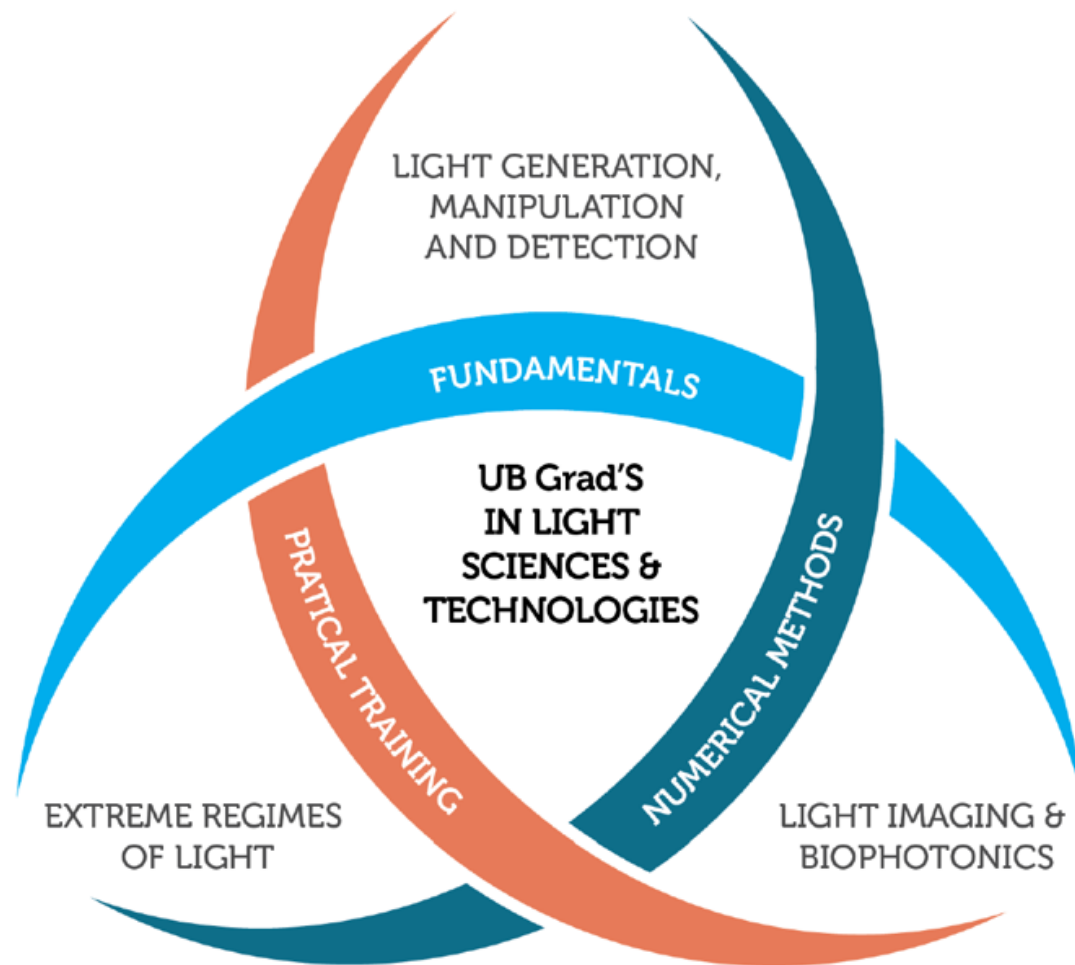


LIGHT^{S&T}



People involved in the project preparation:

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ECOSYSTEM FOR EDUCATION RESEARCH AND EMPLOYMENT

UB GRAD'S
IN LIGHT SCIENCES
AND TECHNOLOGIES



université
de BORDEAUX



Technological
transfer

Collaborative
research,
Labcom

PYLA Vocational
training



Laser & photonics
companies



Research
& Education

Training

Transfer

BORDEAUX CAMPUS ACADEMIC ENVIRONMENT

UB GRAD'S IN LIGHT SCIENCES & TECHNOLOGIES

EXCELLENCE INITIATIVES

UB IDEX
CLUSTER & LABEX

LAPHIA

BRAIN

AMADEUS

EQUIPEX &
INBS

MIGA
PETAL+

France
bio-imaging

ELORPrintTec

STATE OF THE ART FACILITIES

BIC
Bordeaux Imaging Center

SIV
Spectroscopy and
Vibration Imaging

PLACAMAT
Aquitaine Plateform
for Materials Characterization

Laser Training
Center

EXISTING EDUCATION

Master Physics

Master Chemistry

Master Bioimaging

IOGS
Engineering School

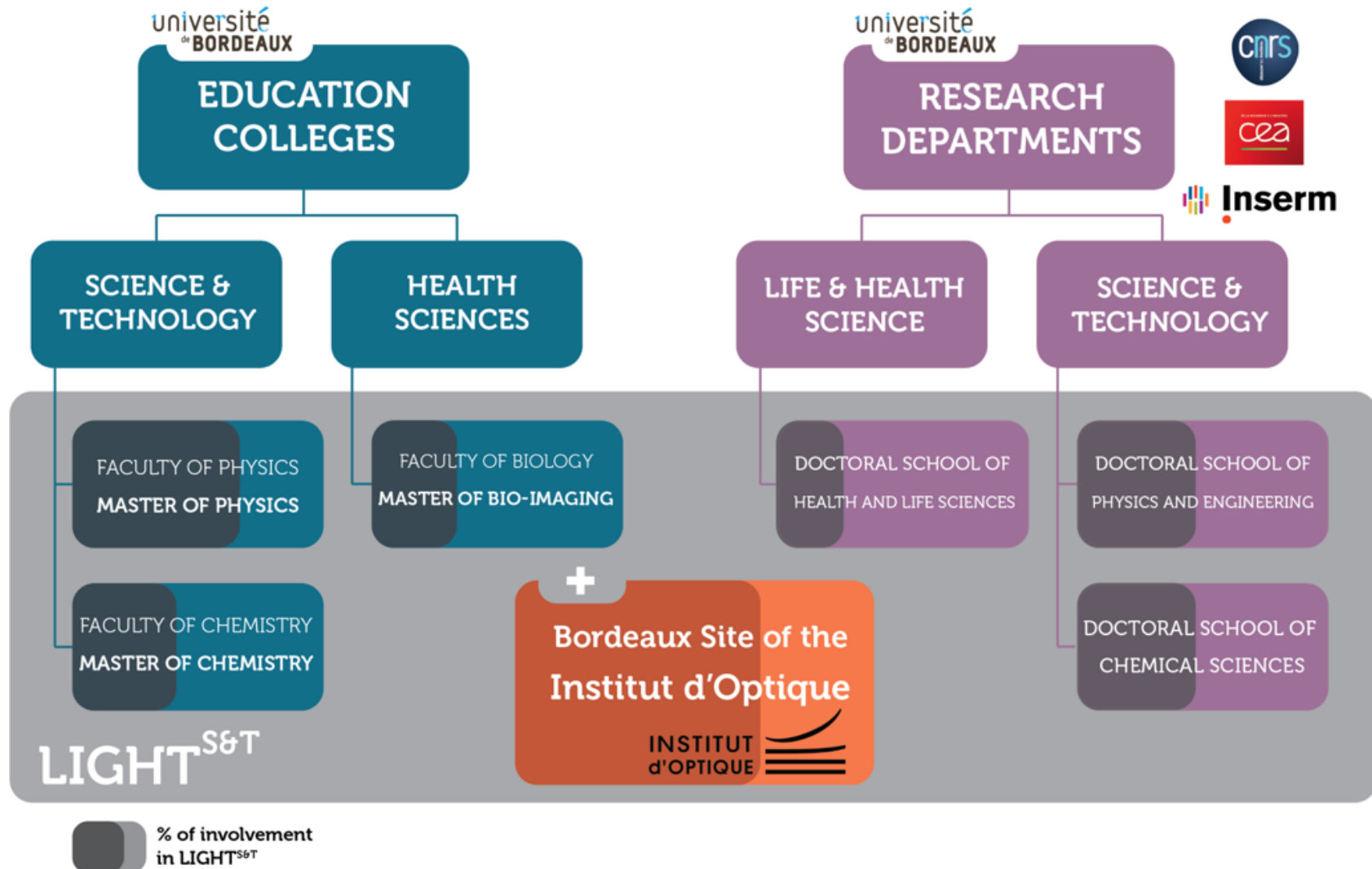
The ambitions of the present project are to:

- Provide and coordinate a graduate program that can establish the Bordeaux campus as one of the top European and world nodes for research and education in light S&T.
- Restructuring the education and research in the campus around transverse scientific themes (e.g. light S&T) that promote interdisciplinarity.
- Create a new integrated and trans-disciplinary education program embedded in the Bordeaux cross-fertilizing research environment, and adapted to the professions of tomorrow in photonics industries.
- Attract the best students worldwide and ensure them a very high-level training in English to drive sustainably the research and economy at the European level.
- Attract talented researchers to the campus and favor the blooming of startups and the installation of companies thanks to the pool of highly trained students and PhDs.

The originality of the project consists in:

- An **innovating interdisciplinary approach** for research and education provided by experts (professors, researchers & Industry players) specialized in light sciences and applications.
- **An International openness** thanks to current and forthcoming partnership such as the Abbe School of Photonics Graduate school.
- An **intersectoral and immersive training for students**, thanks to the strong involvement of the many research laboratories and the industrial R&D centers of the field.
- **An extensive hands-on experience training** (66 over 120 ECTS) to give the graduates the most valuable professional attributes, given in state of the art research facilities.
- **A double degree track** with the Master degree of UB and the engineer's degree from IOGS.
- In partnership with IOGS, the opportunity to follow **a three-year track in Innovation & Entrepreneurship in photonics at the doctorate level**, inspired by Design Thinking.
- **Graduate Certificates (Diplômes Universitaires)** proposed to the PhD students to reinforce their skills in specialized subjects matching their professional project.

LIGHT^{S&T} in Bordeaux campus



UB Grad'S in LIGHT^{S&T} Thematics

Extreme Regimes of Light

- Ultra-high intensity lasers
- Attosciences
- Light initiated nuclear reactions
- Light and quantum Physics

Light Generation, Manipulation & Detection

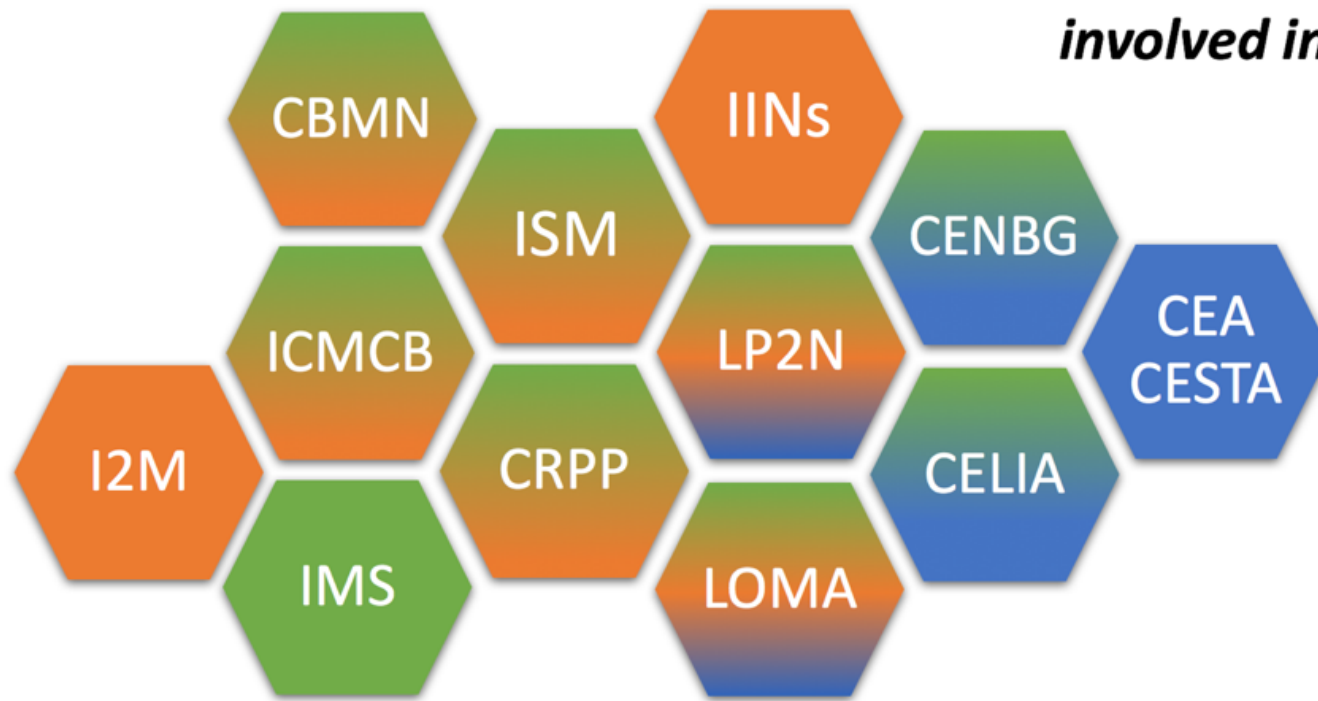
- Lasers and photonics
- Optical materials, photochemistry
- Lighting & photovoltaics
- Advanced detection systems



Light Imaging & BioPhotonics

- Advanced microscopies
- Optical probes & bio-labeling
- Photonic bio-manipulation
- Light in medical applications

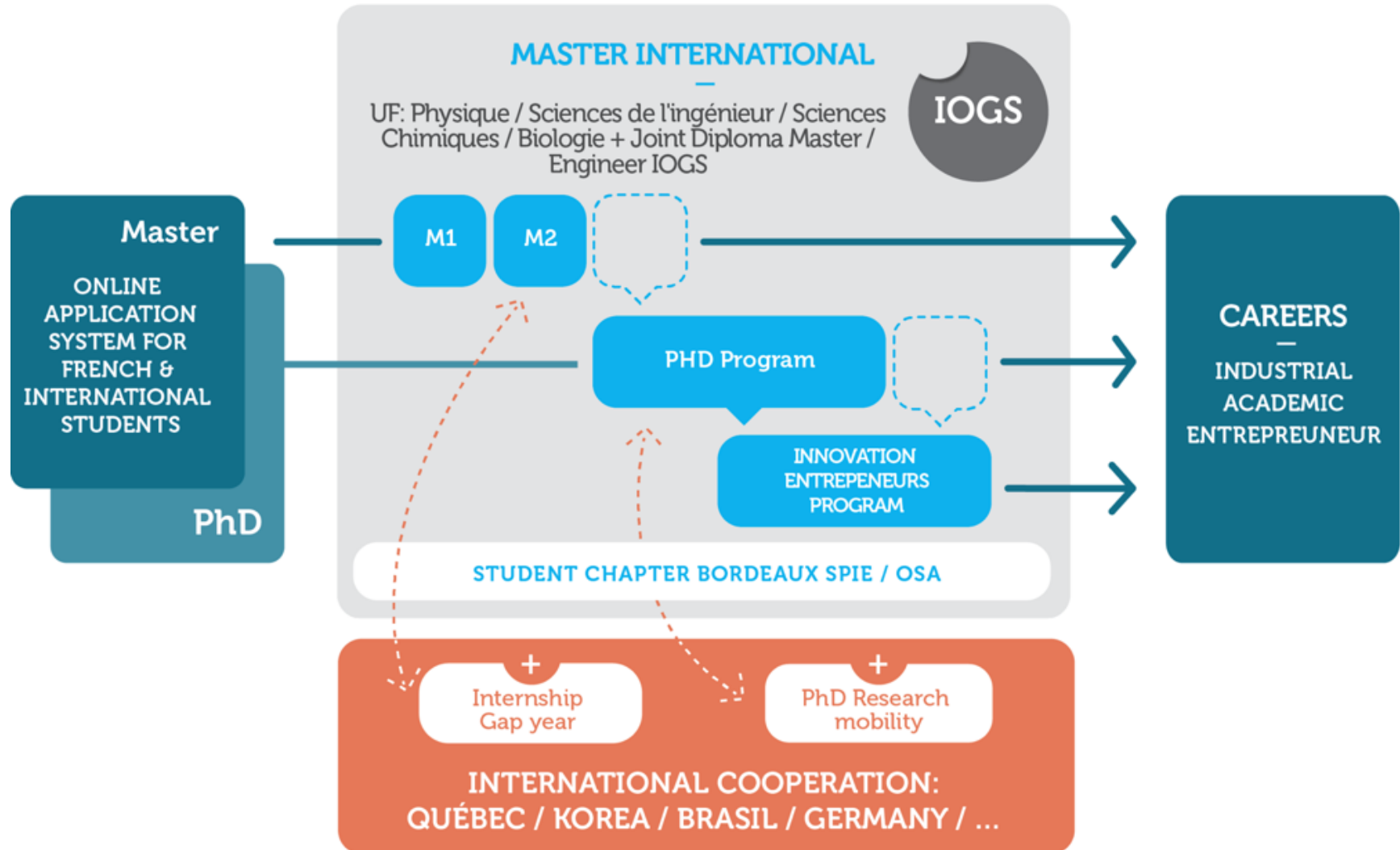
Practical training on state of the art research facilities
Fully Integrated Numerical approaches

***Laboratories and Institutes
involved in **LIGHT** S&T***

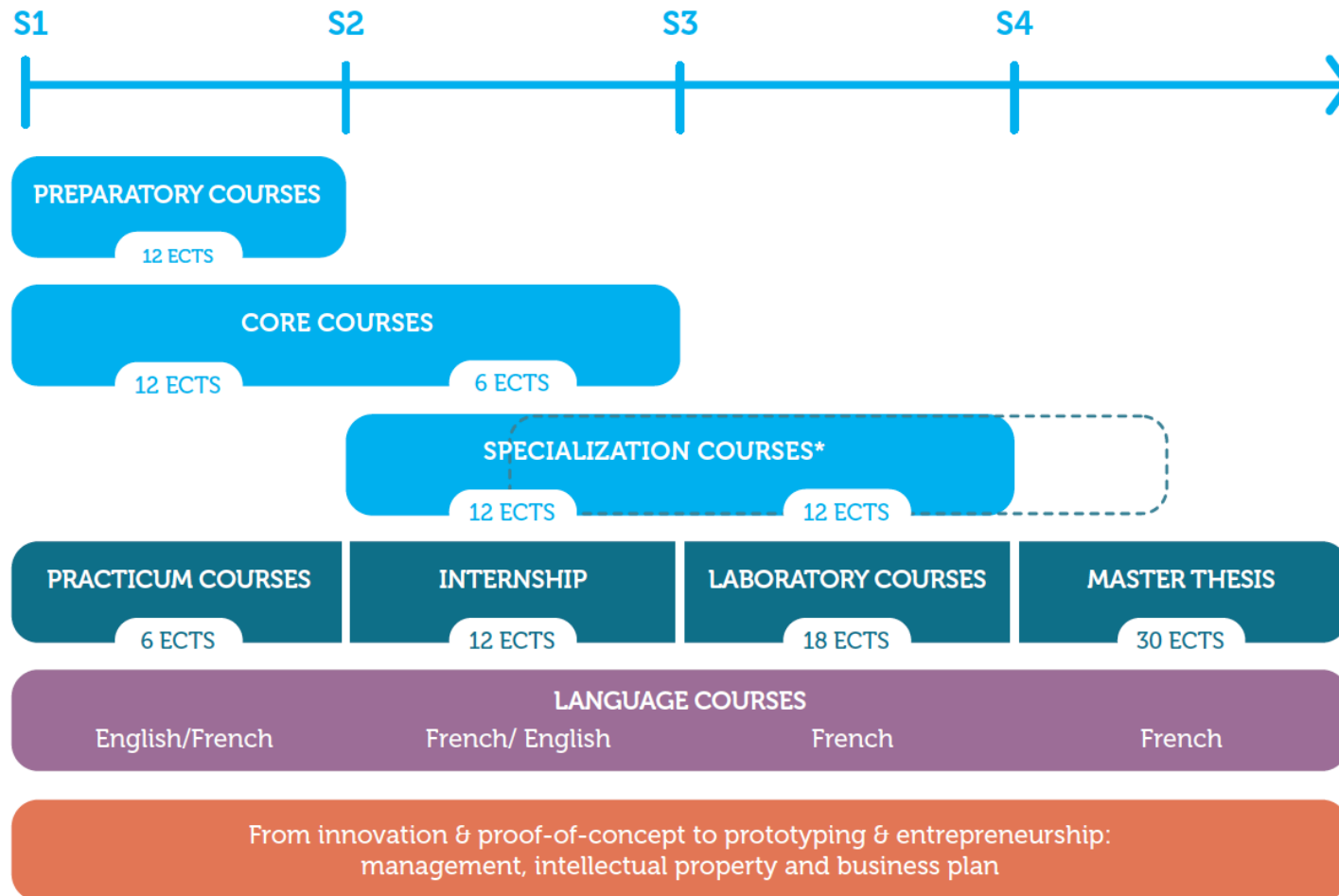


-  Extreme Regimes of Light
-  Light Generation, Manipulation & Detection
-  Light Imaging & Bio-Photonics

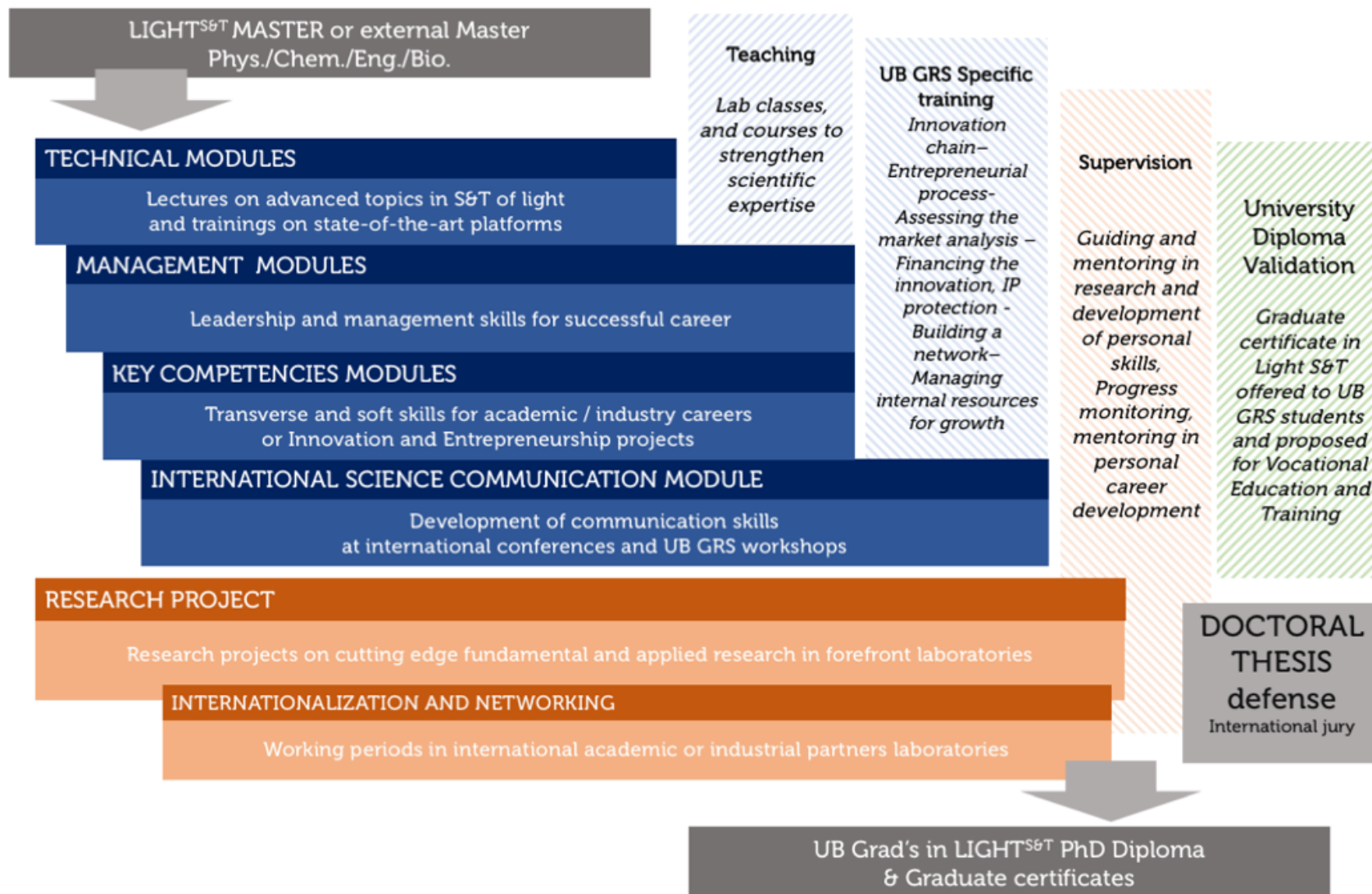
UB GRAD'S IN LIGHT SCIENCES & TECHNOLOGIES



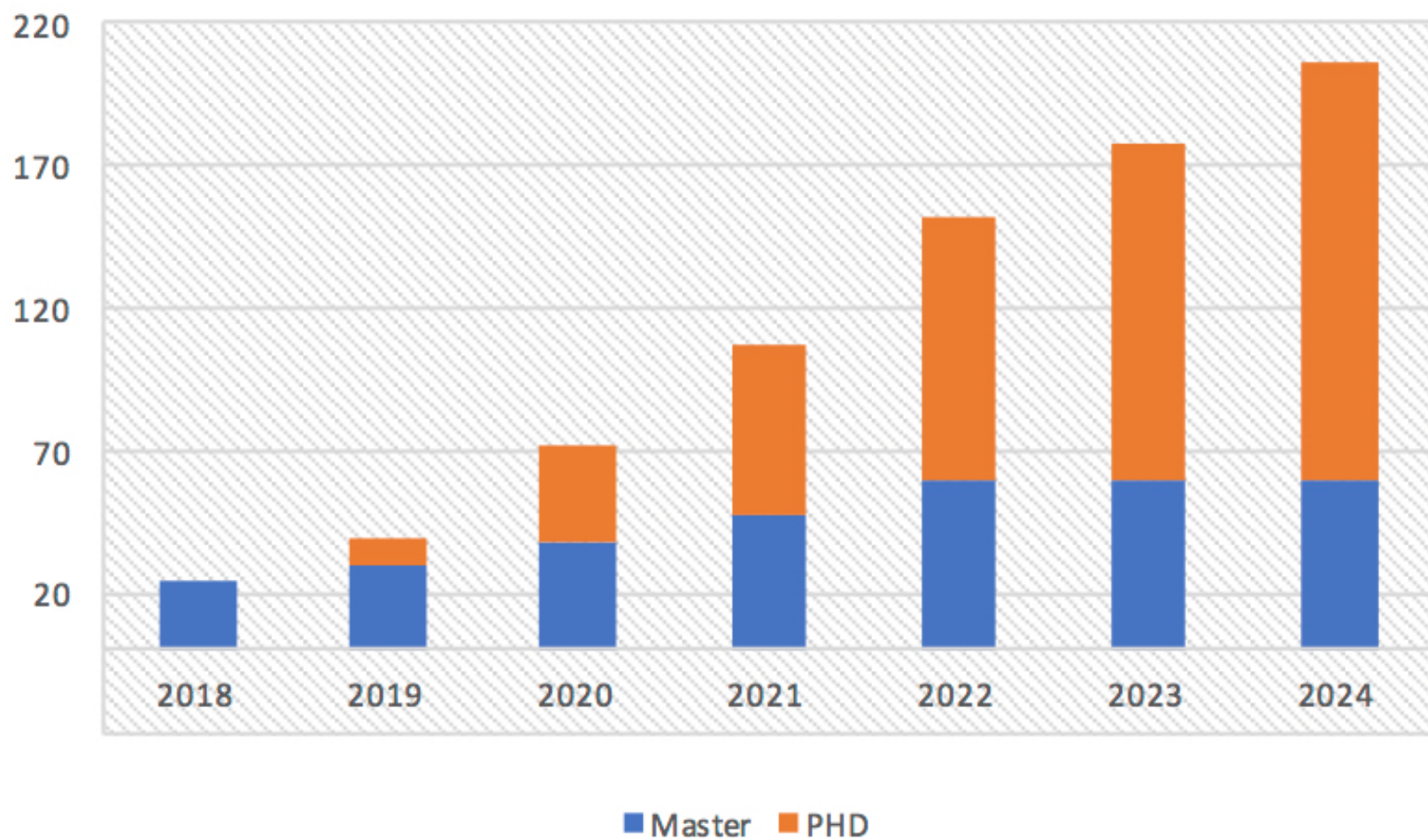
Master Program Operational Scheme



* Specialization courses could be rescheduled between the semester 2 and 4 for international exchange adjustment



UB Grad'S in Light^{S&T} enrollment previsional growth



Expected evolution of students number in each tracks

LIGHT S&T Thematics	2018	2019	2020	2021	2021
Extreme Regimes of Light	8	9	10	11	12
Light Generation Manipulation & Detection	8	10	14	18	24
Light Imaging & Bio-Photonics	8	10	14	18	24

Articulation between education and research

➤ **Strong implication of researchers from national agencies**

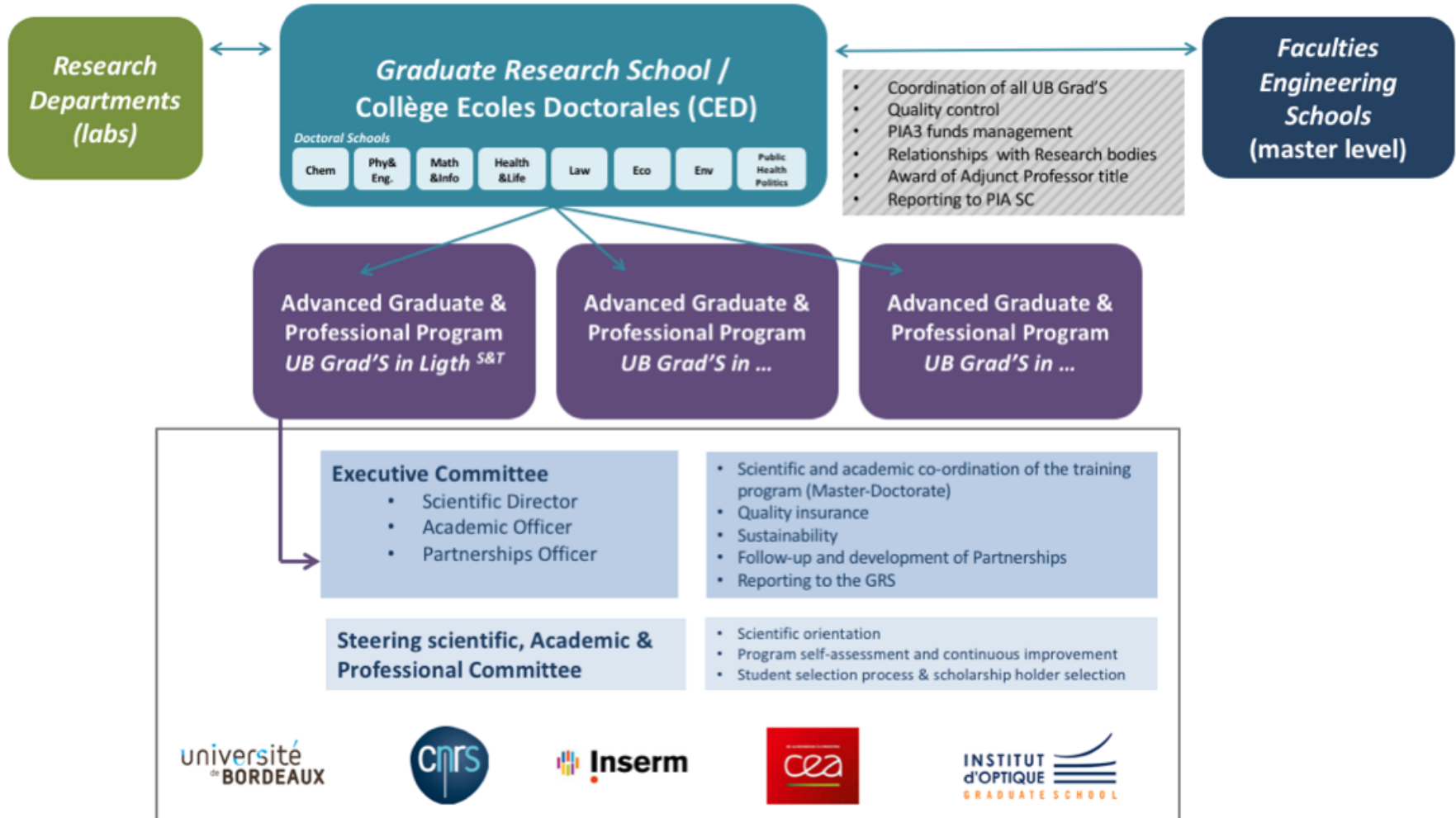
- They will be part of the educational team and will **participate to the elaboration of the curriculum programs**
- Overall more than **50% of the courses will be given by researchers** from CNRS, CEA and other agencies.
- Researchers giving classes will be compensated.
- **Creation of an adjunct professor of the UB status:**

This status is dedicated to researchers who have a **strong involvement in the EUR** (status still to be defined: certain number of hours of teaching per year, participating to the coordination of the EUR).

➤ **An extensive hands-on experience training** (66 over 120 ECTS):

- laboratory experience already at the beginning of a student's Master's degree studies
- Lab courses and practical training given in state of the art research facilities and infrastructures.
- Internship & Master thesis (Financial contribution of the EUR to the fellowships)

Management of UB Grad's



FUNDING JUSTIFICATION

The budget of LIGHTS&T over the next 10 years is a total amount of ~ €5M.

- Investment in innovating education tools and equipments to support the creation of the laboratory courses and their evolutions.
- Budget to build the Master courses (new programs, adaptation of existing courses).
- Budget for the EUR promotion, recruitment process, International relationship and general management (including a staff of 2 person in average for the daily management, the students' supervision and the interface with university structures, IOGS, companies... .
- Marketing & communication tools and events, Students fairs, Short-term missions
- **Student fellowships** will be key for the attractiveness

The goal is to offer grants (~ 10-20) to incoming students each year (for Master 1&2).

The goal is to have, year after year a growing percentage of the fellowships financed by the local companies (Importance of the support of ALPHA-RLH and UB network)

- Grants to Master or PHD students involved in an international Co-tutelle or double-degree tracks
- Contribution (up to 50%) to the Master Student Internship grants,
- Retribution of the researchers teaching in the EUR
- Foreign Professor visiting scholars