



PROGRAM

Workshop on “Artificial Intelligence and Radiation Protection”
18-19 April 2024, NCSR “Demokritos”, Agia Paraskevi, Attica, Greece

18 April 2024

08:30-09:00: Registration

09:00-10:40

- **Introduction and goals of the workshop:** Spyros Andronopoulos (NCSR, Greece)
- **General talk on artificial intelligence:** Iraklis Klampanos (NCSR, Greece)

Radiation dosimetry:

- Filip Vanhavere (SCK•CEN, Belgium) General talk on AI in dosimetry, literature review
- Hans Rabus (PTB, Germany) “AI is useful for dosimetry, but is it trustworthy?”
- Julien Bert (INSERM, France) “AI-driven dose optimization in image-guided therapy”

10:40–11:10 Coffee Break

11:10–12:35

Emergency preparedness and response:

- Spyros Andronopoulos (NCSR, Greece)
General talk on AI in emergency preparedness and response, literature review
- Anna Wawrzyńczak-Szaban (NCBJ, Poland)
“Modelling atmospheric contamination using a neural network and relevant literature review”
- Dmytro Trybushnyi (KIT, Germany)
“Identification of short-term optimized radiation protection measures using AI”
- Omid Azimzadeh (BfS, Germany)
“How conversational AI will change the way we talk about risks”

12:35–14:00 Lunch Break

14:00–15:45

Radioecology:

- Ivica Prlić (IMROH, Croatia)
“AI possibilities in environmental radiation protection”
- Olivier Armant (IRSN, France)
“Use of AI for modeling the ecological effects of Chernobyl accident on frog populations and transfer prediction of radionuclides in the environment”

Radiobiology:

- Mohamed Amine Benadjaoud (IRSN, France – RENE network)
Introduction / overview / literature
- Charles Kervrann (INRIA, France)
“Biological imaging and computational microscopy”
- Mohamed Amine Benadjaoud (IRSN, France – RENE network)
“Artificial intelligence for automated chromosomal aberration detection in cytogenetic imaging”

15:45–16:15 Coffee Break

16:15–17:15

Medical applications:

- Christoph Hoeschen (OVGU, Germany)
Introduction/overview/literature
- John Damilakis (University of Crete, Greece)
“AI in medical imaging and corresponding dosimetry”
- Lidia Strigari (University of Bologna, Italy)
“AI in radiation therapy and hybrid imaging”

19 April 2024

09:00–11:00

- **Presentation by PIANOFORTE** selected projects that already incorporate artificial intelligence and/or machine learning
 - a. VERIFIED, Luana Nascimento (SCK•CEN, Belgium)
 - b. IMAGEOMICS, Melanie Fachet (OVGU, Germany)
- Omid Azimzadeh (BfS, Germany),
PIANOFORTE Work Package 5 activities related to artificial intelligence
- Susan Molyneux-Hodgson (SHARE Platform, University of Exeter),
Deborah Oughton (NMBU, Norway),
Ethical considerations of artificial intelligence
 - a. Presentation of the PIANOFORTE deliverable
“D2.11 Report on ethical aspects of AI in radiation protection”
 - b. Discussion on ethical consideration issues

11:00–11:30 Coffee Break

11:30–13:00

- Discussion on the current applicability of artificial intelligence in radiation protection
- Discussion on how to increase the use of artificial intelligence in radiation protection
- Discussion on how to introduce artificial intelligence in the 3rd PIANOFORTE open call