Prof.ssa Francesca Monti
http://profs.sci.univr.it/~monti

Relevant education and main career stages: Associate Professor (from 2005) in General Physics (FIS/01) at the Department of Computer Science of the University of Verona; Assistant Professor in General Physics from 1997 to 2004; Technician at INFN National Laboratories of Legnaro from 1991 to 1993; PhD in Physics in 1993 with a thesis in Experimental Nuclear Physics; Degree in Physics in 1989 in Theoretical Physics with a thesis on the Nuclear Shell Model. She is co-author of about eighty papers on international reviews and conference communications.

***Research focus*:** after the initial research activity in Theoretical Nuclear Physics, she got some years of experience in the field of Experimental and Applied Nuclear Physics at various National and International Laboratories (INFN National Laboratories of Legnaro - LNL and of Frascati - LNF, European Synchrotron Radiation Laboratory at Grenoble - ESRF), especially regarding the application of nuclear and optical techniques (based on the use of protons, neutrons and electromagnetic radiation from conventional and non conventional sources in different spectral ranges from IR to X-rays) in condensed matter as well as in biological and biomedical studies.
The research activity in Experimental and Applied Nuclear Physics, up to 1993, was devoted to trace element determination by PIXE (Proton Induced X-ray Emission) and to the experimental verification of nuclear force charge symmetry through the two "mirror" channels of the d-D reaction. Since 1994, her interest went on Synchrotron Radiation research, especially devoted to the study of local structure of crystalline and amorphous materials by Extended X-ray Absorption Fine Structure (EXAFS), to biological and biomedical applications of synchrotron radiation and to projecting and setting up Synchrotron Radiation beamlines and their optical and experimental apparata in the Infrared, X-ray and UV range in collaboration with the DAΦNE- light group of the Frascati National Laboratory of INFN.

Since 2005, she performs and coordinates the interdisciplinary research activities at the Laboratory of Infrared Spectroscopy Micro-spectroscopy and Imaging - IRIS (Infra Red for Interdisciplinary Studies) of Verona University, including multivariate statistical analysis techniques. Her interests, mainly devoted to biotechnological, biological and biomedical applications of FTIR spectroscopy (including studies on microorganisms for oenological production, plant cell wall metabolism, biosynthesis of nano-particles), were recently extended to non-invasive diagnostics for Cultural Heritage.

Since 2016 she returned on Synchrotron Radiation research devoted to studying the biosynthesis of Selenium nanoparticles by bacterial strains through X-ray absorption spectroscopy (XANES and EXAFS).

Since 2015 she begun a research activity in the field of Physics Education and History of Physics, especially devoted to the teaching of Modern Physics to non-Physicists at the University level and to pre-service teachers' education (Primary and Secondary School).

***Teaching activities*:** my teaching activities include various graduate courses at the University of Verona for the degrees in Bioinformatics, in Computer Science, in Applied Mathematics and in Cultural Heritage, for the master's degree in mathematics and for the PhD in Computer Science, as well as for the combined bachelor + master's degree in Primary School Education and in Molecular and Medical Biotechnology. She has been advisor or co-advisor or about fifteen theses at the bachelor, master, and PhD level about ten theses concerning FTIR spectroscopy application and Physics Education subjects.

Present and more recent courses:
Physics - bachelor's degree in bioinformatics
Modern Physics (in English) - master's degree in mathematics
Foundations of Physics and Physics Education - Combined bachelor + master's degree in Primary School Education
Beauty, Creativity and Imagination between Science and Art - (Transversal Competences course)
Radioactivity and Radiation Protection: tutorial activity with prof. Al Imtiazul Mamun Haque (master's degree in molecular and Medical Biotechnology)
Physical principles of quantum computing and quantum cryptography (PhD in Computer Science)