

## UNIVERSITY OF MILAN - Application of the photocatalytic remediation system in Rainbow trout (RAS freshwater system)

The UMIL unit is composed by two sub-units:

- the Chemistry Unit - Department of Chemistry Via Golgi, 19 - Corpo B, 20133, MILANO (MI).
- the Veterinary and Animal Sciences Unit - Department of Veterinary Medicine and Animal Sciences (DIVAS), Via dell'Università, 6, 26900 LODI (LO) and Department of Biomedical Sciences for Health (SCIBIS) Via Luigi Mangiagalli, 31 - 20133 MILANO (MI).

### The Chemistry sub-unit performed the set-up of the TiO<sub>2</sub>-photocatalytic remediation system (WP1)

*Coordinator*  
**Prof. Elena SELLI**



Full professor of Physical Chemistry (CHIM/02).

Part of the Board of the International Conference of Photochemical Conversion and Storage of Solar Energy (2008-2014 and 2016-2022) and member of the Scientific International Committees of the European Conference on Solar Chemistry and Photocatalysis: Environmental Applications and of the International Conference on Semiconductor Photochemistry.

Main Research interest in kinetic aspects of photoinduced processes, focused on the mechanistic aspects of photocatalysis on semiconductors, the effects of surface modification on the photocatalytic reaction paths and in the development of sensitive and efficient photocatalysts.

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*Prof. Gian Luca*  
**CHIARELLO**



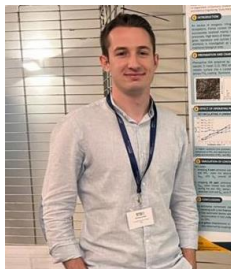
Associate Professor of physical chemistry (CHIM/02).

His research interests span from the preparation, characterization (including in-situ X-ray absorption spectroscopy at synchrotron facilities) and testing of different types of catalysts for several catalytic, to the design of novel photocatalytic reactors and spectroscopic cells, covering all aspects of heterogeneous catalysis.

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*Dr. Simone*  
**LIVOLSI**



Graduated in Industrial Chemistry and PhD student in Industrial Chemistry.

He works on the design, synthesis, and testing of novel materials for environmental and energetic photocatalytic applications.

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*Luca MAISTRELLO*



Bachelor's degree in Chemistry, Master student in Chemical Sciences. He works in the project for the accomplishment of his thesis, which will have as its object the development of an innovative photoelectrochemical system for fish farming water remediation.

The Veterinary and Animal Sciences Unit will work on the application of the photocatalytic remediation system in Rainbow Trout by evaluating the following parameters (WP2, WP3):

- **Zootechnical parameters: Growth, health, and welfare of fish, by analyzing the incidence of disease, stress, and oxidative status.**
- **Histopathology, Muscle morphological analysis, Larval deformities, and skeletal abnormalities.**
- **Water parameters: Physical, chemical, and microbiological characterization.**
- **Ammonia, nitrite, and nitrate concentrations to verify the system efficiency.**
- **Ammonia and greenhouse gases emissions.**
- **Evaluation of filters efficiency.**

*Co-coordinator*  
*Prof. Annamaria COSTA*



Associate Professor in Agricultural Bioengineering (SSD AGR/09).

The main Research interests are the environmental impact of livestock farming and the development of innovative techniques aimed at lowering and mitigating particulate matter, ammonia, greenhouse gas concentrations, emissions, and nitrogen from animal wastes. Patents for automatic cough identification in swine and photocatalytic treatment of animal waste. Patents on automatic cough identification in swine, and on photocatalytic treatment of animal waste.

Contributor of GHG emission factor on EFDB of IPCC.

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*Prof. Alessia*  
*DI GIANCAMILLO*



Associate Professor in Anatomy and embryology of domestic animals (SSD Vet/01) - SCIBIS department.

Main Research interests in morpho-functional aspects of both the alimentary tract and fish muscle for aquaculture.

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*Prof. Silvia MODINA*



Full Professor in Anatomy of Pets (SSD Vet/01) and Head of the teaching board of Veterinary Medicine course of University of Milan.

Her research interests the morpho-physiology of the reproductive, digestive and locomotor systems of domestic animals, addressed through macroscopic, microscopic, and imaging approaches, in vivo and in vitro.

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*Dr. Lucia AIDOS*



Graduated in Zootechnical Engineering, MSC in Aquaculture and Ph.D. in Veterinary and Animal Science. Researcher.

Her research interests the muscular development of zootechnical animals, the structural and morpho-functional aspects, and the micro-anatomical study of tissues.

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*Prof. Mauro  
DI GIANCAMILLO*



Full Professor in Veterinary Clinical Surgery (SSD VET/09) and Head of Department of Veterinary Medicine and Animal Science Department (DIVAS).

Main Research interests: Diagnostic imaging - Computed Radiology (CR) Computed Tomography (CT) Magnetic Resonance Imaging (MRI) and Nuclear Medicine (NM) - in companion and exotic animals; diagnostic imaging and sectional anatomy in small and large animals and application of CT for rapid prototyping animal models in teaching anatomy.

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*Prof. Chiara BAZZOCCHI*



Associate Professor in Parasitology and Parasitic Diseases of Animals (SSD VET/06).

Her research is focused on parasitological molecular diagnostics and the study of gene expression for the evaluation of animal welfare.

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*Prof. Raffaella ROSSI*



Full Professor in Animal Nutrition (SSD AGR/18).

Her research concerns the application of sustainable nutritional strategies in livestock, to improve growth performance and health, modulating the immune system, antioxidant status and "gut health".

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*Dr. Eleonora BUOIO*



Graduated in Science and Technology of Animal Production (LM-86).  
Ph.D. student in Veterinary and Animal Sciences  
She works on Best Techniques to improve animals' welfare and mitigate the environmental impact of animal production, according to economic sustainability.  
She works on Best Techniques that allow the improvement of farms in term of animals' welfare and environmental impact of animal production, according to economic sustainability.  
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*Dr. Chiara CIALINI*



Graduated in Veterinary Biotechnology Sciences (LM-09).  
Research fellow at the Veterinary Medicine Department.  
She uses molecular biology techniques to assess animal welfare.  
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*Dr. Margherita PALLAORO*



Graduated in Veterinary Biotechnological Sciences (LM-09).  
Ph.D. student in Veterinary and Livestock Sciences.  
Her research is focused on histology and histological analysis, with a formation that also ranges in cell cultures and molecular analysis.  
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