



# Online Advanced Course on Biomedical Imaging 2023

April 27 - June 2

## COURSE AGENDA

# Online Advanced Course on Biomedical Imaging 2023

## COURSE AGENDA

All hours according to Lisbon time zone

### APRIL

**27** PT

- 2 p.m. Opening remarks | [Maria Filomena Botelho & Francisco Caramelo](#)
- 2.15 p.m. Methods of microscopic imaging | [Rui Oliveira](#)
- 3 p.m. Confocal microscopy | [Henrique Girão](#)
- Break -
- 4.30 p.m. Electronic microscopy | [Maria Fátima Martins](#)
- 5.30 p.m. Articles delivering and discussion about examination | [Maria Filomena Botelho & Francisco Caramelo](#) (to attendees with ECTS Credits requested)

**28** PT

- 2 p.m. Conventional radiology and mammography: Physical basis | tbc
- 3 p.m. Conventional radiology: Clinical applications | [Ana Paula Borges](#)
- Break -
- 4.30 p.m. Mammography: Clinical applications | [Ana Paula Borges](#)
- 5.30 p.m. Interventional radiology | [Paulo Donato](#)
- 6.30 p.m. Q&A and Discussion

### MAY

**4** PT

- 2 p.m. OCT: physical basis | [Rui Bernardes](#)
- 3 p.m. OCT: applications | [Rui Bernardes](#)
- Break -
- 4.30 p.m. Optical imaging physics | [Miguel Morgado](#)
- 5.30 p.m. Optical imaging applications | (tbc)
- 6.30 p.m. Q&A and Discussion

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**5** PT

- 2 p.m. CT: Physical basis | [Augusto Silva](#)
- 3 p.m. CT technical update for clinical applications | [Filipe Caseiro Alves](#)
- Break -
- 4.30 p.m. Ultrasonography: Physical basis | (tbc)
- 5.30 p.m. Ultrasonography: Applications and ultrasound contrast | (tbc)
- 6.30 p.m. Q&A and Discussion

**11** PT

- 2 p.m. Gamma camera and PET | [Salomé Pires](#)
- 3 p.m. Reconstruction of nuclear medicine images (SPECT and PET) | (tbc)
- Break -
- 5 p.m. Nuclear medicine applications | [Paula Lapa](#)
- 6.30 p.m. Q&A and Discussion

**12** ENG **UT MD Anderson Cancer Center - Session on PET**

- 2 p.m. PET I. Basis | [Osama Mawlawi](#)
- 3 p.m. PET II. Quality Assurance, Testing and Quantification | [Osama Mawlawi](#)
- Break -
- 4 p.m. Advances in PET/CT Imaging | [Osama Mawlawi](#)
- 6 p.m. Q&A and Discussion

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**18** PT

- 2 p.m. RMN spectroscopy. Biochemical basis. | [Rui Brito](#)
- Break -
- 4.30 p.m. RMN spectroscopy applications | (tbc)
- 5.30 Q&A and Discussion

**19** PT

- 2 p.m. Physics of MRI imaging. Pulse sequence and main artifacts | (tbc)
- 3 p.m. MRI contrast agents. Biochemistry | (tbc)
- Break -
- 4.30 p.m. Applications and recent trends in MRI | [Filipe Caseiro Alves](#)
- 6 p.m. Q&A and Discussion

**25** PT

- 2 p.m. Basis of Super-resolution | (tbc)
- 3 p.m. SPECT animal systems | [Maria Filomena Botelho](#)
- Break -
- 4.30 p.m. PET animal systems | (tbc)
- 5.30 p.m. MRI animal systems | (tbc)
- 6.30 p.m. Q&A and Discussion

**26** PT  
ENG

- 2 p.m. Physical Basis of Radiotherapy (LINAC) | (tbc)
- 3 p.m. Hadrontherapy. | (tbc)
- Break -
- 4.30 p.m. Advances on target organs delineation and Clinical application | (tbc)
- 5.30 p.m. SEMINAR: New methods in Radiotherapy: MR-guided | (tbc)
- 6.30 p.m. Q&A and Discussion

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### JUNE

1

ENG

#### University of Coimbra, School of Information, University of Texas at Austin and INESC TEC - Session on Artificial intelligence and Data Science

- 2 p.m. Artificial intelligence and data extraction in biomedical images | (tbc)
- 3 p.m. Chest X-ray Imaging Diagnosis: Classification, Localization, and Interpretation | [Ying Ding](#)

- Break -

- 4.30 p.m. Computer Vision and Machine Learning Challenges in Cancer Research | [Hélder Oliveira](#)
- 6.30 p.m. Q&A and Discussion

2

ENG

#### UT MD Anderson Cancer Center, German Cancer Research Center and UT Austin Portugal Projects - Session on Proton Therapy

- 2 p.m. Principles and Practices of Proton Therapy | [Falk Poenisch](#)
- 2.45 p.m. Image-guided Planning and Delivery of Proton Therapy | [Thomas J. Whitaker](#)

- Break -

- 4.15 p.m. Towards Real-Time PGS Range Monitoring in Proton Therapy of Prostate Cancer | [João Seco](#)
- 5.15 p.m. Presentation of UT Austin Portugal Projects:
  - [AT&PT](#) – Automatic Treatment Planning for Proton Therapy | [Joana Dias](#)
  - [TOF-PET](#) for Proton Therapy | [Stefaan Tavernier](#)
  - [THER-PBCT](#) – Theranostic Strategy for Proton Boron Capture Therapy of Pancreatic Cancer | [Célia Fernandes](#)
- 6.30 p.m. Q&A and Discussion

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**16** PT

- 2 p.m. Evaluation
- 3 p.m. – 7 p.m. Hands-on session: SPECT | [Margarida Abrantes](#), [Salomé Pires](#)  
(Biophysics Institute, iCBR, Faculty of Medicine)