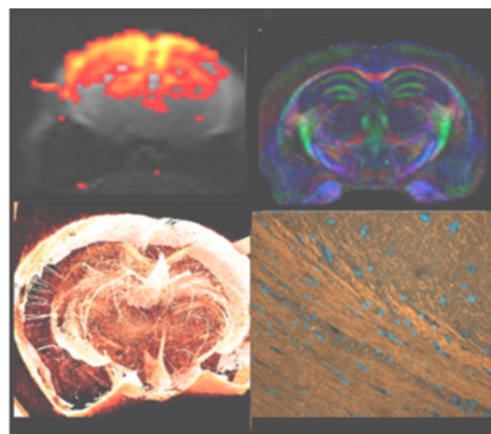


WORKSHOP

MULTIMODAL APPROACH FOR BIOMEDICAL APPLICATION

April 21st 2023
Sala Laurea, Dipartimento di
Fisica (ed. Marconi)
Sapienza Università di Roma
Piazzale Aldo Moro 5, 00185 Rome



The continuous development of imaging and its application to living beings allows the all round investigation of pathologies, that simultaneously involve different spatial scales. The synergy of the **multimodal approaches drives to a combination of data able to provide an informative representation of the pathologies themselves and a target for biomedical applications and treatments.**

Registration

Scientific Committee:

M. Fratini (CNR NANOTEC)
S. Tommasin (Sapienza)

Organizing Committee:

M. Marchetti (CNR NANOTEC)
V. Palma (Sapienza)

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Opening

Session I: **Advanced MRI techniques**

Session II: **Theoretical models for
imaging**

Session III: **In-vivo and ex vivo
multiscale imaging**

Round table



Cofinanziato
dall'Unione europea



REGIONE
LAZIO

09:00-09:30 Opening & Registration

Advanced MRI techniques (chairmen: M. Fratini & T. Gili)

09:30-09:40 Federico Giove (*Centro Ricerche Enrico Fermi, Rome (IT)*)

Towards innovative MRI techniques

09:45-09:55 Maria Guidi (*Centro Ricerche Enrico Fermi, Rome (IT)*)

MRI at high resolution - issues and workarounds

10:00-10:20 Antonio Maria Chiarelli (*University G. D'Annunzio of Chieti and Pescara (IT)*)

Mapping brain oxygen consumption with functional MRI

10:25-10:45 Silvia Capuani (*CNR-ISC, Rome (IT)*)

Transient anomalous diffusion by MRI: real transient anomalous diffusion and anomalous diffusion signal representation

10:50-11:15 Coffee Break

11:15-11:25 Antonio Cerdà Cerdà (*Instituto de Neurociencias de Alicante, CSIC-UMH (ES)*)

A translational MRI approach to validate acute axonal damage detection as an early event in MS

11:30-11:50 Cecilia Voena (*Sapienza University of Rome (IT)*)

Improvements in ¹⁹F Magnetic Resonance Imaging

Theoretical models for imaging (chairmen: F. Giove & S. Tommasin)

11:55-12:15 Alessandro Taloni (*CNR-ISC, Rome (IT)*)

From Images to models: an example

12:20-12:40 Nicola Toschi (*University of Rome Tor Vergata (IT), University of Harvard (USA)*)

Multimodal and multicontrast image fusion via deep generative models

12:45-13:00 Mauro Di Nuzzo (*Centro Ricerche Enrico Fermi, Rome (IT)*)

Simple pictures of complex biology

13:05-13:25 Tommaso Gili (*IMT School for Advanced Studies, Lucca (IT)*)

Entropic transitions and brain network scales

13:30-14:30 Lunch Break

In-vivo and ex-vivo multiscale imaging (chairmen:A. Caporale & L. Massimi)

14:30-14:50 Nikolaos Petsas (*Sapienza University of Rome (IT)*)

From lab to bedside: clinical applications and traslational potential for advanced neuroimaging

14:55-15:15 Monica Bianco (*CNR-NANOTEC, Lecce, (IT)*)

Towards multiscale imaging analysis: from Lab-on-a-Chip to Organ-on-a-Chip

15:20-15:35 Francesca Palermo (*CNR-NANOTEC, Rome, (IT)*)

Multiscale approach based on X-ray phase contrast tomography for the investigation of the central nervous system

15:40:15:50 Inna Bukreeva & Olga Junemann (*CNR-NANOTEC, Rome, (IT)*)

Study of calcium deposition in the human pineal gland by using X-ray phase contrast tomography

15:55-16:15 Gabriele Ciasca (*Università Cattolica del Sacro Cuore, Rome, (IT)*)

Biomechanical and morphological characterization of the Epithelial-Mesenchymal Transition: A Multimodal Imaging Approach