

CURRICULUM VITAE

FORMATO EUROPEO PER IL CURRICULUM VITAE



PERSONAL INFORMATION

Name and Surname Ilaria Carmela Rago
Current Position Technologist at INFN Rome

EDUCATION

- 2014-2017 **Ph.D in Nanotechnology** at University of Trieste, obtained on 28 February 2018. Ph.D. Thesis title: “Tuning cellular functionality and mechanobiology via carbon nanotubes-based scaffolds”. Thesis Supervisor: Dr. Denis Scaini; Thesis Co-Supervisor: Prof. Loredana Casalis.

Research activity, conducted at Elettra – Sincrotrone Trieste, focused on the **synthesis, characterization** via electron microscopy (**SEM** and **TEM**), scanning probe microscopy (**AFM**) and spectroscopic techniques (**XPS**, **Raman**) of carbon-based nanomaterials, such as carbon nanotubes and graphene, controlling the route in a micro- and nano-fabrication context and evaluating their bio-related interaction in order to develop innovative biomaterials for tissue regeneration.
- 2013-2014 **Post-lauream fellowship** at the Department of Astronautical, Electrical and Energy Engineering (DIAEE) and at the CNIS (Research Center on Nanotechnology Applied to Engineering) of Sapienza University of Rome. Title of the project: “Data collection and processing for biochemical tests on graphene and ZnO nanostructures”.

Research activity related to the **synthesis, morphological/topographic (SEM, AFM) characterization of graphene and ZnO-based nanomaterials** and evaluation of the antibacterial properties of these nanostructures on both Gram-positive and Gram-negative bacteria by performing in-vivo and in-vitro viability experiments.
- 2012-2013 **Master's Degree in Nanotechnology Engineering** at Sapienza University of Rome with full mark (110/110 cum laude). Master’s degree thesis title: “Antibacterial properties of graphene and ZnO-based nanostructures”. Supervisor: Prof.ssa Maria Sabrina Sarto.

WORK EXPERIENCE

- 01/09/2021-31/12/2023 **Postdoctoral Research Fellow** at the Amaldi Research Center of Sapienza University of Rome. **R&D activities on technologies and (nano)materials** within the project: "Development of detectors for astro-particles based on nano-structures", aimed at developing novel particle detectors based on these nanostructures. The R&D activity is carried out, through various national and international collaborations (**PTOLEMY**, **NanoUV**, **RD-MUCOLL**), and is also related to the **additive manufacturing** of innovative materials within the **INFN HAMMER** (Hub for Additive Manufacturing Materials Engineering and Research) pole, for both nuclear physics studies and industrial applications.

• 01/09/2018-31/08/2021

Postdoctoral Research Fellow at the Physics Department of Sapienza University of Rome. R&D activities within the project:” Carbon Nanotubes as anisotropic targets” involving: **CVD synthesis of highly aligned carbon nanostructures**, such as **Carbon Nanotubes (CNTs)**, on crystalline/amorphous surfaces; CNTs characterization via microscopic (**SEM, TEM**) and spectroscopic techniques (**XPS, Raman**); Advanced mechanical design for nuclear physics research by using the most advanced software tools for the mechanical design (Autodesk Inventor and COMSOL Multiphysics); Additive Manufacturing studies, for both pure nuclear physics mechanical task and applied research collaborative activities with private industries in the INFN HAMMER (Hub for Additive Manufacturing Materials Engineering and Research) facility.

• 06/11/2017-05/05/2018

Postdoctoral Research Fellow at Elettra – Sincrotrone Trieste within the project “BioMec (Application of biomechanical technologies for supplementing the conventional methods in the hospital context)”. R&D related to the **development of micro- and nano-structured substrates** and protocols for the standardization of **biomechanical measurements** of tumor tissue bioptic slices via Atomic Force Microscopy (**AFM**). Data normalization strategies to compare healthy and diseased tissues on an absolute scale in order to develop an integrative approach allowing to correlate biomechanical properties of bioptic tissues with the degree of malignancy of the tumor, in the context of breast cancer.

PATENT

[*] METODO DI PRODUZIONE DI UNA MISCELA DI RAME PURO E NANOTUBI DI CARBONIO E DI MANIFATTURA ADDITIVA DI UN MATERIALE NANOCOMPOSITO A MATRICE METALLICA DI RAME PURO RINFORZATO CON NANOTUBI DI CARBONIO PER MEZZO DI DETTA MISCELA

National Application Number: 102022000010511

Filing Date : 20/05/2022

International Application Number: PCT/IB2023/055084

Filing date : 17/05/2023

Applicants: Sapienza 50%, INFN 50%

Inventors:

Rago Iliaria Carmela (45% di titolarità), Cavoto Gianluca, Pettinacci Valerio, Cortis Daniele, Pandolfi Francesco

<https://www.uniroma1.it/it/brevetto/102022000010511>

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PUBLICATIONS

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