



UNIFE
INTERNATIONAL
- EX LABORE FRUCTUS -

Angelo Taibi | angelo.taibi@unife.it

Mauro Gambaccini | mauro.gambaccini@unife.it

University of Ferrara and INFN, Ferrara, Italy

EUTEMPE-RX project

MPE04

Innovation - Advanced X-ray physics for imaging device and user protocol innovation in D&IR

This module will present the latest research results regarding the physical principles of X-ray imaging. The lectures will discuss the application of new X-ray sources and novel imaging modalities. The course will consist of oral sessions and practical sessions to visit laboratories and make your own experiment.

The aim is to give you the tools to discuss and evaluate the development of new devices or the modification of existing devices in the near future of clinical practice.





Why come to Ferrara?

Topics

Innovation thanks to physical properties of X-ray beams:
energy spectrum and phase characteristics

So...we need

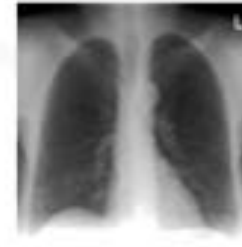
- Novel X-ray sources
- High-performance detectors

to exploit the spectrum and
the phase effects of X-ray quanta
with innovative techniques.

This will be the near future in
your clinical routine.



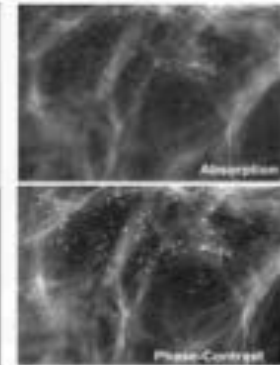
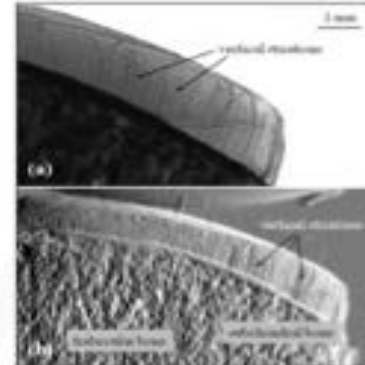
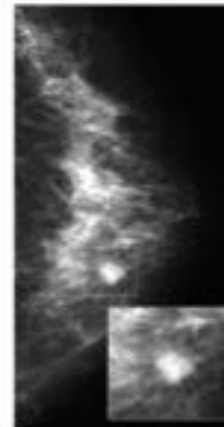
Conventional



Soft tissue



Bone tissue





Why come to Ferrara?

Laboratory activities

Not only theory... to have the opportunity of doing your own experiment and visit our labs at the University of Ferrara.

But that's not all...enjoy the opportunity to visit and to have a direct lab experience at the ELETTRA Synchrotron Facility in Trieste, a multidisciplinary international laboratory of excellence, specialized in generating high quality synchrotron and free-electron laser light.



- Analysis of x-ray spectra
- Production of quasi-monochromatic X-ray beam
- Measurement of x-ray focal spot
- Phase-Contrast Imaging experiment



Why come to Ferrara?

You will...

- Research, critique, evaluate and assess innovative diagnostic and interventional radiology systems with monochromatic sources, dual-energy techniques, spectral imaging and phase contrast imaging
- Take responsibility for the translation of new devices and modification of existing devices into the clinical practice of D&IR: the new challenges of future MPEs.

And you will take home with you...

- The unique opportunity to play the leader's role in the profession with an innovative point of view.
- A learning process as a good scientist: be the MPE of the future!
- Strategic personal growth for the development of your profession to be able of dealing with innovation: it is already coming towards you!



Ferrara University town UNESCO World Heritage



UNIFE
INTERNATIONAL
- EX LABORE FRUCTUS -

What others say about the Module MPE04...

...to be aware how process of
innovation works...

... was excellent explained in every
detail, very clear, and contribute to
better understand what technology in
fact we are dealing with...

...good example to support theory
with practice...

... the course gave us strong
basis to deal in clinical
environment with any
technology that will come.

...Visiting a synchrotron was very unique
and extremely interesting. For many of
us it might be only one chance in life...