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**Supervisor: Prof. Giovanna Orsini**

Department of Odontostomatologic and  
Specialized Clinical Sciences

<https://www.disco.univpm.it/>



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**Supervisor: Prof. Giovanna Orsini**

**Research Group Description: the Supervisor**

**Prof. Giovanna Orsini**, PhD, DDS

**Full Professor in Technical Diagnostic, Assistance and Prevention Health Profession Sciences, DISCO, Università Politecnica delle Marche, Ancona, Italy (UNIVPM)**

**Dean of the Degree Course in Dental Hygiene, Faculty of Medicine, UNIVPM**

**Dean of the Master Degree Course in Technical Assistance Health Profession Sciences, Faculty of Medicine, UNIVPM**

2018-2020 Visiting Scientist at the Institute of Oral Biology, University of Zurich, Switzerland.

2017-2022 Italian Representative, Management Committee European Action COST 16234 "European Cleft and Craniofacial Initiative for Equality in Care"

More than **155 peer-reviewed research articles** and 11 book chapters, with about **4500 citations** received (<https://orcid.org/0000-0002-2641-0695>)

<https://www.scopus.com/authid/detail.uri?authorId=7007159509>

<https://scholar.google.it/citations?hl=it&user=EZ7exJoAAAAJ>

**H-index = 47 according to Google Scholar; H-index = 35 according to Scopus..**

More than 20 years of experience in dental materials, restorative and regenerative dentistry with special emphasis on the importance of preventive treatments.

**25 Scientific Awards.** Supervisor of over 65 Master's Degree Theses, and of 4 PhD candidates and 3 Post-Doctoral fellows.

Involved in **several national and international projects.**

**European fundings:**

- 02/2019: **Grant** from the European Science Foundation: "In vivo tracing of signalling molecules implicated in oral cleft and craniofacial diseases" (Reference: ECOST-STSM-CA16234-42986).
- 04/2014: **Grant** from the European Science Foundation: "Fate of dental epithelial stem cells in developing and injured mouse incisors: in vivo studies" (Reference: ECOST-STSM-MP1005-271013-033583).

**National fundings:**

- "Smart, Selective and Innovative Composite Membrane containing a combination of colloidal nanoparticles and prebiotics applied to the Healing Abutments against inflammation (SSICMHA)". **PRIN project 2022** funded by the Italian Ministry of University and Research.
- From 2024 till now: **SPARKLE** "Sustainable Preventive Approaches for Revitalized Knowledge in Oral Health Education". International Project, founded by AVOLA (<https://www.avola.network/about>).
- From 2020 till now: "Relationship between oral health and systemic health: new strategies for dental prevention". Scientific Director of a research project funded by **Curaprox s.r.l.**
- From 2020 till now: "Dental applications of new technological platforms". Scientific Director of a research project funded by **SISOPD** (Italian Society of Stomatology, Dentistry and Prosthodontics).



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**DISCO**  
DIP. DI SCIENZE CLINICHE  
SPECIALISTICHE E  
ODONTOSTOMATOLOGICHE



**STAFF:** The group is currently formed by a **two full Professors, four post-doc researchers**



Prof. Angelo  
Putignano



Prof. Giovanna  
Orsini



Dr. Riccardo  
Monterubbianesi



Dr. Vincenzo  
Tosco



Dr. Giulia  
Orilisi



Dr. Flavia  
Vitiello

## RESEARCH ACTIVITY

The main research lines focus on the evaluation of materials, preventive strategies, and oral health promotion in dentistry.

The **main research areas** include:

- Dentin hypersensitivity management: assessment of desensitizing materials and treatment protocols.
- Restorative dentistry: evaluation of next-generation resin-based composites and minimally invasive treatment approaches.
- Dental bleaching: investigation of materials and protocols for safe and effective whitening.
- Oral disease prevention and diagnosis: development of innovative devices for caries detection and periodontal health monitoring.
- Oral hygiene and microbiota control: testing of home-care hygiene products and remineralizing agents.
- Microplastics in dental materials and devices: research on the environmental and biological impact of microplastic release from dental products.



## Equipment

Electron Scanning Microscope, Microcomputed Tomography, Raman Microspectroscopy, Vickers Hardness Test, FTIR Spectroscopy

Targeted diseases are those related with oral and systemic health, including caries, periodontal disease, dentin hypersensitivity, and oral microbiota imbalances, with a focus on preventive and minimally invasive therapeutic strategies.

## RECENT PUBLICATIONS

doi: [10.1186/s12903-023-03779-1](https://doi.org/10.1186/s12903-023-03779-1)  
doi: [10.1007/s00784-023-05334-2](https://doi.org/10.1007/s00784-023-05334-2)  
doi: [10.1016/j.scitotenv.2022.161356](https://doi.org/10.1016/j.scitotenv.2022.161356)  
doi: [10.3390/ma15134398](https://doi.org/10.3390/ma15134398)  
doi: [10.1016/j.saa.2021.119966](https://doi.org/10.1016/j.saa.2021.119966)



## Collaborations

**S** SCIENZE  
**I** INGEGNERIA  
**M** MATERIA  
**A** AMBIENTE  
**U** URBANISTICA



DIPARTIMENTO DI SCIENZE  
E INGEGNERIA DELLA MATERIA,  
DELL'AMBIENTE ED URBANISTICA

## DISVA

DIPARTIMENTO DI SCIENZE  
DELLA VITA E DELL'AMBIENTE

CISMIN  
CENTRO DI RICERCA E SERVIZIO  
DI MICROSCOPIA DELLE NANOSTRUTTURE





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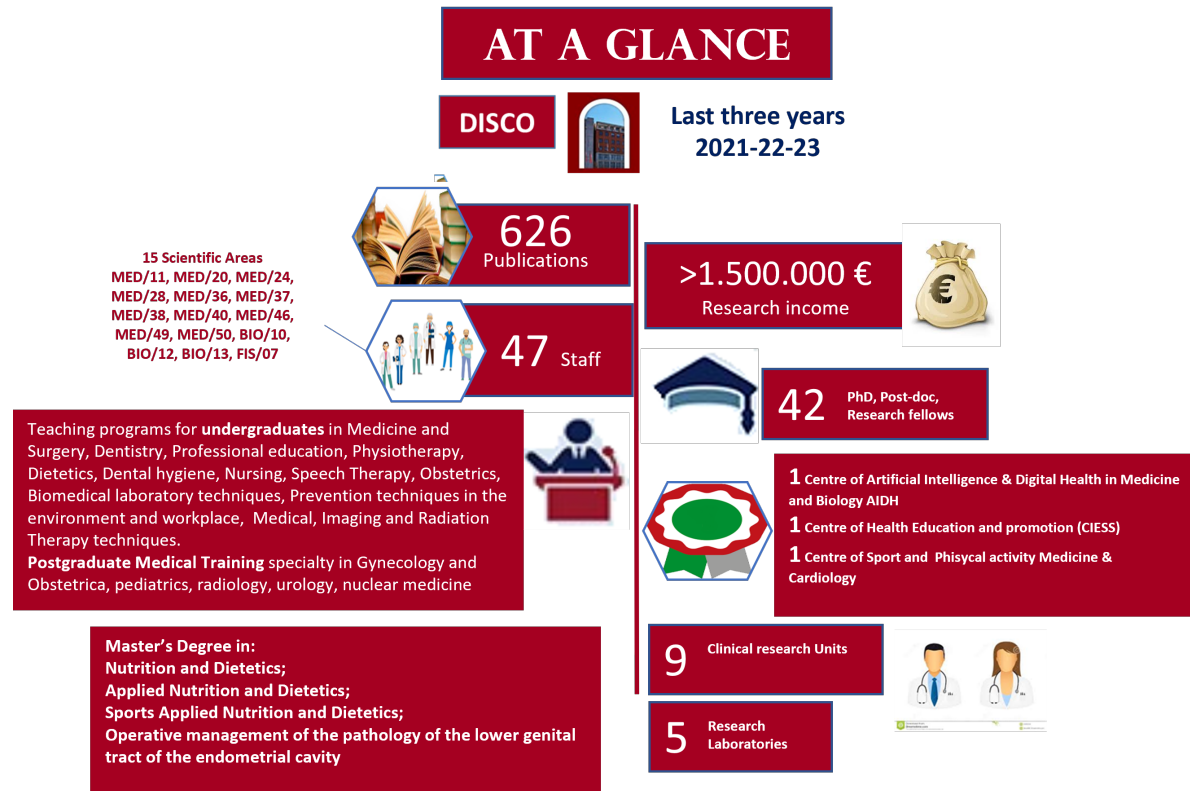
## Department of Odontostomatologic and Specialized Clinical Sciences

Director: Prof. Andrea Giovagnoni

The **Department of Clinical Sciences and Stomatology** is the scientific and educational organizational structure of the UNIVPM University established in 2008, involved to the promotion of scientific research, education and the dissemination of scientific research results in the community.

Its main objectives are to plan, organize and regularly evaluate the quality of research activity carried out in the scientific fields and disciplines under its competence; to plan, organize and manage the first-level and master's courses of the Faculty of Medicine; and, finally, to provide cultural and educational activities and contribute to training and orientation activities based on the needs of students in cooperation with the Medical Association.

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**Background:** Plastic has become an increasingly important and present component of human daily life, with extensive usage in the industrial, commercial, medical, and personal care sectors. As a result, plastic contamination has increased, raising great concern due to its potential harmful impact on human health and environmental safety, either alone or in conjunction with other pollutants. In modern dentistry, plastics are also widely used, encompassing both oral healthcare products and dental materials such as toothbrushes, toothpastes, dental floss, dental composites, orthodontic aligners and orthodontic devices. However, the scientific literature is lacking on this emerging topic, thus a more in-deep understanding of the release and behavior of microplastics is mandatory.

**Project OBJECTIVES:**

- To evaluate the microplastics release from orthodontic devices focusing on the plastic chemical composition, manufacturing methods and time of wearing.
- To investigate the effect of microplastics on fibroblastic-like and gastrointestinal epithelial cells.
- To characterize the microplastics using Raman Microspectroscopy, IR-FTIR and Scanning Electron Microscopy respectively in terms of chemical composition and number, shape and size.
- To evaluate the effect of microplastics release on oral and gut microbiota.
- To test innovative materials for the reduction of microplastics release.

