

## SEMINARIO / SEMINAR

### **Titolo / Title:**

**Diffusion MRI as a lens to detect tissue microstructure: last updates**



### **Quando / When:**

13 Marzo 2024, ore 14:00 / 13<sup>th</sup> March 2024 at 14:00 CET

**Dove / Where:** Online (Microsoft Teams) and in 'Sala Convegni' at Cast

<https://teams.microsoft.com/l/meetup-join/19%3a0b724a844f004f47bbf9e6bfc4ccc1b8%40thread.tacv2/1709578836417?context=%7b%22Tid%22%3a%2241f8b7d0-9a21-415c-9c69-a67984f3d0de%22%2c%22Oid%22%3a%22cfaf0a76-15eb-4852-832e-f05111eb0792%22%7d>

<https://teams.microsoft.com/l/meetup-join/19%3a0b724a844f004f47bbf9e6bfc4ccc1b8%40thread.tacv2/1709578836417?context=%7b%22Tid%22%3a%2241f8b7d0-9a21-415c-9c69-a67984f3d0de%22%2c%22Oid%22%3a%22cfaf0a76-15eb-4852-832e-f05111eb0792%22%7d>

### **Relatore/ Speaker:**

**Prof Marco Palombo**, Ph.D. Associate Professor (Senior Lecturer) and UKRI Future Leaders Fellow, Cardiff University



### **Abstract:**

In this talk I will present recent advancements and exciting new perspectives on quantifying brain tissue structure at the cellular scale (the so-called microstructure) through diffusion-weighted MR imaging (dMRI) and spectroscopy (dMRS). I will showcase recent examples of how combining dMRI and dMRS measurements with computational modelling and machine learning offers unique capabilities to quantify the brain microstructure non-invasively. I will discuss potential applications to several brain diseases and future directions of research.

### **Short biography:**

I am Associate Professor and UKRI Future Leaders Fellow in microstructure imaging at Cardiff University, within the Cardiff University Brain Research Imaging Centre (CUBRIC) where I co-lead the MicroTeam group, and the School of Computer Science and Informatics where I co-lead the Medical Image Computing group. I am a physicist with expertise in biophysical modelling, machine learning, computational modelling, medical imaging, and data analysis. My research programme combines computational/biophysical modelling, MRI and modern machine learning to pioneer next-generation healthcare imaging technologies for early diagnosis and prognosis of neurological and psychiatric conditions.