



Elettra Sincrotrone Trieste

# Elettra Industrial Liaison Office Activities

# Elettra at a glance



- 400 employees
- 100000 m<sup>2</sup>
- 5000 hours /year
- 33 beamlines
- more than 1000 Users
- from more than 50 countries


Industrial Liaison Office is active since 2004

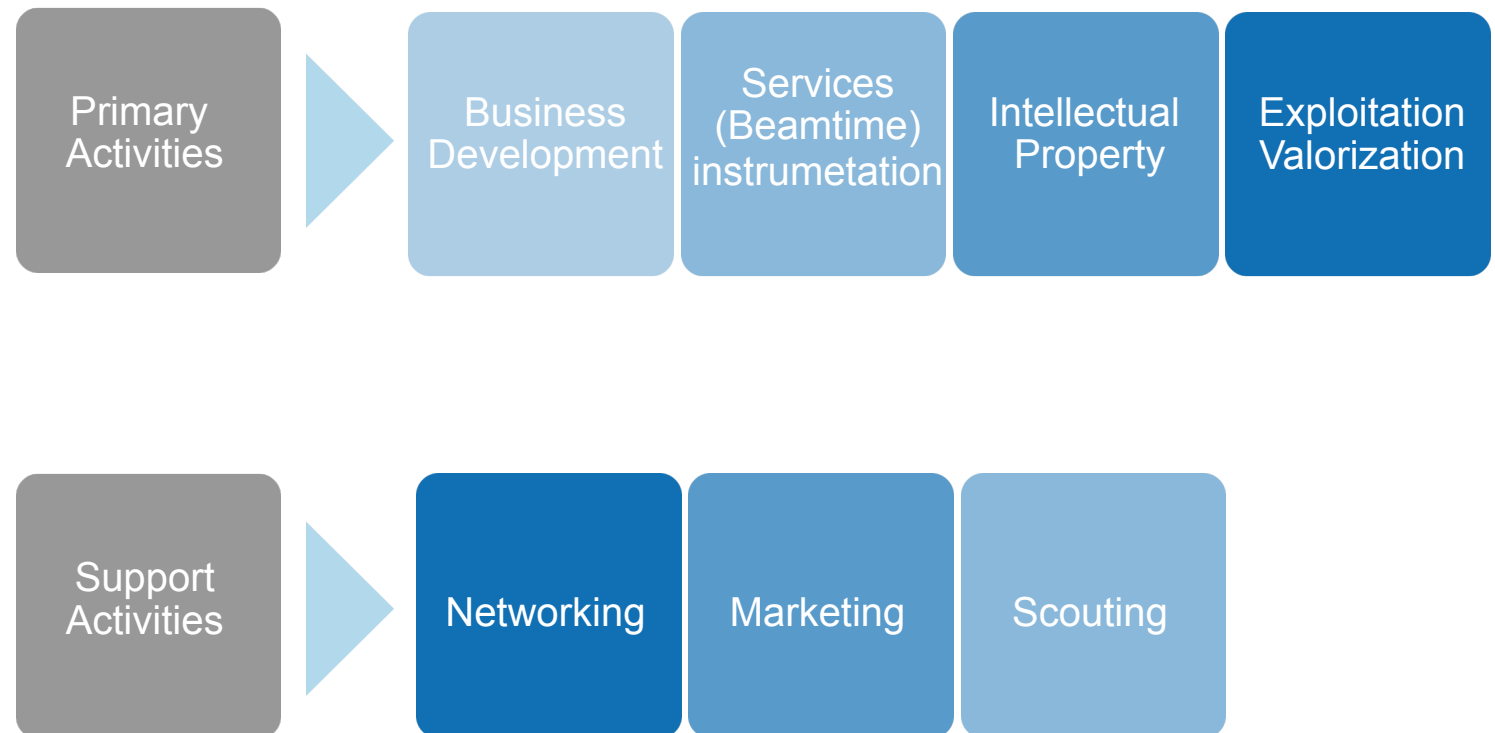
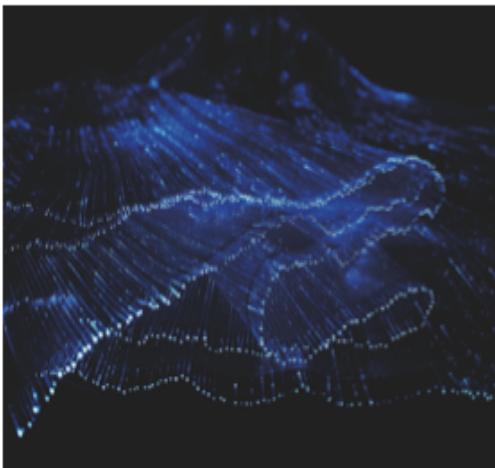
Manage the industrial relations and technology transfer activities of Elettra Sincrotrone Trieste

Team of 5 people with scientific and economic background



# The landscape

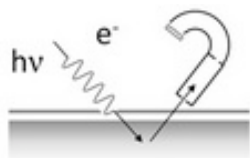
- ✓ Multi-disciplinary environment
  - ✓ Leading edge technologies
  - ✓ Open knowledge
  - ✓ Several application fields
  - ✓ Cross-fertilization
- 



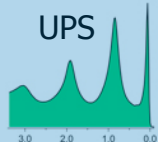
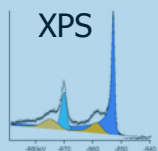


Elettra  
Sincrotrone  
Trieste

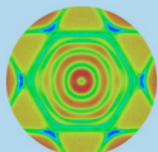
# The Techniques



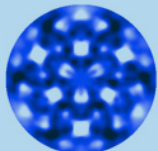
**Photoelectron emission**



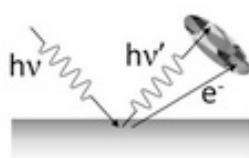
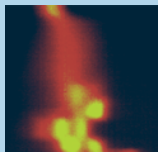
ARPES



XPD

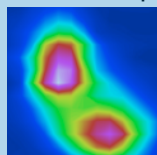


TR



**Imaging**

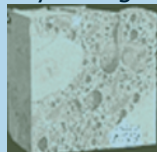
IR microscopy



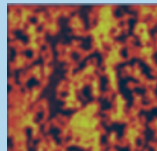
X ray microscopy



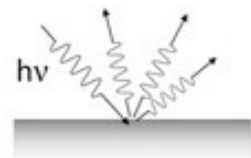
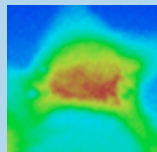
X ray tomography



Photoelectron Mic.

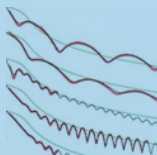


Fluorescent Img.

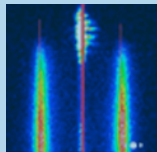


**Scattering**

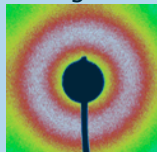
Elastic



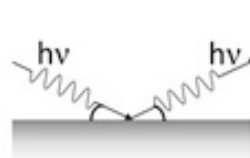
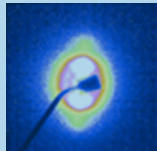
Inelastic



Magnetic

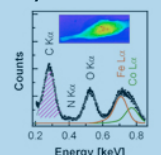


SAXS / WAXS

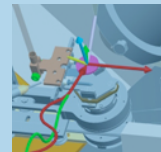


**Reflection/  
Emission**

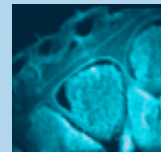
X ray fluorescence



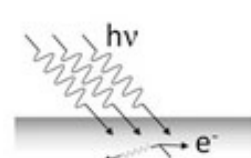
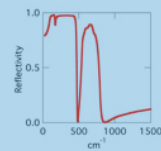
Reflectometry



Micro XRF

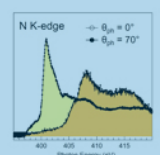


Reflectivity

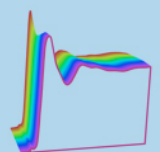


**Absorption**

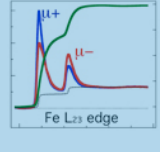
NEXAFS



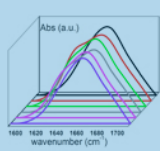
EXAFS



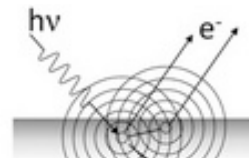
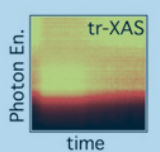
XMCD



Infrared



Time Resolved

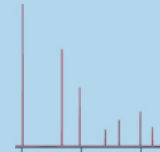


**Diffraction**

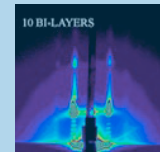
Cristallography



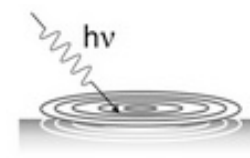
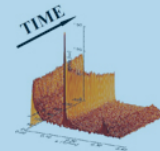
Powder Diffraction



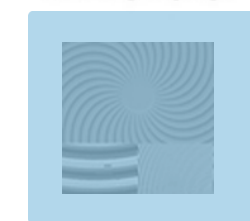
Surface Diffraction



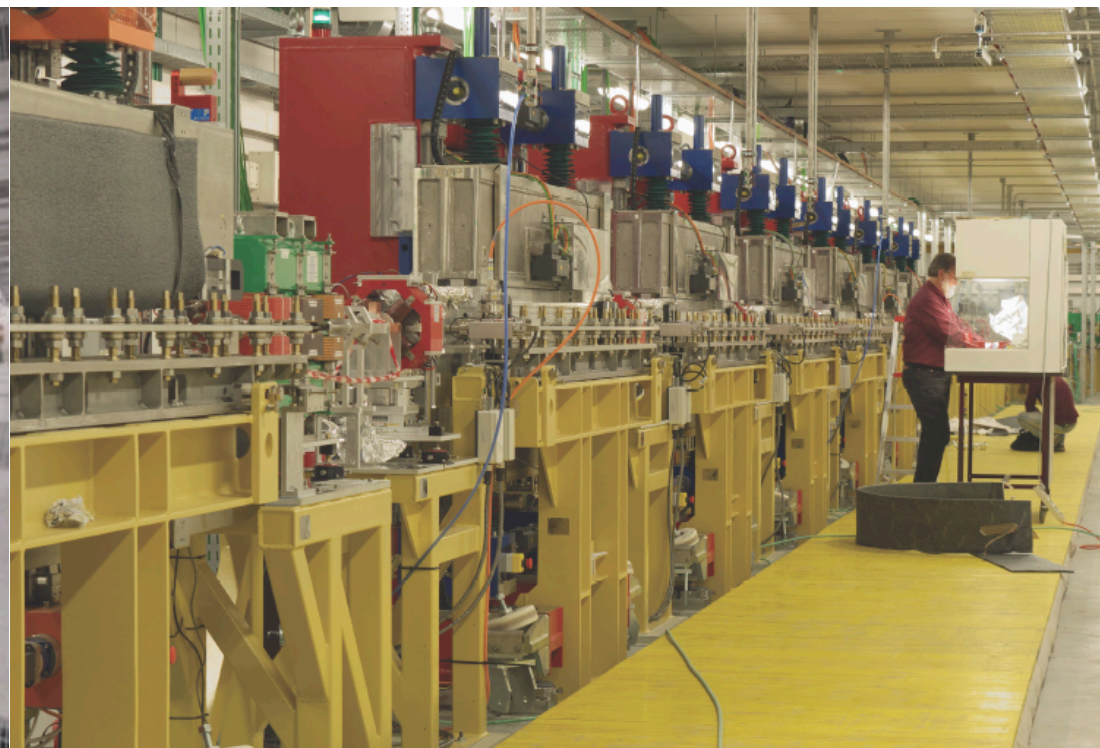
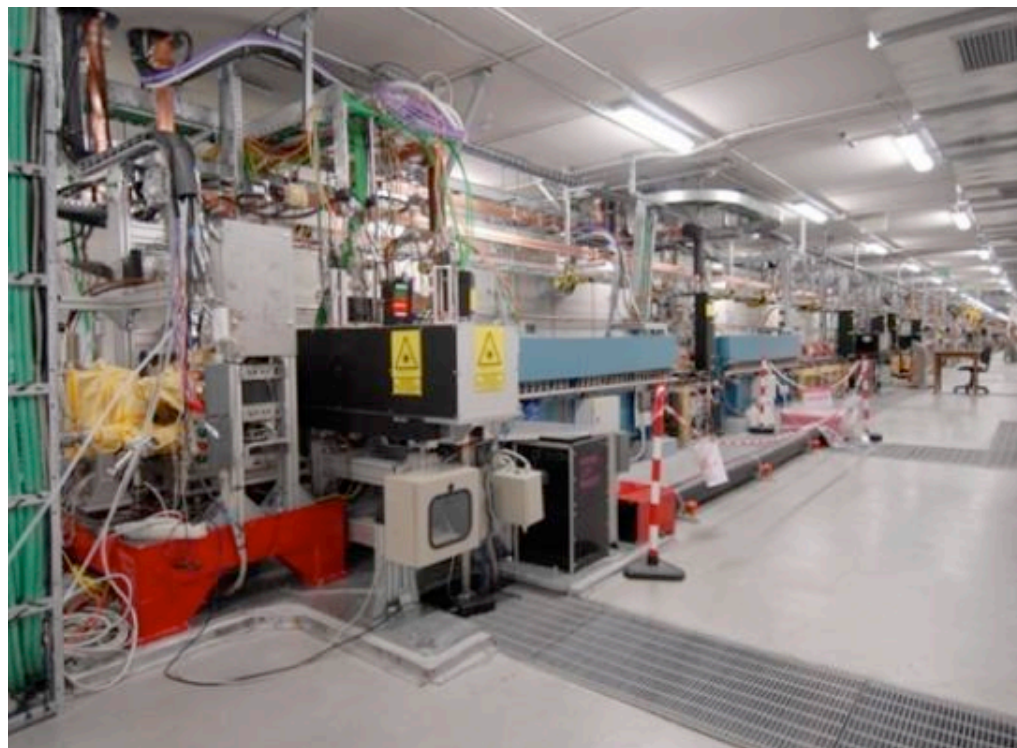
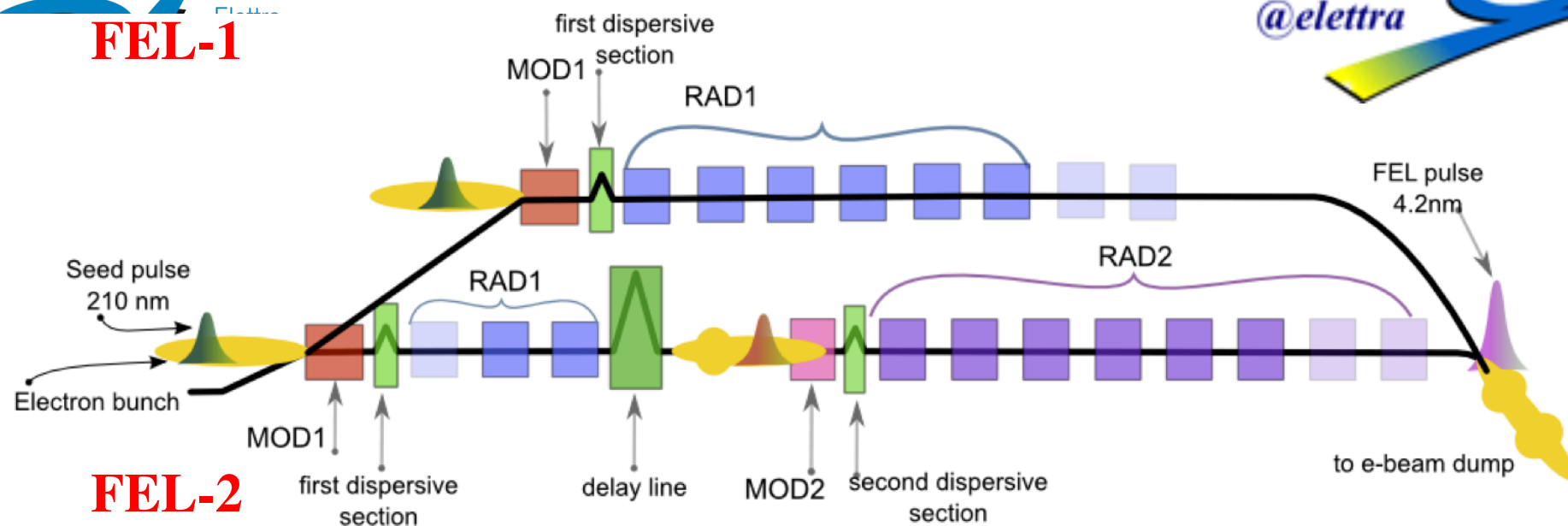
Time Resolved



**Lithography**



**FEL-1**





## CITIUS



The new Interreg project for the development of a state-of-the-art light source generating ultrashort pulses in the UV and soft X-ray spectral range.

[Read more...](#)

## Organic OptoElectronics



The lab investigates the properties of organic semiconductors, either molecular or polymeric, and their applications.

[Read more...](#)

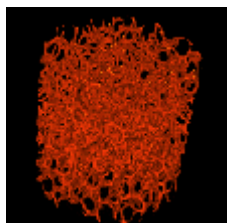
## Support Lab



The Support Lab operates a machine workshop and a chemical laboratory supporting Elettra beamlines and users

[Read more...](#)

## Tomolab



The TomoLab station at Elettra provides a state-of-the-art X-ray computed microtomography system based on a microfocus source.

[Read more...](#)

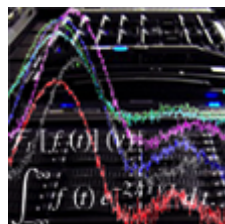
## Micro and Nano Carbon Lab



The main activity of the Micro and Nano Carbon Laboratory is the preparation and study of carbon nanotubes and several carbon based materials.

[Read more...](#)

## Scientific Computing



The scientific computing team supports research activities by providing advanced algorithms, ICT services and infrastructures.

[Read more...](#)

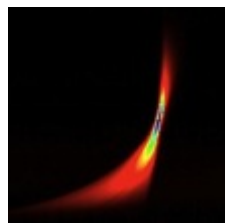
## Surface Science



The laboratory research activity addresses the geometrical and electronic structure as well as the chemical reactivity of a large variety of solid surfaces.

[Read more...](#)

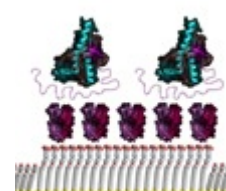
## T-ReX



The T-ReX Lab hosts a set of facilities devoted to the study of ultra-fast processes in condensed and soft matter and their applications in technology.

[Read more...](#)

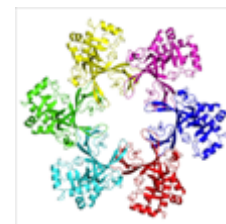
## NanoLab



The lab carries out research on surface confined bio- molecules and self- assembled monolayers using atomic force microscopy.

[Read more...](#)

## Structural Biology



Structural and functional studies of proteins and protein complexes involved in DNA replication and repair, autophagy and genome stability.

[Read more...](#)

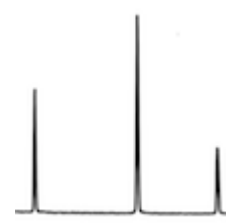
## Theory@Elettra



Theory@Elettra is the theory group funded by the CNR-INFM DEMOCRITOS supporting the experimental activity performed in the laboratory

[Read more...](#)

## Powder Diffraction



The Powder Diffraction Laboratory is a support laboratory for MCX, XRD and XAFS beamlines, providing diffraction measurements, in Bragg-Brentano geometry, of powders, thin films, and single crystals.

# Industrial Partnerships & Collaborations

Elettra is part of



- Trieste (Italy)
- Business & Science Incubator
- 62 companies
- 21 research centers



CONFINDUSTRIA

- National Organization of Italian manufacturing and services companies
- 148.392 companies of all sizes

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Elettra cooperates with



AZIENDA SPECIALE PER L'INNOVAZIONE  
Camera di Commercio Treviso



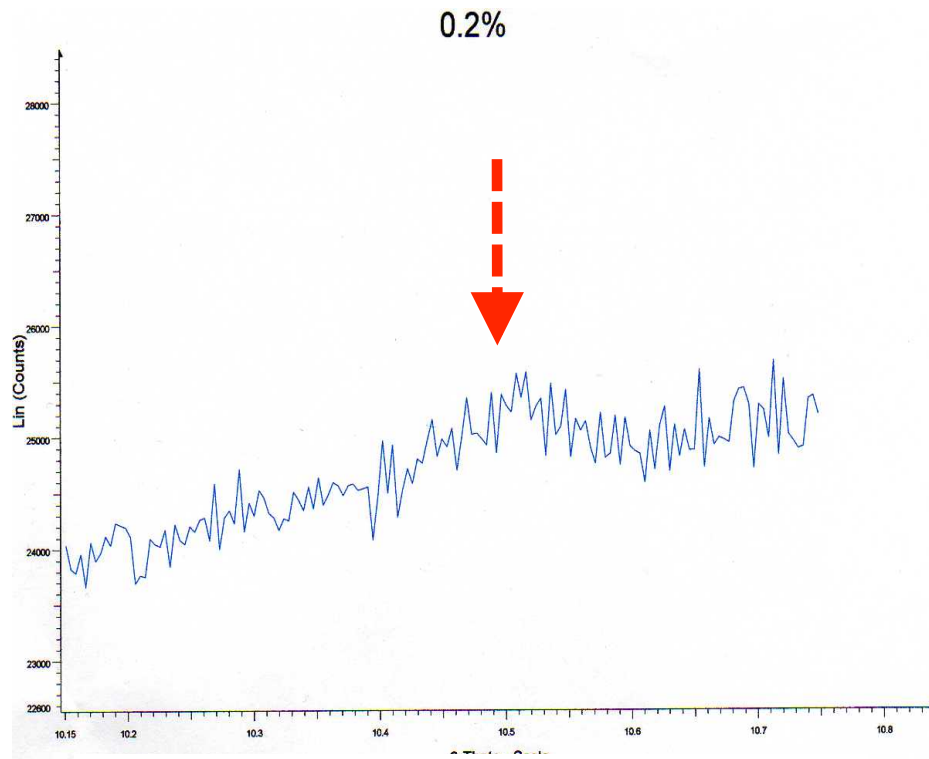
### Development of a New Method / Measurements @Facility

- ✓ A chemical company has a problem in product formulation
  - Proposal for action:  
Analysis of the quality of the product using a technique with greater sensitivity (Synchrotron light – X ray Diffraction)
  - Results:  
New measuring method with synchrotron light to detect the presence of impurities in the ppm range, patent pending  
CGmp Certification of the analysis at Elettra

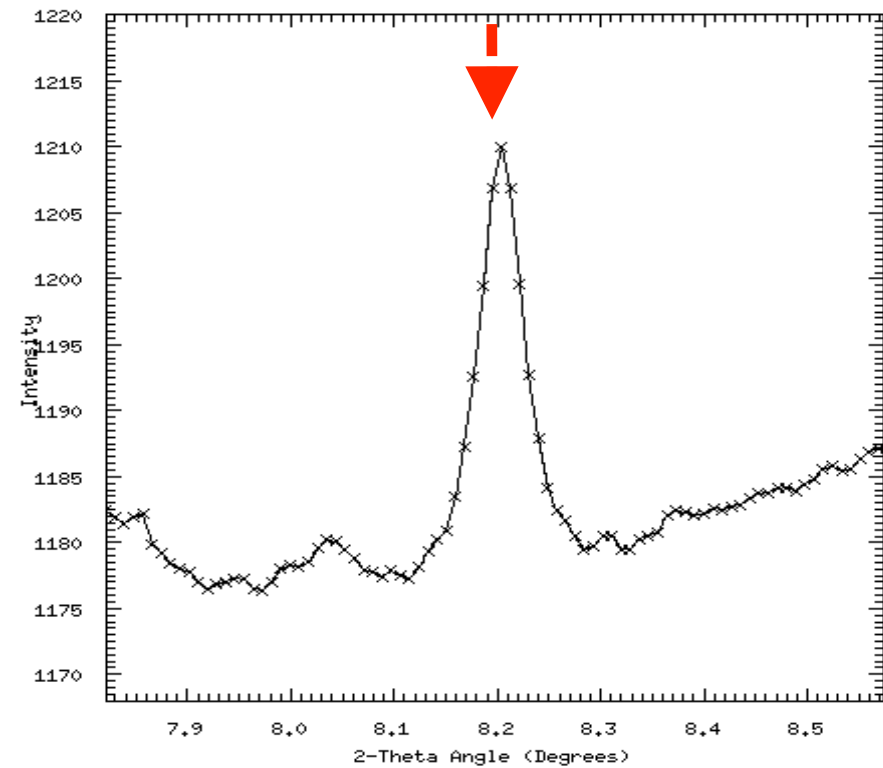


2500 employees  
550 million revenues

## Example #1



*Conventional source*



*X Ray Diffraction*



### Development of a New Method / Measurements at the company

- ✓ Analysis of the production process of a textile company
  - Proposal of intervention:
    - Study of the colour and thermofixing process of textile to reduce the energy consumption
    - Analysis of the quality of the incoming textile with infrared techniques to reduce production scraps
  - Research project:
    - Provided technical expertise, the instrumentation, experienced researchers
    - The company involved a graduate employee for the research activity
  - Results:
    - Research results are transferred in the production line
    - The company has an experienced employee that manages the quality control activity



**300 employees**  
**100 million revenues**

### Development of a New Method / New Tool

- ✓ Tomographic analysis of products to reveal defects
- Proposal for action:
  - Study of the possible applications of tomography for the of
  - Optimization of the measurement parameters
  - Design of a tomographic device for in-line measurements
- Results:
  - We designing a tomograph with ad hoc features and we tested critical components
  - The tomograph is now under construction at a manufacturer company.

**TOP  
SECRET**

Multinational company  
6.000 million revenues

## Accelerator Parts

Elettra, over the years, has acquired great experience in developing and realizing accelerators components, i.e. undulators, resonant cavities etc. For the production of Insertion Devices, a specific spin-off company (Kyma S.r.l.) has been set-up, while other components will be provided directly by Elettra.

Product list

- Low Level RF Electronic Units
- Electromagnetic RF devices
- Elettra Type RF Cavities and Accessories
- 3D magnetic structures
- Chicane Bunch Length Compressors

## Lab Instruments

Several instruments necessary for typical or extreme applications are available: fast picoammeters, multi-point strain gauge, charge pulse amplifiers, ion chambers, pulse generators, RF filters etc. Every tool is intelligent and in some cases "Epics/Tango interface" is already provided.

Product list

- AH401 / AH401B Picoammeter
- PIT-RFLN-Wide Bandwidth Pulse Amplifier
- AH501 Picoammeter
- RUD-RFLN-XLS Pulse Amplifier
- AH501B Picoammeter
- XPi Data Acquisition System
- L01 DOSFET Reader

## Power Supply Equipment

New families of intelligent (DSP or PC embedded) power supplies, that cover many typologies (high voltage/current, four-quadrant etc.) and configurations are forthcoming. Epics or Tango interface are often already present and custom-built solutions are possible.

Product list

- MAS-TER HV Bipolar Power Supply System
- HiSTAR Series Power Supply

## Detectors

Photons and charged particles detectors, based on cross delay anodes, multi anodes and centroid finding techniques are steadily developed. 3D information (x, y, time) with spatial and time resolutions in the order of tens of microns and picoseconds are available through many custom-built solutions.

Product list

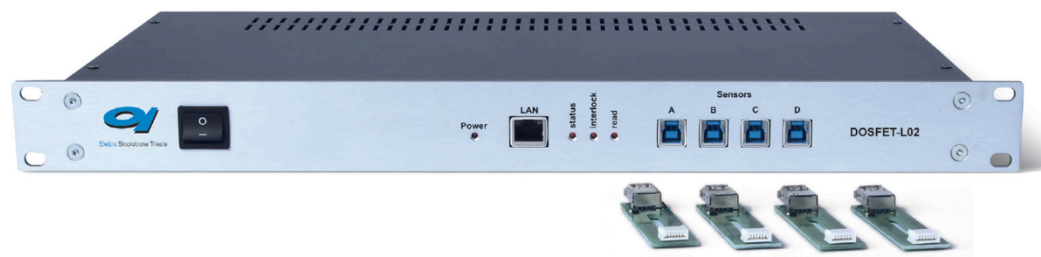
- Photons and charged particles 3D (x,y,t) detectors
- XBPM-DR1 X-ray Beam Position Monitor
- BLM - IC02 Ionization Chamber Beam Loss Monitor
- FCB-001 Cavity Beam Position Monitor



Picoammeters: PSI (CH); Australian Synchrotron, ESRF (FR)  
Dectris, ANL (USA), Campinas (BR), Bruker (DE),  
EMBL (DE)

Power Supplies: Kyma (I), Soleil (FR), Canadian Light Source,  
Diamond (UK), ANL (USA), INFN (I), SESO (FR)

Other instrum. Diamond (UK), ANKA, Changun Insitute of Optics (CN),  
Toyota (JP), Campinas (BR), INFN (I)





In the last years we supplied 15 Elettra type RF cavities to:

SLS (Switzerland)

ANKA (Germany)

Indus II (India)

LNS (Brazil)

Additional tenders  
running for a total of other  
6 cavities



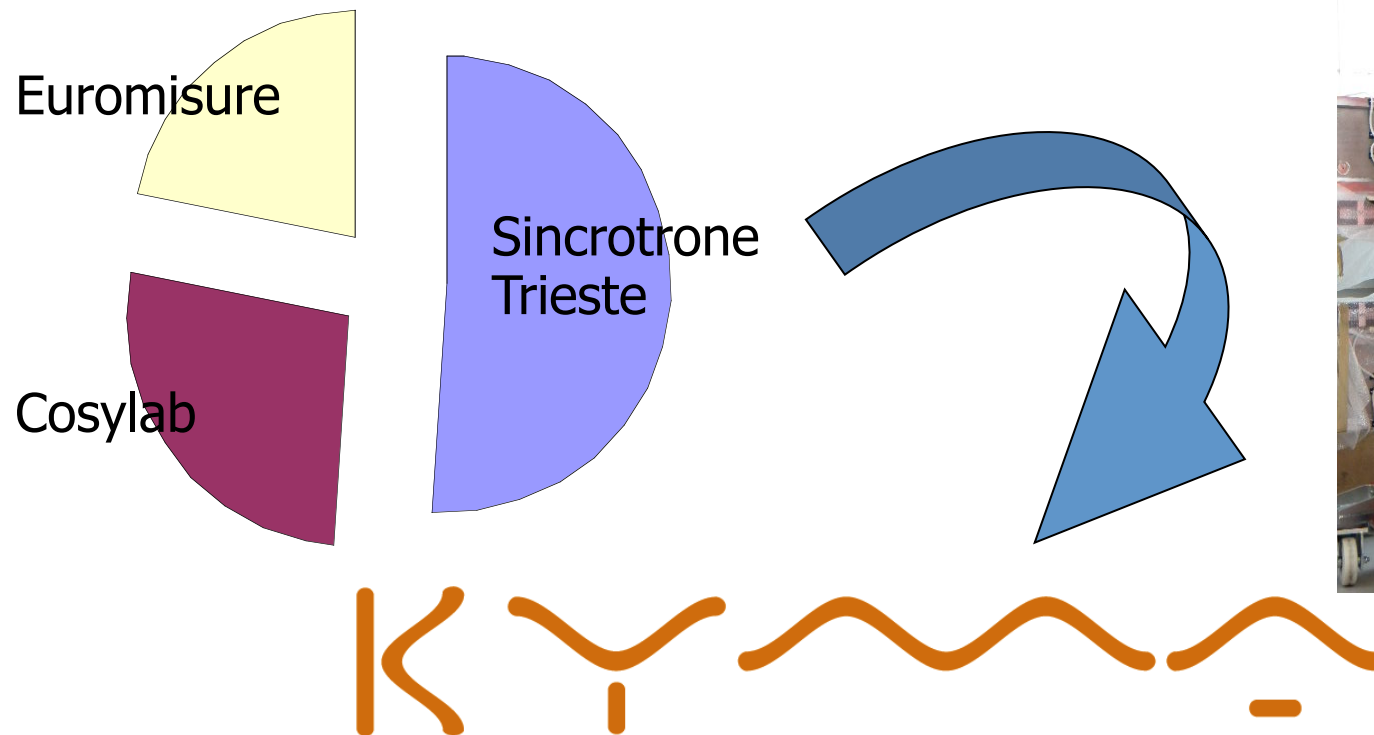
500 MHz Elettra RF cavity

# KYMA– Spin off

**KYMA** born in 2007 as Sincrotrone Trieste spin off to produce undulators for Synchrotron and FEL light sources

10 employees

4 million Revenues



**KYMA** born in 2007 as Sincrotrone Trieste spin off to produce undulators for Synchrotron and FEL light sources

13 employees

3 million Revenues

More than 40 Undulators already supplied in worldwide Synchrotrons/FEL:

- Elettra for FERMI(Italy)
- Brookhaven National Laboratory for NSLS-II (USA)
- Pohang Accelerator Laboratory for PLS II (Korea)
- Max Plank Postech for PLS II (Korea)
- Uppsala University for XFEL (Germany)
- ENEA for SPARC-FEL (Italy)
- Huazhang University for THz-FEL (China)



# Consulting activities

3 years contract for the delivery of expert consultancy services in the range of adaptation, construction, integration and launch of a new synchrotron radiation source in Poland.





# Customers for Products



Thank you!





Elettra  
Sincrotrone  
Trieste



[www.elettra.eu](http://www.elettra.eu)



## Marco Marazzi

### Head of the Industrial Liaison Office

4 Years of experience in Technology Transfer activities, Program Management

Expert on European Projects (Design and Management, Accounting)

Marketing and Sales

11 years of experience in the Research & Development in the automotive industry

1995 Degree in Physics

Fluent in English

Italian mother tongue

## Cristina Modolo

### Industrial Liaison Officer

2 years in Technology Transfer activities

Marketing and Sales, Project Management, Intellectual Property Management

6 years in Management Consulting

Strategy Definition, Sales Excellence Programs, Process

Improvement Program, Training Delivery

2004 Master in Business Administration at the University of Kansas

2003 Degree in International Economics 2003

Certified Trainer in Problem Solving, Decision Making and Project Management, Six Sigma Black Belt

worked in Italy, Europe and USA

Fluent English, Italian mother tongue

## Marco Peloi

### Industrial Liaison Officer

12 Years of experience in Technology Transfer activities, Program Management

Expert on European Projects (Design and Management, Accounting) Marketing and Sales

10 years of research experience in Material Science and

Nanotechnologies in Italian Universities (Brescia, Genova, Pavia, Milan) and Italian National Labs (INFN LASA Milan)

1993 Degree in Physics and PhD in Material Science

Fluent in English

Italian mother tongue

## Patrizia Madile

### Administrative assistant

12 years experience in Customer service, Financial Planning & Control, Events Planning, Projects Reporting, Tender Management

1997 Degree in Political Science

Fluent in English and German

Italian mother tongue

## Mojca Franceskin

### External Consultant

13 years practice in global marketing and sales management

Hands-on experience in addressing the particle accelerator market - the most advanced large-scale research infrastructures in the world

Lecturer for marketing, sales, rhetoric and negotiations

1999 Degree in international relations and diplomacy at the University of Trieste

Fluent in Italian, English and German

Mother tongue Slovenian