Bárbara L. Machado Calisto

Industrial Liaison Office

Overview of the Industrial Program at ALBA

industrialoffice@cells.es

5th of September 2024

The Industrial Liaison Office is a one-stop shop service which provides guidance and coordinates the whole process

Alejandro Sánchez
PhD in Physics

15 years experience with microelectronics companies

Nuria Valls
PhD Structural Biology

9 years providing service to industry

Marta Avila
PhD in Chemistry

7 years providing service to industry

Bárbara Calisto
PhD Structural Biology

5 years providing service to industry

Virginia Boix
PhD in Physics

2 years providing service to industry

Mission

The mission of the **INDUSTRIAL PROGRAM** is to **promote and to make available to the industry all the potential of the synchrotron services** and developments to boost the innovation capabilities and the competitiveness of the industry and of the society.

One-stop Shop Service

MAIN ACTIVITIES

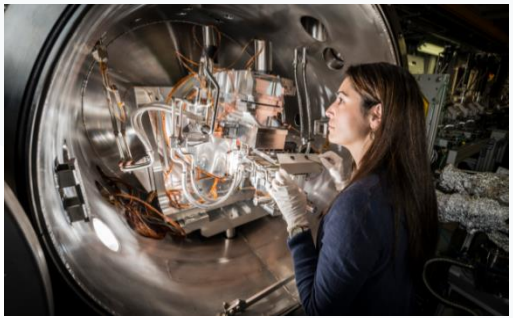
Outreach,
Manage Beamtime Access
Manage Laboratory Access
IP protections and technological transfer to the industry
Funding opportunities (EU and national) for companies

PROPRIETARY ACCESS

to ensure confidentiality and property of the results, fee for service

Relations with Industry

Industry as a User

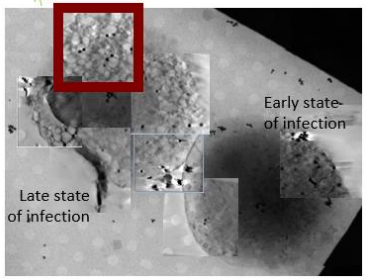


IP and Technology Transfer to Industry

Industry as a Supplier

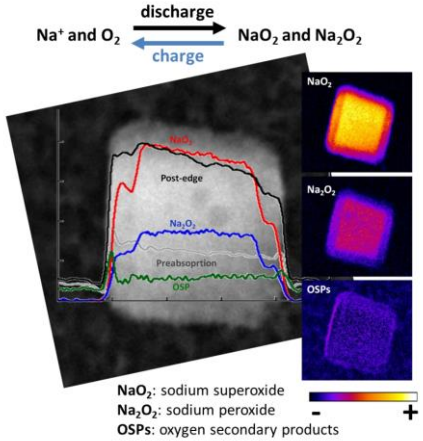
Applications

Life Sciences
From the protein to the cell



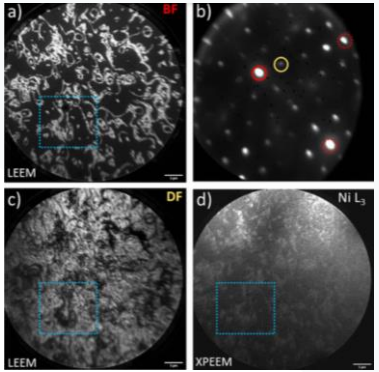
Cell infected by covid-19

Chemistry and Material Science
Energy material, catalysts, environment



Battery developments

Electronic and Magnetic Structure of Matter
Advanced materials



Nanomagnetism for data storage

CHEMISTRY
PHARMACEUTICAL
ADVANCED MATERIALS
ENERGY
HEALTH
NANOTECHNOLOGY
AUTOMOTIVE AND AEROSPATIAL
FOOD AND PACKAGING
ENVIRONMENT
CULTURAL HERITAGE & FORENSIC SCIENCES

ILO Activities

Industrial Access Services

- Beamtime access
- Other lab access: magnetic, metrology, RF…
- In-house developments

Outreach to Industry

- Industrial Workshops
- Industrial sector congresses
- Visits to the facility

Industry as a User

Long-term collaborations

- R&D Projects
- Scientific staff funding
- Industrial PhD students
- Development of Scientific Instrument

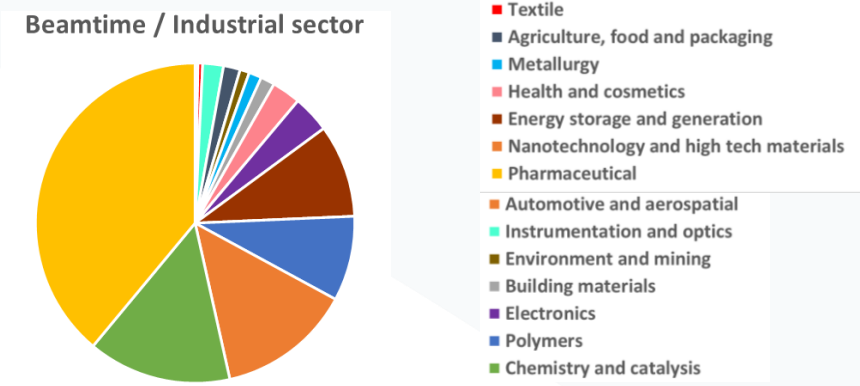
Technology Transfer

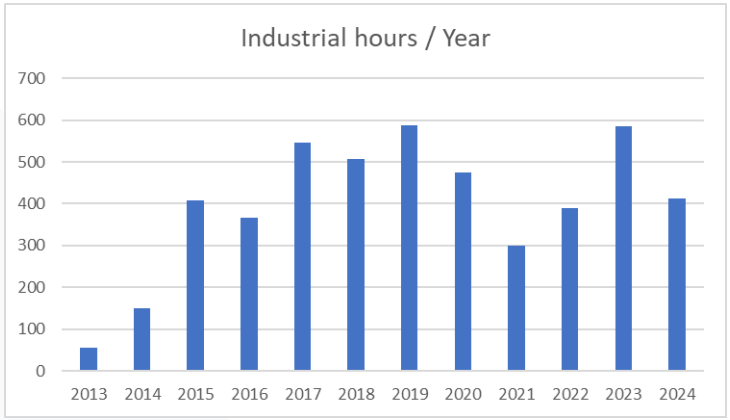
- Patents
- Licensing
- Spin-offs

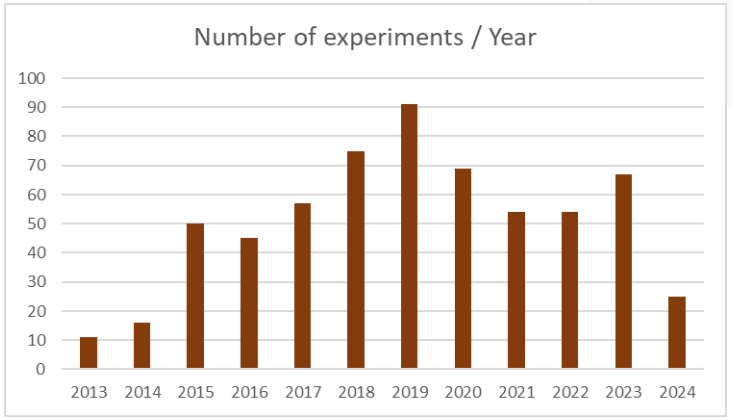
Industrial Usage

BEAMTIME USAGE BY THE INDUSTRY ALONG THE YEARS

- More than 90 companies
- SMEs and big companies
- Local, national and international
- Wide range of industry sectors



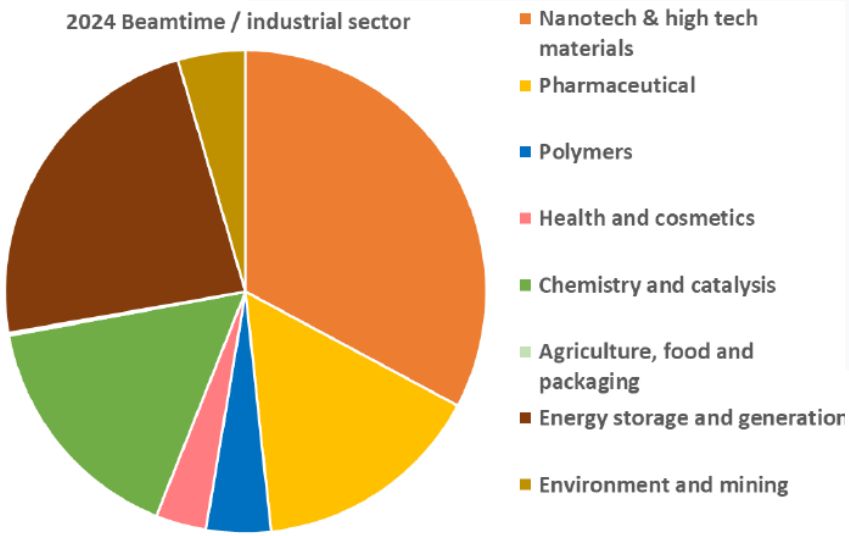




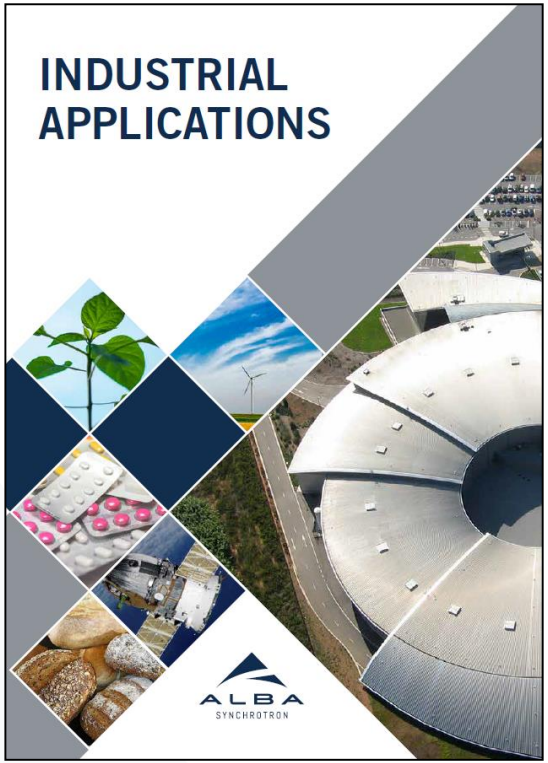
Industrial Usage

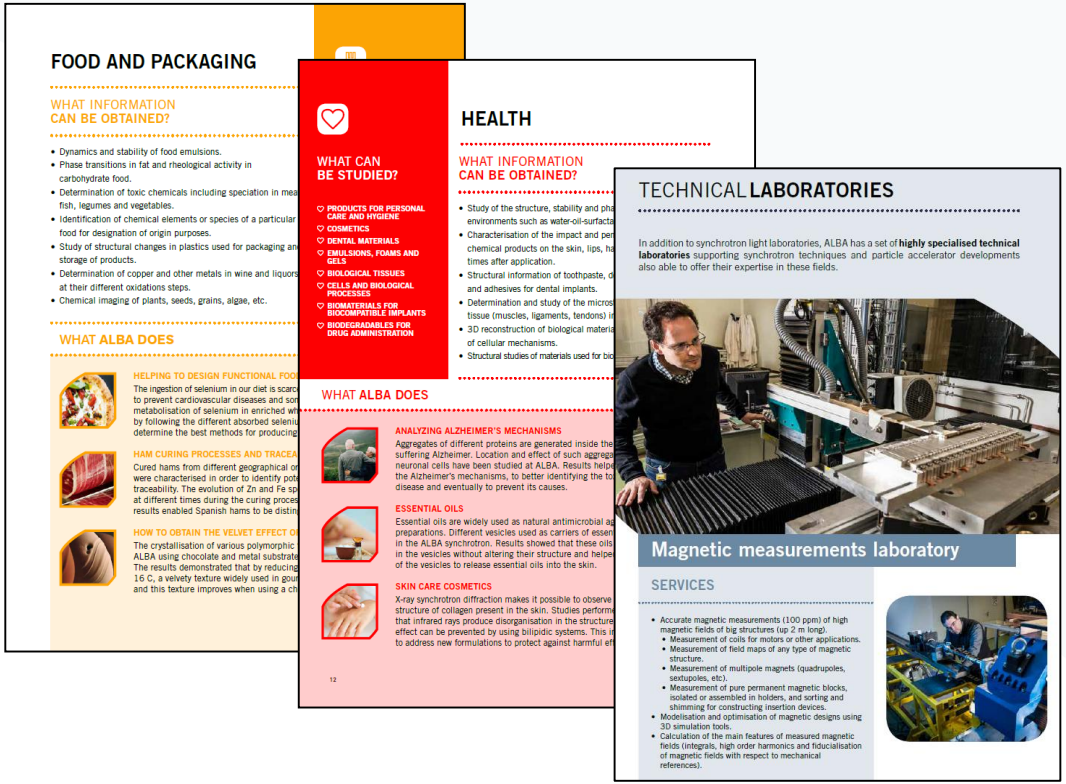
BEAMTIME USAGE IN 2024

- 530 h industrial beamtime
- 32 experiments
- 19 companies
- 10 new customers



Outreach to INDUSTRY





https://www.cells.es/en/industry/industrial_applications_baja.pdf

Outreach to INDUSTRY

Thematic Workshops for companies

- Opportunities for the science industry *(in collaboration with CDTI and Induciencia)*
- Industrial applications of ALBA Synchrotron in pharmaceutical industry
- Spanish Metallurgy Platform meeting

Other outreach activities

At ALBA:

- Visit of “big brands”
- Companies and industrial associations

Outside ALBA:

- IndTech 2022 (Grenoble)
- Innovation Forum for Health (Sabadell)
- BSBF2022
- Cosmetorium 2023

Workshop on Industrial research on battery manufacturing and recycling

INDUSTRIAL RESEARCH ON BATTERY MANUFACTURING AND RECYCLING

Agenda of the day

26 April 2024

09:30 h	*Welcome*
09:40 h	**Introduction to the Synchrotron**
	Alejandro Sánchez, Associate Director, Industrial Offices.
09:55 h	**Presentation and goals of the conference**
	Sergio Sáez, secpho
10:00 h	**Synchrotron applications to the battery industry**
	-Application of synchrotron-based X-ray diffraction in battery industry | Alexander Missyul, ALBA Synchrotron
	-Industrial-Relevant Experiments with Synchrotron Radiation: Some Examples in the Field of Batteries | Rosa Palacín, ICMAB
10:40 h	*Coffee Break – Networking*
11:10 h	**Characterization of battery materials**
	-Synchrotron-based X-ray characterization techniques for the analysis of Li- and Na-ion battery electrode materials | Joseba Oribe, CIC energiGUNE
	-Combining synchrotron techniques to unlock the battery performances | Laura Simonelli, ALBA Synchrotron
	-Synchrotron-based characterization of industrially relevant cathode active materials with high energy density | Philipp Kurzhals, BASF
12:10 h	**Other industrial applications of batteries**
	-Opto-mechanical solutions for laser processes in battery production | Juan Isaza, EXOM
	-Laser applications in battery manufacturing | Mikel Bengoa, Coherent
	-In-line Non-Destructive Inspection of Li-ion Batteries | Jordi Sobrino, Hamamatsu
	-Battery monitoring using thermography: Hot spot and gas detection | Javier Besares, bcb
	-Battery remanufacturing, a second life before recycling | Jesús Toucedo, TerrePower Europe
12:50 h	**Opportunities with the ReMade@ARI funding**
13:00 h	*Networking Lunch*
14:15 h	**Visit to the synchrotron laboratories**
15:30 h	**B2B Meetings – Networking coffee**
17:00 h	*End of the event*

Presentations

Networking

Guided tour

B2B meetings

7 industry talks // 65 attendees // 23 companies // >100 B2B meetings

https://www.secpho.org/en/agenda/alba_synchrotron_batteries/

ReMade@ARI has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101058414.

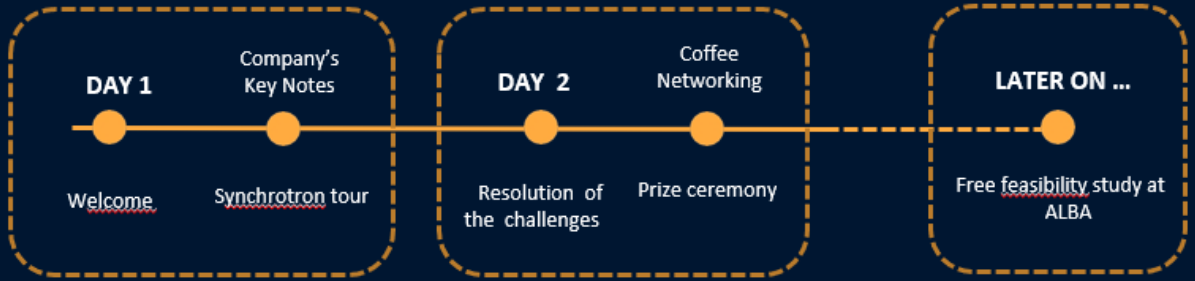
ALBA HACKATHON

SCIENTIFIC COMPETITION

COMPANIES SET A CHALLENGE TO A GROUP OF PARTICIPANTS

TO BE SOLVED BY USING SYNCHROTRON TECHNIQUES, WITH CREATIVITY, INNOVATION AND IN A FEASIBLE WAY

6th and 7th March, 2025



Great opportunity to attract companies and to capture talent!
All participants' CVs will be shared

Diputació Barcelona

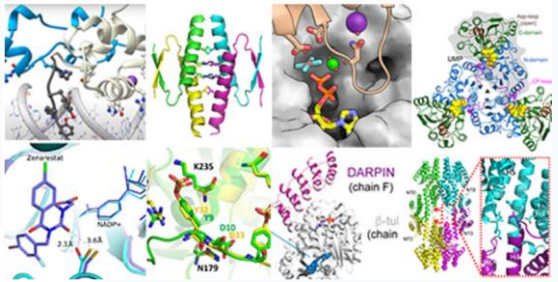
Ajuntament de Cerdanyola del Vallès

Parc de Recerca UAB

Relations with Pharma Industry

EXPLOITING CAPABILITIES

A dedicated Industrial Liaison Scientist



NETWORKING

Catalonia.health
Science, innovation, business

SPANISH
Drug Discovery Network

Sebiot
Sociedad Española de Biotecnología

OUTREACH

Relations with Energy Storage

DEVELOPING RESOURCES

A dedicated Industrial Liaison Scientist (to be hired)

NETWORKING

upcell
European Battery Manufacturing Alliance

Clúster Mav
MATERIALS AVANÇATS DE CATALUNYA

secpho

OUTREACH

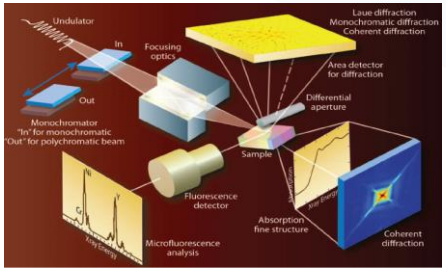
LEAPS-INNOV Battery Forum

Relations with Steel Industry

DEVELOPING RESOURCES

COLLABORATIONS

OUTREACH

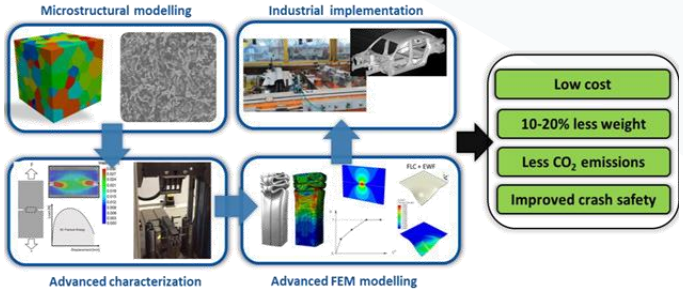


A dedicated Industrial Liaison Scientist (inCAEM funds)

Scanning Transmission Electron Microscope, METCAM at JEMCA + InCAEM (Planes Complementarios)

Collaboration Agreement

ALBA eurecat



Relations with ICT companies

FUNLAYERS

Twinning on **Functional Layered Materials for Advanced Applications**

Functional Layered Materials Technologies & Stakeholders Workshop

INL INTERNATIONAL IBERIAN NANOTECHNOLOGY LABORATORY

ALBA

MAX-PLANCK-INSTITUT FÜR MIKROSTRUKTURPHYSIK

Funded by the European Union

Examples of Industrial Research

Long-term contract with HENKEL

BASF, UPC and ALBA propose a methodology for producing better additives for concrete technology

Helix BioStructures performs first post-lockdown COVID-19 measurements at ALBA

HELIX BIOSTRUCTURES

SAMTACK benefits from synchrotron light for improving food packaging

The company is analysing nanoparticles contained in a new food packaging system that will prevent food oxidation and extend its lifetime.

ESTEVE, UAB and ALBA Synchrotron join efforts to investigate the mechanism of action of new inhibitors against pain

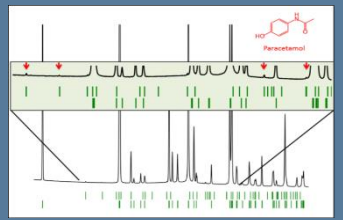
ENANTIA uses ALBA's X-rays to detect crystalline impurities in drug products

TOYOTA and CSIC proved viability of calcium-based batteries

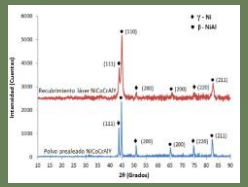
The Spanish Research Council (CSIC) in collaboration with TOYOTA Motor Europe (TME) demonstrates the viability of Calcium rechargeable batteries using ALBA techniques.

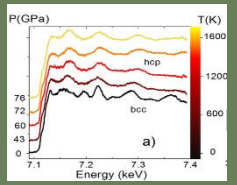
Access modes for Industry

Single service



Long collaboration





Several techniques are required

CDTI

Henkel

Joint service with partners

COMPANY
Company Tagline here

Challenge

UNIVERSITY

Techniques & skills

ALBA

Advanced techniques

Funded EU projects

LEAPS INNOVATION

ReMade @ARI

a hub for materials research

Access via European projects

LEAPS-INNOV

- Specific programme for SMEs
- Free access to ALBA
- **CALL OPEN**: https://wayforlight.eu/en/industries/

ReMade@ARI

REcyclable **MA**terials **DE**velopment at **A**nalytical **R**esearch **I**nfrastructures

- Projects addressing circular economy
- Specific programme for industries
- Free access to ALBA

SYLINDA project (with SOLARIS, synchrotron in Poland)

- Sharing experiences to **improve the services**

LEAPS-INNOV has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004728
SYLINDA has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 952148

Participation in European projects

RIANA

H2FORM3G

Sup3rForm

ReMade @ ARI

FUNLAYERS

COOPHS

SUNSTONE

nephews
Neutrons and Photons
Elevating Worldwide Science

LEAPS INNOVATION

SYLINDA

nffa.eu | PILOT

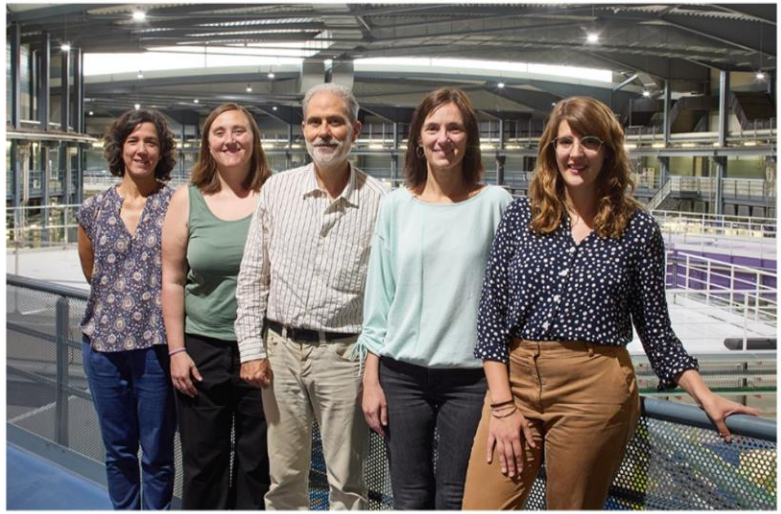
Forward-looking

STRATEGY of the Industrial Program

- **Customer loyalty** & satisfaction of the provider
- **Promotion of the industrial program**: reach-out to more companies, mainly local, to enable these to build-up their technological competences
- **Support companies** with all the expertise and resources ALBA can provide towards innovation
- **Diversify and extend the present portfolio of services**:
  - the novel synchrotron techniques of the new beamlines
  - the improved synchrotron techniques of the upgrades of the existing beamlines
  - the hub of the four pillars around ALBA II
  - Joint Electron Microscopy Center ALBA: Cryo-TEM and METCAM

industrialoffice@cells.es

THANK YOU!



GOBIERNO DE ESPAÑA MINISTERIO DE CIENCIA E INNOVACIÓN

Generalitat de Catalunya
Departament de Recerca i Universitats