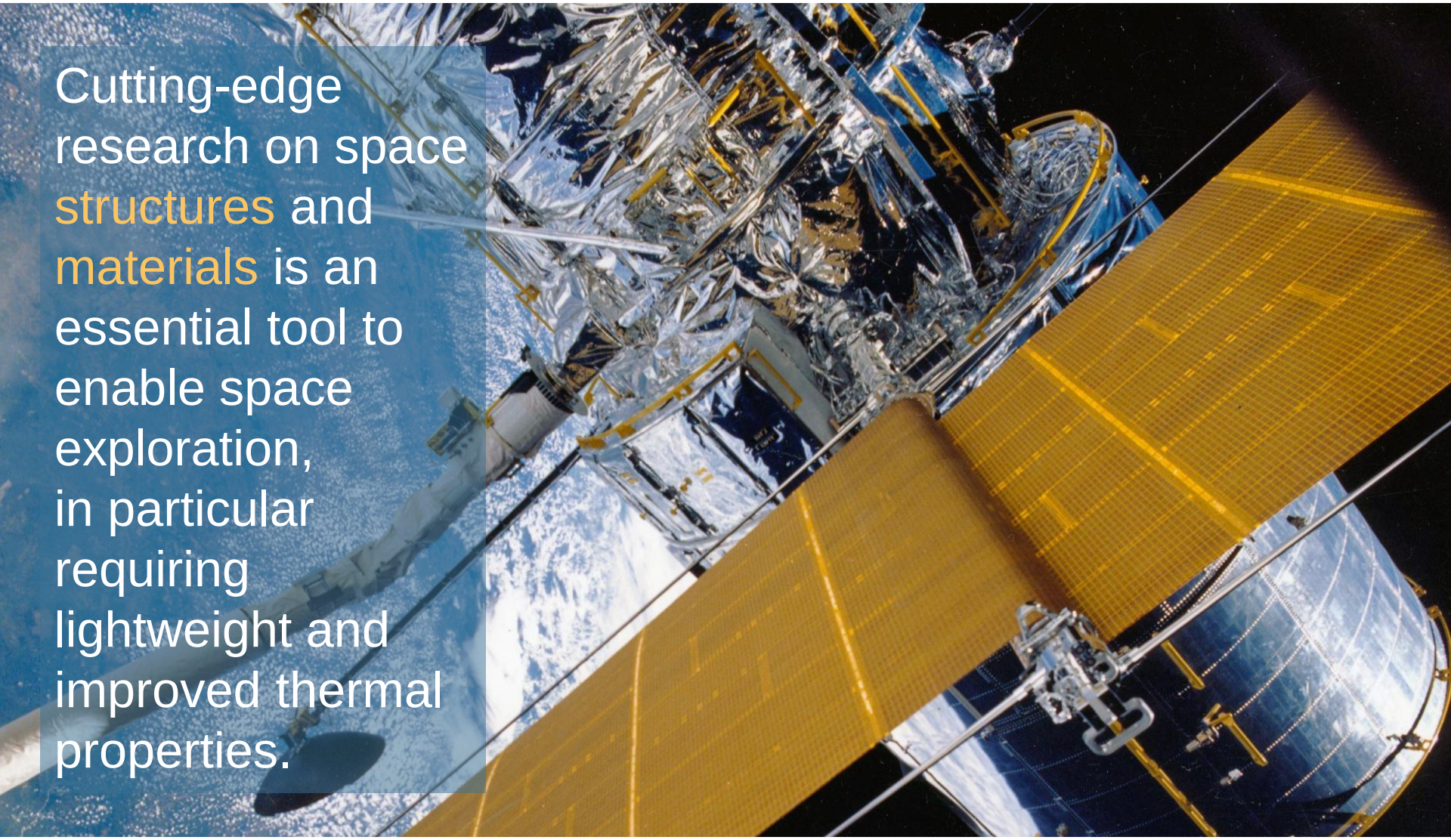


Space Robotics, Automation and Control Systems are an interdisciplinary research field which mixes typical expertise from ICT and industrial engineering departments

SPACE SOFTWARE AND DATA SYSTEMS

A satellite in space produces a fountain of information. Data Systems oversee the technologies involved in spacecraft onboard data handling (OBDH) system.

SPACE STRUCTURES AND MATERIALS



Cutting-edge research on space structures and materials is an essential tool to enable space exploration, in particular requiring lightweight and improved thermal properties.

TOOLS FOR OPTIMAL EXPLOITATION OF SPACE DATA