

# Emanuele Scifoni

is a Senior Researcher (**Primo Ricercatore**) at the Trento Institute for Fundamental Physics and Applications (TIFPA), a center of the National Institute for Nuclear Physics (**INFN**) in Italy. He is a leading figure in radiation biophysics and medical physics, specifically focusing on the optimization of particle therapy.

## Current Roles and Academic Positions

- **Senior Researcher (Primo Ricercatore):** Joined INFN-TIFPA in September 2016.
- **Contract Professor:** Teaches courses at the University of Trento, including "Radiation Biophysics" and "Nuclear and Subnuclear Physics".
- **National Habilitation:** Qualified as both Associate and Full Professor in Applied Physics in Italy.
- **Group Leadership:** Serves as a key member of the **BIMER** (Biomedical Radiation Physics) research group.

## Key Research Interests

His research primarily focuses on the interface of nuclear physics, chemistry, and biology to improve cancer treatments:

- **Ion Beam Hadron Therapy:** Developing biophysical models for proton and heavy-ion therapy.
- **Treatment Planning Systems (TPS):** Contributing to the development and implementation of the **TRiP98** research treatment planning software.
- **FLASH Radiotherapy:** Investigating the biological effects of ultra-high dose rate (UHDR) irradiation.
- **Radiobiology Modeling:** Lead researcher in projects like **MoVe-IT** (Modeling and Verification for Ion beam Treatment planning), which is a major INFN project dedicated to radiobiologically optimized treatment.
- **Other Interests:** Oxygen enhancement effects, Monte Carlo track structure simulations, and the use of high-Z nanoparticles for radiosensitization.

## Professional Background

- **PhD in Genoa:** Focused on molecular quantum physics and astrophysics.
- **GSI Helmholtz Centre (Germany):** Spent several years (2010–2016) in the Biophysics Department as deputy of the modelling group, working on ion track structure simulations.
- **Scientific Output:** Author of over 130 (some sources list up to 200+) peer-reviewed papers with high citation impact in the field of medical and nuclear physics.