ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
DEPARTMENT OF
PHARMACY AND BIOTECHNOLOGY

CMB PhD School Seminars 2022-2023

On **September 29th, 2023**

at **2:00 p.m.**

Aula 1 Scienze Farmaceutiche, Via Belmeloro 6

*and **online*** on Microsoft Teams

https://teams.microsoft.com/l/meetup-join/19%3aN09c0NIyEssBnF7ObCyDOQwkgDWm1qdd9f7F2nJV9fw1%40thread.tacv2/1631519544944?context=%7b%22Tid%22%3a%22e99647dc-1b08-454a-bf8c-699181b389ab%22%2c%22Oid%22%3a%225a941351-ef41-4aa4-8771-fa50a6d62ca1%22%7d

Annalisa Pierro, PhD

Postdoctoral researcher at the University of Konstanz

will hold a seminar on

"Dance with spins: Electron Paramagnetic Resonance to study protein dynamics studies in native conditions"

The 40-minutes scientific talk by dr. Annalisa Pierro will be followed by a 30-minutes "Meet thespeaker" Q&A session with the PhD students

ABSTRACT

"The exploration of biomolecules within their natural habitat has emerged as a central objective within the realm of structural biology over the past decade. This pursuit has led to a notable surge in innovative methodologies, including Cryo-Electron Tomography, FRET microscopy, and NMR spectroscopy. Notably, among these methodologies, Site-Directed Spin Labeling (SDSL) coupled with Electron Paramagnetic Resonance (EPR) spectroscopy has demonstrated competitive advantages for elucidating protein dynamics within living cells. Specifically, nitroxide-based SDSL-EPR combines the benefits of heightened sensitivity and the absence of size limitations for target biomolecules, all while enabling the observation of protein structural transformations and interactions at physiologically relevant temperatures.

In this presentation, I will provide an overview of the fundamental principles of SDSL-EPR, with a particular emphasis on its applications in tackling intricate macromolecular systems such as the ribosome interface and the examination of proteins within their native cellular milieu."

BIOGRAPHICAL SKETCH

Annalisa holds a Bachelor's degree in Medical Biotechnology from the University of Siena and the University of Liége (BE) and earned her Master's degree in Molecular and Industrial Biotechnologies from the University of Bologna in 2018. During her master's thesis project, she conducted research under the guidance of Dr. Barbara Zambelli in collaboration with the CNRS of Marseille and Dr. Elisabetta Mileo.

In 2021, Annalisa successfully completed her Ph.D. in Chemistry at the University of Marseille, where she focused on developing experimental protocols to investigate bacterial protein dynamics within their natural hosts using Electron Paramagnetic Resonance.

Currently, Annalisa is a postdoctoral researcher at the University of Konstanz, working within the group led by Prof. Drescher. Her research expertise centres on the study of protein dynamics within macromolecular complexes and in cellular contexts, employing Electron Paramagnetic Resonance as a key analytical tool. Her work in the field earned her a nomination for the Best Young Investigators award from the International EPR Society in 2022.