



Series of Seminars:

**SCINTILLATOR DETECTORS:  
from Theory to Applications  
(Medicine, Security, High Energy Physics and Engineering)**

Seminar #2

***Dr. Marco Pizzichemi***

CERN Research Fellow, Geneva (CH)

**Positron Emission Tomography:  
state of the art and future developments**

**Room 150/1, May 20<sup>th</sup> 2019, 14.30 – 15.30 (Ancona, IT)**

**Facoltà di Ingegneria, Università Politecnica delle Marche,**

**Web-streaming: <https://meet.lync.com/univpm-pm/s1062746/567V3D5A>**

**Topic**

Positron emission tomography (PET) plays a fundamental role in medical imaging, with a wide range of applications covering, among the others, oncology, neurology and cardiology. PET has undergone a steady technological evolution since its introduction in mid 20th century, from the development of 3D PET in the late 1980s, to the invention of PET/CT in the 1990s and more recently with the introduction of PET/MR scanners. After going through the fundamental aspects of PET technology and challenges, the most relevant current research topics will be summarized and discussed in this presentation. Particular focus will be put on the efforts of increasing the sensitivity of the detectors, as well as improving their timing, spatial and energy resolutions, with the final goal of reducing the amount of radioactive dose received by the patients and the duration of the exams, while improving at the same time the detectability of lesions.

**Bio:**

Marco Pizzichemi received his PhD in Physics and Astronomy in 2009 from the University of Milano-Bicocca. He then carried out research in the same University from 2010 to 2016, and subsequently as a Fellow Researcher at CERN in Geneva. Since 2011 he is a member of CERN's Crystal Clear Collaboration, through which he actively collaborated in several research projects related to the development of new detectors for applications in Nuclear Medicine, including the high resolution PET scanners ClearPEM and EndoTOFPET-US.

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