

# THE CASE OF FERMI@Elettra

Fabio Mazzolini  
*Elettra-Sincrotrone Trieste S.C.p.A.*

*“Symposium on European Funding Instruments  
for the development of Research Infrastructures”  
Madrid - April 19th, 2016*



# The Elettra complex as of today



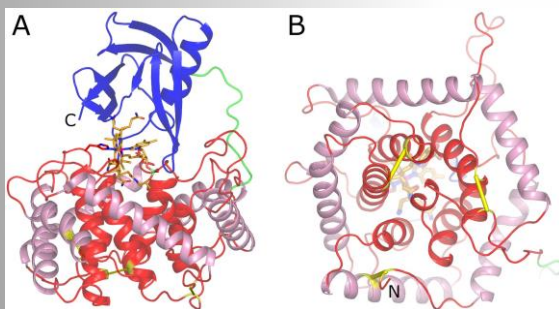


# Elettra-Sincrotrone Trieste S.C.p.A.

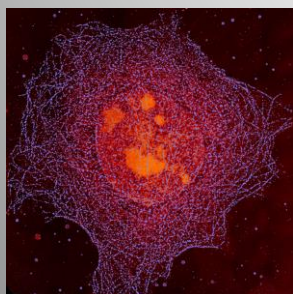


A nonprofit shareholder company of national interest:

AREA Science Park	53.7%
FVG Regional Government	37.6%
CNR	4.9%
Invitalia Partecipazioni S.p.A.	3.8%



Established in 1987 to construct and manage synchrotron light sources – international facility



- > Promote cultural and socioeconomic growth at the regional, national and international level
- > State-of-the art research facilities, technical leadership, skill development and transfer



## In danger of loosing our competitive edge:

- New top-up operating sources coming on line
- Major infrastructure upgrades needed
- Insufficient national resources available

## Enter the EIB and the FERMI @ Elettra Project

### *A major project for the construction of:*

- *Fourth generation free-electron laser source*
- *Full-energy injector for Elettra*
- *New cogeneration power plant*
- *Site infrastructure improvements*



## Project budget 2005-2011

*Total project cost:* 164.0 M€

*Funding:*

- Italian MIUR* 36.0
- Friuli-Venezia-Giulia Region* 13.0
- Internal resources & partners* 16.0
- EU and other projects:* 19.0

*Partial total:* 84.0 M€

- EIB loan - State guarantee* 60.0
- EIB loan - RSFF – ERCF* 20.0
- Total:* 164.0 M€



# The role of the EIB

FIRST CONTACT: INFRAERA Conference organized by ESFRI in Trieste (November 2003). Due diligence with site visits in 2004 and 2010.

## FIRST FINANCE CONTRACT (2004)

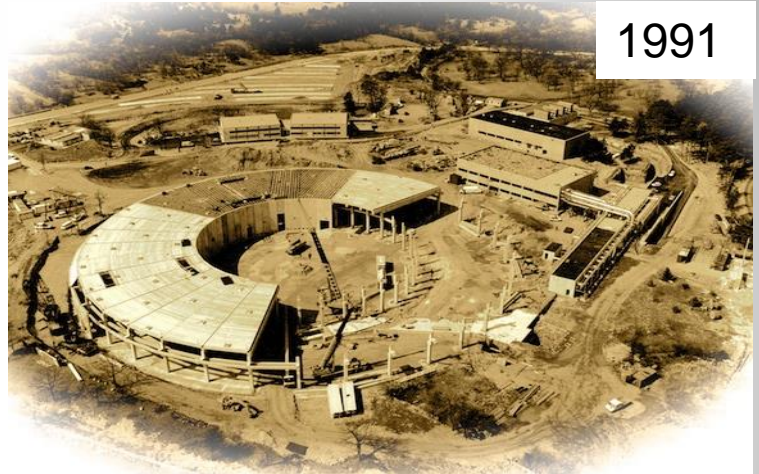
- A fixed interest rate, 20-years, 60 million euro loan
- Guaranteed by the Italian Treasury ministry
- 5-year preamortization period (interest only)
- Interest fixed at 3.77% (40 M€) and 4.46% (20 M€)

## SECOND FINANCE CONTRACT (2010)

- A floating rate, 20-years, 20 million euro loan to enhance performance
- Issued under the Risk Sharing Financial Facility (RSFF) Instrument
- Similar to what is expected for EFSI
- 5-year preamortization period (interest only)

EFSI DEFINITELY THE WAY TO GO!

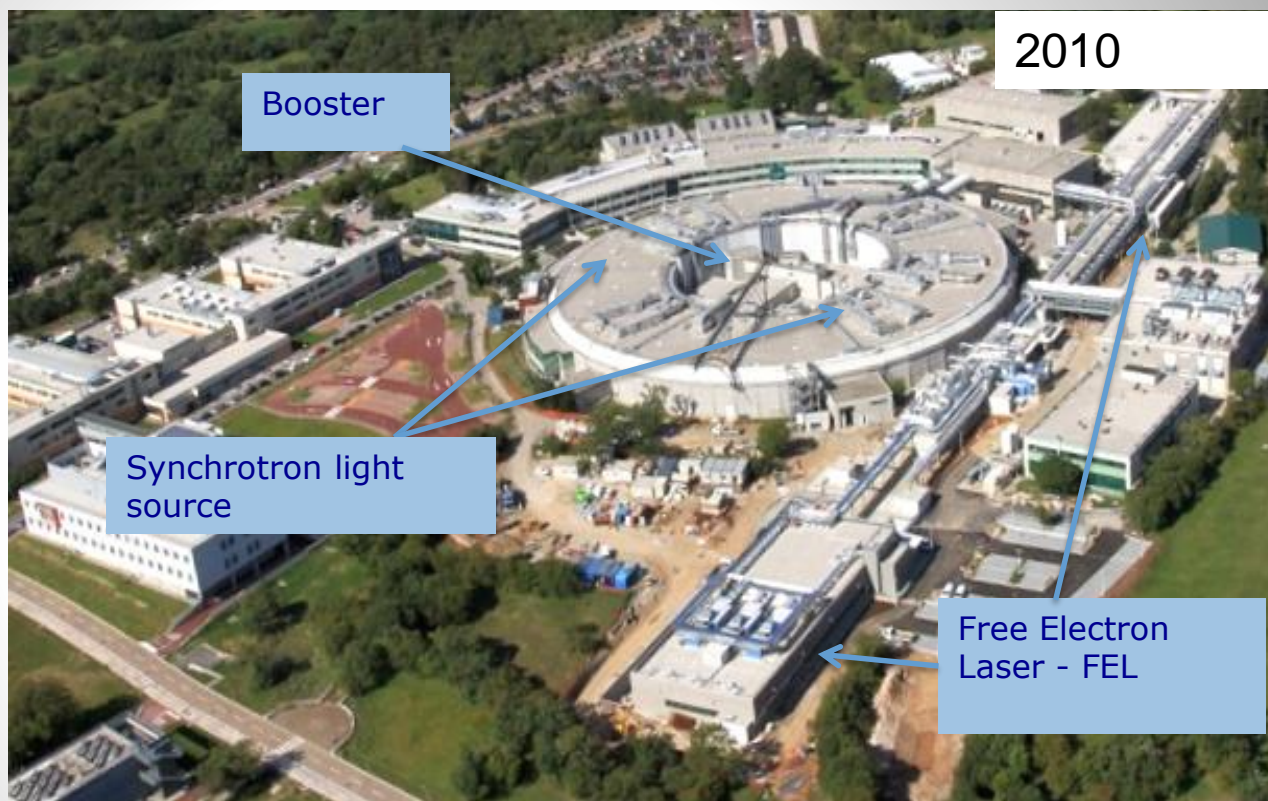














## New international partners



**Elettra**

**26 beamlines  
in operation**

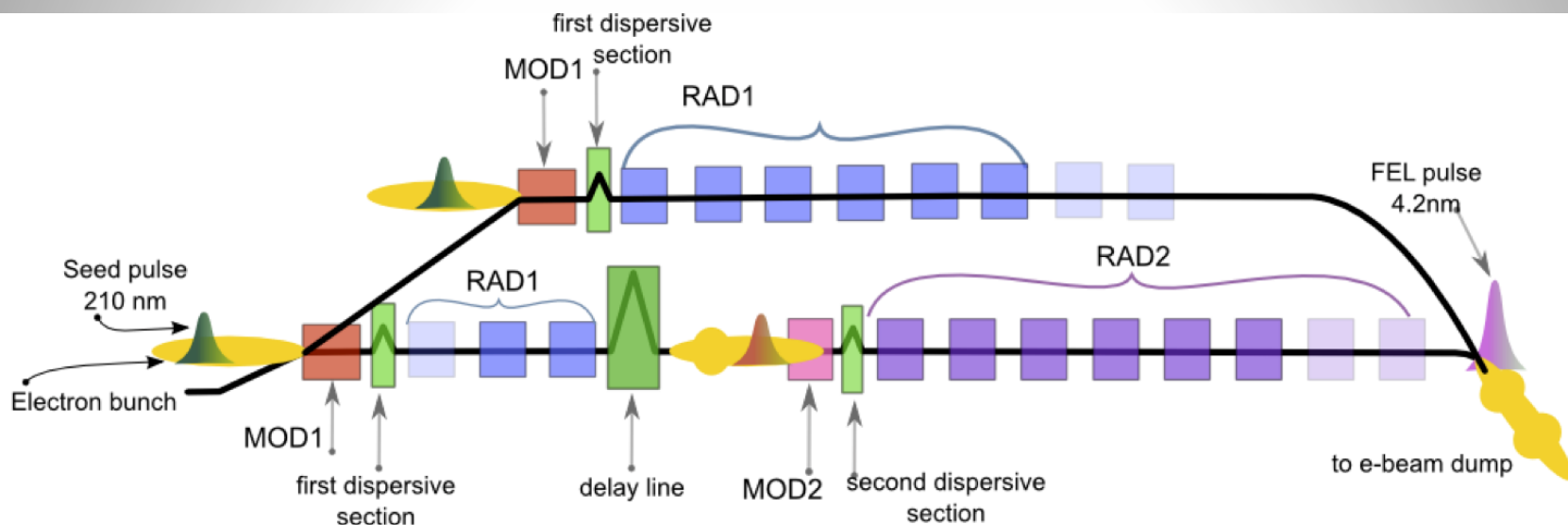
**major upgrades:**

**XRD1  
SuperESCA  
Nanospectroscopy**

**under  
construction:  
XRD2  
XPRESS**



# The first seeded free-electron laser facility





## The Kyma commercial outfit

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

10 employees

4 million Revenues



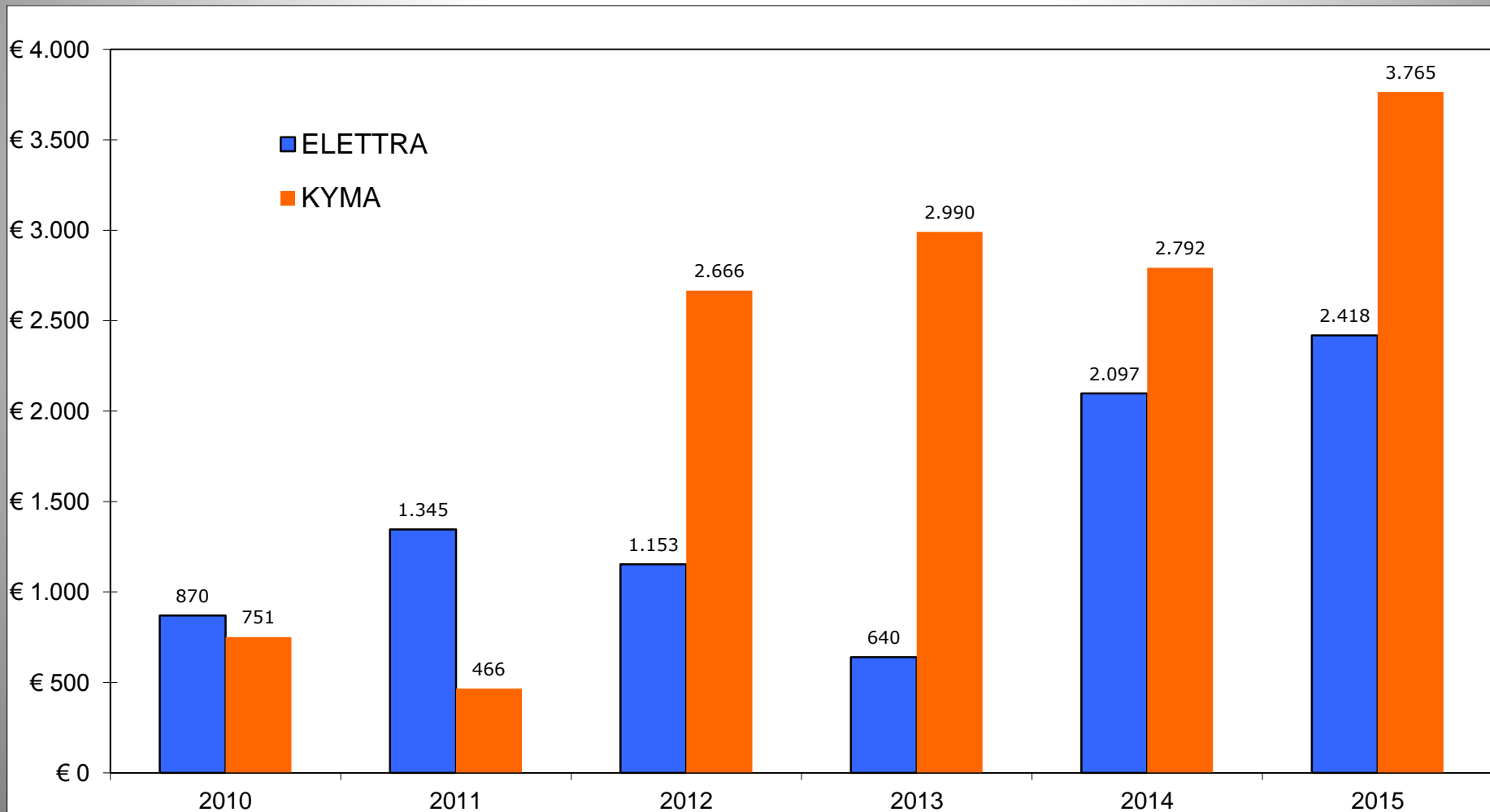
More than 50 Undulators already supplied in worldwide Synchrotrons/FEL:

- Elettra for FERMI (Italy)
- Brookhaven National Laboratory for NLSL-II (USA)
- Pohang Accelerator Laboratory for PLS2 (Korea)
- Max Plank Postech for PLS2 (Korea)
- Uppsala University for XFEL (Germany)
- ENEA for SPARC-FEL (Italy)
- Huazhang University for THz-FEL (China)





## Evolution of industrial income





## In summary

- The loans have been a determining factor for success: no cash flow limitations, better negotiation with providers, flexibility in planning and design changes
- A major advantage has been flexibility and speed in the EIB – Elettra relationship (compared to other banks)
- RSFF or EFSI the way to go as compared to traditional loans

Increased number of international users at Elettra

A first-of-a-kind free-electron laser facility: FERMI

A new reputation of Elettra for project implementation

- > Participation in new international projects (ESS, ELI, etc.)
- > Increase in commercial income
- > New successful industrial initiatives (Kyma)



**Thank you for your attention**