

INFORMAZIONI PERSONALI

Tiziana Mancini

POSIZIONE RICOPERTA

Dottoranda presso il Dipartimento di Fisica 01/01/2022 – Rome, Italy. Università La Sapienza di Roma – SAPIENZA TERAHERTZ. I am a PhD student in Physics at University of Rome, La Sapienza. My research activity mainly focus on IR and THz spectroscopy, with particular interest in biophysics and environmental issues. My research field is Infrared (IR) and Terahertz (THz) spectroscopy and their possible applications for detection and analysis in biological and environmental fields. In particular, actually I am focusing on biophysics issues, to deepen knowledge about structure and functionalities of biological macromolecules and I am also working on a possible application of IR and THz spectroscopy for air pollution monitoring, starting from the development of innovative specific sensors chemically functionalized, up to pollutants and pathogen detection and spectroscopic analysis.

ISTRUZIONE E FORMAZIONE

Laurea magistrale in Condensed Matter Physics

01/10/2019 - 26/10/2022

QEQ 7

Università La Sapienza di Roma, piazzale Aldo Moro 5, 00185

Esami: Nonlinear and quantum optics, Physics laboratory I, Condensed matter physics, English language, Photonics, Many body physics, Solid state physics, Physics laboratory II, Relativistic quantum mechanics, Medical applications of physics, Moleculare biology, Chimica del restauro e della conservazione, Spectroscopy methods and nanophotonics

Tesi: Photophysical properties changes of phthalocyanine pigments after exposure to UV radiation
Voto: 110/110 e lode

Laurea triennale in Fisica

24/09/2016 - 01/10/2019

QEQ 6

Università La Sapienza di Roma

Tesi: Polarization of Cosmic Microwave Background
Voto: 110/110 e lode

IV Scuola Nazionale di Biosensori Ottici e Biofotonica

06/06/2022 - 10/06/2022

Siof – Società italiana di Ottica e Fotonica

Multimodal and nanoscale optical microscopy

10/07/2022 – 15/07/2022 SIF – Società italiana di fisica

Lingua madre Italiana

Altre lingue

COMPRENSIONE

PARLATO

PRODUZIONE SCRITTA

	Ascolto	Lettura	Interazione	Produzione orale	
Inglese	C1	C1	C1	C1	C1
Francese	B1	B1	B1	B1	B1

Livelli: A1/A2: Utente base - B1/B2: Utente intermedio - C1/C2: Utente avanzato
[Quadro Comune Europeo di Riferimento delle Lingue](#)

Competenze digitali

AUTOVALUTAZIONE				
Elaborazione delle informazioni	Comunicazione	Creazione di Contenuti	Sicurezza	Risoluzione di problemi

Livelli: Utente base - Utente intermedio - Utente avanzato
[Competenze digitali - Scheda per l'autovalutazione](#)

- Matlab & Matlab Simulink
- C Language
- Opus
- LaTeX
- OriginLab
- Microsoft Office

ULTERIORI INFORMAZIONI

Pubblicazioni

- High Sensitivity Monitoring of VOCs in Air through FTIR Spectroscopy Using a Multipass Gas Cell setup. Human exposure to Volatile Organic Compounds (VOCs) and their presence in indoor and working environments is recognized as a serious health risk, causing impairments of varying severities. Different detecting systems able to monitor VOCs are available in the market; however, they have significant limitations for both sensitivity and chemical discrimination capability. During the last years we studied systematically the use of Fourier Transform Infrared (FTIR) spectroscopy as an alternative, powerful tool for quantifying VOCs in air. We calibrated the method for a set of compounds (styrene, acetone, ethanol and isopropanol) by using both laboratory and portable infrared spectrometers. The aim was to develop a new, and highly sensitive sensor system for VOCs monitoring. In this paper, we improved the setup performance, testing the feasibility of using a multipass cell with the aim of extending the sensitivity of our system down to the part per million (ppm) level. Considering that multipass cells are now also available for portable instruments, this study opens the road for the design of new high-resolution devices for environmental monitoring.
- Terahertz Spectroscopic Analysis in Protein Dynamics: Current Status. Proteins are large biomolecules carrying out several different indispensable activities in all living organisms. As their chemical composition and structure lead to specific functionalities, possible variations alter conformational transition and cause dysfunctions and pathological diseases. An emerging technique for their detection and characterization is THz spectroscopy. In this review, we illustrate its potentialities and drawbacks in protein study. We report the most remarkable experimental works of the last decades, constituting decisive steps for the scientific and technological

progress in THz spectroscopy for biomolecules. The importance of information provided by THz spectroscopy is outlined, conforming it as powerful and useful technique for topical open questions, too.

Presentazioni

- 21/04/2022 – 22/04/2022 RNA characterization of SARS-CoV-2 virus through Infrared micro-spectroscopy
- 20/06/2022 – 23/06/2022 Detection of low Volatile Organic Compounds concentrations through IR spectroscopy

Conferenze

- BIOAEROSOLS & ATMOSPHERE POLLUTANTS - Innovative solutions and sensor systems for air-quality monitoring - Organisation: INFN - LNFN Frascati, Rome
- SYNC - First Symposium for YouNg Chemists: Innovation and Sustainability
Department of Chemistry - La Sapienza University of Rome

Dati personali

Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali".

la sottoscritta dichiara di essere consapevole che il presente *curriculum vitae* sarà pubblicato sul sito istituzionale dell'Ateneo, nella Sezione "Amministrazione trasparente", nelle modalità e per la durata prevista dal d.lgs. n. 33/2013, art. 15.

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f.to (Tiziana Mancini)