



EUTEMPE-RX course MPE04

Innovation in diagnostic radiology: *hot topics and challenges*

Ferrara, 09th – 11th June 2025

On-line part will start at the beginning of September and material covering the subjects mentioned below will be made available to the participants.

Monday, 09th June 2025:

1. Fundamental physics of X-rays: energy, absorption and phase for innovation purposes – A. Taibi, University of Ferrara (1 hour *lecture* + 1 hour for *discussions & assignments*)
2. Spectral imaging in clinical applications – L. Strigari, Sant'Orsola-Malpighi Hospital of Bologna (1 hour *lecture* + 1 hour for *discussions & assignments*)
3. Artificial Intelligence methods in diagnostic radiology – G. Paternò, INFN Ferrara (1 hour *lecture* + 1 hour for *discussions & hands-on practice*)
4. In Silico approach for Virtual Clinical Trials: Develop your own VCT simulation – K. Merken, KU Leuven (1 hour *lecture* + 1 hour for *discussions & hands-on practice*)

Tuesday, 10th June 2025:

5. X-ray imaging applications of photon counting detectors – P. Cardarelli, INFN Ferrara (1 hour *lecture* + 1 hour for *discussions & assignments*)
Hands-on practical sessions - Visit to the X-ray facilities of the Physics and Earth Sciences Department, University of Ferrara (quasi-monochromatic x-rays & photon counting detectors)
6. Fundamentals of Phase-Contrast Imaging and potential diagnostic applications – L. Brombal University of Trieste (1 hour *lecture* + 1 hour for *discussions & assignments*)

Social events in Ferrara (Town Centre): visit of medieval city & dinner all together

Wednesday, 11th June 2025:

7. Radiomics & AI in the clinical practice – L. Manco, Ferrara University Hospital (1 hour *lecture* + 1 hour for *discussions & assignments*)
8. The clinical point of view on emerging technologies and challenges – M. Giganti, University of Ferrara (1 hour *lecture* + 1 hour for *discussions & assignments*)

Visit to the local hospital (St. Anna University Hospital) with practical sessions on the topics mentioned above