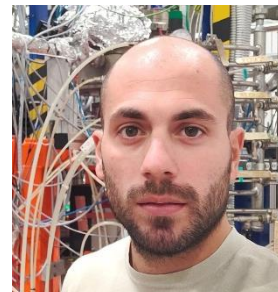


## Curriculum Vitae

### Dr. Francesco Pellegrino

#### PERSONAL INFORMATION

Family name, First name: Pellegrino, Francesco  
 Researcher unique identifier(s): ORCID: 0000-0001-6126-0904,  
 Scopus Author ID: 57190129743  
 Date of birth: 30 September 1990  
 Nationality: Italian  
 Address: Department of Chemistry, University of Turin  
 Via P. Giuria 7, 10125 Torino (Italy)  
 E-mail: [francesco.pellegrino@unito.it](mailto:francesco.pellegrino@unito.it)



#### EDUCATION

01/10/2014 – 30/09/2017	<b>PhD in Chemistry and Materials Science</b> Disputation date: 23/05/2018 Department of Chemistry, University of Turin, Italy Title: <i>"Tailoring the surface properties of TiO<sub>2</sub>: Shape controlled nanoparticles for the optimization of functional properties."</i> PhD Supervisor: Prof. Valter Maurino
01/10/2012 – 11/10/2014	<b>Master Degree in Chemistry of Environment (110/110 cum laude)</b> Department of Chemistry, University of Turin, Italy Title: <i>"Proprietà Ottiche e Attività Fotocatalitica del Biossido di Titanio: Dipendenza dall'Aggregazione delle Nanoparticelle"</i> . Supervisor: Prof. Valter Maurino
01/10/2012 – 11/10/2014	<b>Bachelor Degree in Chemistry (101/110)</b> Department of Chemistry, University of Turin, Italy Title: <i>"Contaminazione Naturale da Arsenico nei Corpi Idrici"</i> . Supervisor: Prof. Valter Maurino

#### CURRENT POSITION

01/06/2021 – now	<b>Assistant Professor, RTD-A Analytical Chemistry</b> Department of Chemistry, University of Turin, Italy
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#### PREVIOUS POSITIONS

27/07/2020 – 30/06/2021	<b>Research Technician, Analytical Chemistry</b> Department of Chemistry, University of Turin, Italy
01/10/2019 – 30/09/2020	<b>Adjunct Professor</b> Course of "Analytical Chemistry with Laboratory", degree in Chemistry and Chemical Technologies, Department of Chemistry, University of Turin, Italy
01/01/2018 – 26/07/2020	<b>Post-doctoral Fellow,</b> Department of Chemistry, University of Turin, Italy

#### FELLOWSHIPS

01/07/2018 – 30/06/2020	<b>Italian Ministerial Post-Doc Fellowship</b> ('Assegno Co-finanziato MIUR') to fund research at the Department of Chemistry, University of Turin. Project: <i>'Studio preliminare e sviluppo di soluzioni innovative di materiali d'attrito in ambito Automotive'</i> .
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01/10/2014 – 30/09/2017	<b>PhD fellowship</b> , Department of Chemistry, University of Turin, Italy. Project: <i>"Tailoring the surface properties of TiO<sub>2</sub>: Shape controlled nanoparticles for the optimization of functional properties."</i>
<b>PRIZES AND AWARDS</b>	
2021	<b>GIF Young Investigator Award 2021</b> from the Italian Photochemistry Group (GIF) – dedicated to a promising scientist under 35 working in an Italian institution for outstanding research in the area of photochemistry and photophysics.
2019	<b>Doctoral Thesis Award</b> from the Environmental Chemistry and Cultural Heritage division of the Italian Chemical Society for the Best Doctoral Thesis
<b>Abilitazione Scientifica Nazionale (ASN)</b>	
2022 – 2032	Dr. Pellegrino has been certified as qualified for the role of Associate Professor from 03/10/2022 to 03/10/2032 in the following scientific sectors: <ul style="list-style-type: none"> <li>Analytical Chemistry (Scientific Sector 03/A1)</li> </ul>
<b>SUPERVISION OF MASTER and PhD STUDENTS</b>	
2018 – now	Supervisor for: <ul style="list-style-type: none"> <li><b>1 Bachelor Student</b>, Bachelor Degree in Materials Science, University of Turin, Italy.</li> <li><b>1 Master Student</b>, Master Degree in Clinical, Forensic and Sports Chemistry, University of Turin, Italy</li> <li><b>2 Post-Doc Fellows</b>, Department of Chemistry, University of Turin, Italy</li> </ul> Co-supervisor/mentor for: <ul style="list-style-type: none"> <li><b>4 Master Students</b>, Departments of Chemistry, University of Turin, Italy.</li> <li><b>2 PhD students</b>, PhD Course in Chemistry and Materials Science, University of Turin, Italy</li> </ul>

**TEACHING ACTIVITIES**

A.A. 2023-2024	<ul style="list-style-type: none"><li>• Course: <b>Energy and Environment</b> (SSD: CHIM/01), Master Degree in Environmental Chemistry, University of Turin, Italy (6 CFU – 48 h frontal lesson).</li><li>• Course: <b>Analytical Chemistry with Laboratory</b> (SSD: CHIM/01), Bachelor Degree in Chemistry and Chemical Technologies, University of Turin, Italy (18 h laboratory)</li><li>• Course: <b>Instrumental Analytical Chemistry with Laboratory</b> (SSD: CHIM/01), Bachelor Degree in Chemistry and Chemical Technologies, University of Turin, Italy (20 h laboratory)</li><li>• Course: <b>Sustainable Processes and Analytical Methods in the Frame of Circular Economy</b> (SSD: CHIM/01), PhD Course in Circular Economy, University of Turin, Italy (4h frontal lesson)</li></ul>
A.A. 2022-2023	<ul style="list-style-type: none"><li>• Course: <b>Analytical Chemistry with Laboratory</b> (SSD: CHIM/01), Bachelor Degree in Chemistry and Chemical Technologies, University of Turin, Italy (42 h laboratory)</li><li>• Course: <b>Instrumental Analytical Chemistry with Laboratory</b> (SSD: CHIM/01), Bachelor Degree in Chemistry and Chemical Technologies, University of Turin, Italy (48 h laboratory)</li><li>• Course: <b>Analytical Chemistry with Laboratory</b> (SSD: CHIM/01), Bachelor Degree in Chemistry and Chemical Technologies, University of Turin, Italy (42 h laboratory)</li></ul>
A.A. 2021-2022	<ul style="list-style-type: none"><li>• Course: <b>Instrumental Analytical Chemistry with Laboratory</b> (SSD: CHIM/01), Bachelor Degree in Chemistry and Chemical Technologies, University of Turin, Italy (48 h laboratory)</li><li>• Course: <b>Sustainable Processes and Analytical Methods in the Frame of Circular Economy</b> (SSD: CHIM/01), PhD Course in Circular Economy, University of Turin, Italy (4h frontal lesson)</li></ul>
A.A. 2020-2021	<ul style="list-style-type: none"><li>• <b>Adjunct Professor, Analytical Chemistry with Laboratory</b> (SSD: CHIM/01), Bachelor Degree in Chemistry and Chemical Technologies, University of Turin, Italy (90 h laboratory)</li></ul>
A.A. 2020-2021	<ul style="list-style-type: none"><li>• <b>Adjunct Professor, 'Analytical Chemistry with Laboratory</b> (SSD: CHIM/01), Bachelor Degree in Chemistry and Chemical Technologies, University of Turin, Italy (90 h laboratory)</li></ul>
From 2014	<ul style="list-style-type: none"><li>• <b>Several didactic experiences</b> given at the Departments of Chemistry of the University of Torino for the students of the Bachelor degree course in Analytical Chemistry.</li></ul>

## REVIEWER ACTIVITY

### Reviewer for the following international (ISI) journals:

*ACS Applied Nanomaterials, Topics in Catalysis, Chemical Engineering Journal, Journal of Soil Science and Plant Nutrition, Catalysts, Materials, Nanomaterials, Molecules, CrystEngComm*

## MEMBERSHIP OF SCIENTIFIC SOCIETIES

From 2014	Member of the Società Chimica Italiana (Div. Chimica Analitica)
From 2014	Member of the SCI (Div. Chimica dell'Ambiente e dei Beni Culturali)
From 2021	Member of the SCI, gruppo di Fotochimica (GIF)

## RESEARCH PROJECTS

01/01/2023 - 30/06/2026	<b>Project ACCORDs</b> "Green deal inspired correlative imaging-based characterization for safety profiling of 2D materials ", HORIZON-CL4-2022- DIGITAL-EMERGING-01-35 GA. 101092796) <u>Role: WP Leader; PI (UniTO unit): Dr. Pellegrino</u> (budget UniTO unit: 302 000 €).
01/10/2022 - 01/10/2025	<b>Project NODES</b> "PNRR – Nord Ovest Digitale e Sostenibile (NODES) Spoke 1 - Aerospazio e mobilità sostenibile", <u>Role: Participant; PI (UniTO unit): Prof. G. Ricchiardi</u>
01/01/2021 - 31/12/2023	<b>Project ECOBRAKE</b> "Studio di sistemi frenanti in ambito automotive", LR34 – Progetto Regionale, <u>Role: Participant; PI (UniTO unit): Prof. V. Maurino</u>
01/09/2021 - 01/03/2023	<b>Project COMPORRE</b> "COMPLexes for Oxygen Reduction Reaction", Progetto Regionale Bando CRT, <u>Role: Participant; PI: Dr. Polyssena Renzi</u>
01/01/2018 - 01/01/2023	<b>Project "Project O</b> - Economia circolare per l'uso sostenibile della risorsa acqua" (Horizon 2020 grant agreement No 776816) <u>Role: Participant; PI (UniTO unit): Prof. A. Bianco-Prevot</u>
01/05/2018 - 01/12/2021	<b>Project NPSize</b> "Improved traceability chain of nanoparticle size measurements" Financed by the European Metrology Programme for Innovation and Research (EMPIR), <u>Role: Participant, PI (UniTO unit): Prof. V. Maurino</u>
01/12/2013 - 01/03/2017	<b>Project SetNanometro</b> – "Metrological research for the development and validation of design rules for materials engineering and nanostructured devices" EU Project, FP7-NMP- 2013_LARGE-7. Project number: 604577, <u>Role: Participant, PI (UniTO unit): Prof. G. Martra</u>
01/06/2017 - 01/01/2020	<b>Project "Studio preliminare e sviluppo di soluzioni innovative di materiali d'attrito in ambito Automotive"</b> Bando Regionale LR34/2004, <u>Role: Participant, PI (UniTO unit): Prof. V. Maurino</u>

## COLLABORATIONS

### Collaborations with International and National Academic and Research Institutions

- BAM Bundesanstalt für Materialforschung und prüfung (BAM), Germany. Dr. Vasile Dan Hodoroaba. Supervisor of a period abroad during my PhD. Collaboration in 3 european projects (> 15 publications)
- Istituto Nazionale Ricerca Metrologica (INRIM), Italy. Dr. Andrea Mario Rossi. Collaboration in an european project (3 publications)
- Politecnico di Torino, Italy. Prof. Barbara Bonelli. Collaboration for HPLC and GC-MS analysis of volatile and semi-volatile compounds from CO<sub>2</sub> photoreduction.

### Collaboration with National and International Companies

- ITT Automotive (<https://www.itt.com/home>). Collaboration in the UniTO-ITT JointLab from 2017. In this JointLab we develop new materials and analytical strategies for developing next generation brake pads.

## RESEARCH EXPERIENCE AND PRINCIPAL INTERESTS

During my scientific activity, I have been involved in the preparation and characterization of innovative inorganic nanomaterials for applications in the analytical, environmental, energy, metrological, engineering fields, etc. The plethora of materials studied is quite broad and encompassing nanoparticles with controlled morphology of metal oxide, metals, etc. Since 2023, I have been Principal Investigator for the Turin unit and WP leader for the European project ACCORDs, in which I deal with the synthesis and characterization of graphene and graphene oxide, guiding the syntheses using Design of Experiment (DoE) and chemometric analysis. For the study and characterization of the materials synthesized during my studies and professional career, I have become familiar with several characterization techniques including DLS, XRD, AFM, EPR, SEM and TEM microscopies, UV-Vis-NIR and fluorescence spectroscopies, electrochemical techniques (voltammetry, chronoamperometry, chronopotentiometry, impedance).

During my training years, I also acquired a certain mastery in analytical techniques such as HPLC, HPLC-MS, GC-MS, due to the multiple projects in national and international collaborations, as well as for the teaching activities.

## PUBLICATIONS

### Publication summary (source: Scopus, 29/01/2024)

- 36 peer-reviewed articles;
- 1 peer-reviewed review articles;

### Bibliometric Indexes

**Scopus**, updated on 29/01/2023

Sum of Times Cited	624
h-index	12
Number of Articles	36

**Google Scholar**, updated on 29/01/2024

Sum of Times Cited	766
h-index	13
Number of Articles	45

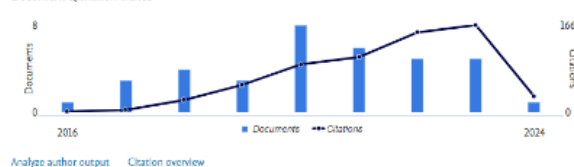
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Università degli Studi di Torino, Turin, Italy 57190129743 <https://orcid.org/0000-0001-6126-0904>

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### Selected publications and patents

1. F. Pellegrino\*, F. Sordello, L. Mino, C. Minero, V. Hodoroaba, G. Martra, V. Maurino\*; Formic Acid Photoreforming for Hydrogen Production on Shape-Controlled Anatase TiO<sub>2</sub> Nanoparticles: Assessment of the Role of Fluorides, {101}/{001} Surfaces Ratio and Platinization; ACS Catal. 2019, 9, 8 6692-66967
2. F. Pellegrino, L. Pellutì, F. Sordello, C. Minero, E. Ortel, V. Hodoroaba, V. Maurino\*; Influence of Agglomeration and Aggregation on the Photocatalytic Activity of TiO<sub>2</sub> Nanoparticles; Appl. Cat. B: Environ., 2017, 216, 80-87
3. F. Pellegrino, E. Morra, L. Mino, G. Martra, M. Chiesa\* and V. Maurino; Surface and Bulk Distribution of Fluorides and Ti<sup>3+</sup> species in TiO<sub>2</sub> Nanosheets: Implications on the Charge Carriers Dynamic and Photocatalysis; Phys. Chem. C 2020, 124, 5, 3141-3149
4. M. Prozzi\*, F. Sordello, S. Barletta, M. Zangirolami, F. Pellegrino\*, A. Bianco-Prevot, V. Maurino; Assessing a Photocatalytic Activity Index for TiO<sub>2</sub> Colloids by Controlled Periodic Illumination; ACS Catal. 2020, 10, 16, 9612-9623
5. F. Pellegrino\*, R. Isopescu L. Pellutì, F. Sordello, A.M. Rossi, E. Ortel, G. Martra, V.D. Hodoroaba\*, V. Maurino; Machine Learning Approach for Elucidating and Predicting the Role of Synthesis Parameters on the Shape and Size of TiO<sub>2</sub> Nanoparticles; Scientific Reports, 2020, 10, 18910
6. F. Sordello, F. Pellegrino\*, M. Prozzi, C. Minero, V. Maurino\*; Overcoming the Volcano in Water Photosplitting: Controlled Periodic Illumination Enhances Hydrogen Production by over 50% on Pt/TiO<sub>2</sub>; ACS Catalysis; 11 (11), 6484-6488
7. F. Sordello; M. Prozzi; V.-D. Hodoroaba; J. Radnik; F. Pellegrino\*; Increasing the HER efficiency of photodeposited metal nanoparticles over TiO<sub>2</sub> using Controlled Periodic Illumination; Journal of Catalysis, 2024,

429, 115215

8. L. Mino\*, F. Pellegrino, S. Rades, J. Radnik, V.-D. Hodoroaba, G. Spoto, V. Maurino, G. Martra\*; Beyond Shape Engineering of TiO<sub>2</sub> Nanoparticles: Post-Synthesis Treatment Dependence of Surface Hydration, Hydroxylation, Lewis Acidity and Photocatalytic Activity of TiO<sub>2</sub> Anatase Nanoparticles with Dominant {001} or {101} Facets; ACS Appl. Nano Mater. 2018, 1, 9, 5355-5365; \* = equal contribution
9. F. Pellegrino\*, M. Zangirolami, C. Minero, V. Maurino\*; Portable photoreactor for on-site measurement of the activity of photocatalytic surfaces; Catalysis Today, 2020, 340, 363-368
10. S. Cuello-Nuñez, I. Abad-Álvaro, M.E. Del Castillo Busto, D.A. Ramsay, D. Bartczak, F. Pellegrino, H. Goenaga-Infante; The accurate determination of number concentration of inorganic nanoparticles using spICP-MS with the dynamic mass flow approach; J. Anal. At. Spectrom., 2020, 35, 1832-1839
11. F. Pellegrino\*, E. Ortel, J. Mielke, R. Schmidt, V. Maurino, V.D. Hodoroaba\*; Customizing New Titanium Dioxide Nanoparticles with Controlled Particle Size and Shape Distribution: A Feasibility Study Toward Reference Materials for Quality Assurance of Nonspherical Nanoparticle Characterization; Adv. Eng. Mater. 2022, 24, 2101347
12. Y Wang, L Mino, F Pellegrino, N Homs, PR de la Piscina; Engineered MoxC/TiO<sub>2</sub> interfaces for efficient noble metal-free photocatalytic hydrogen production; Applied Catalysis B: Environmental 318, 121783
13. P Renzi, E Azzi, S Ascensio, S Parisotto, F Sordello, F Pellegrino, G Ghigo, A. Deagostino\*; Inexpensive and bench stable diarylmethyl tetrafluoroborates as organocatalysts in the light mediated hydrosulfonylation of unactivated alkenes; Chemical Science 14 (10), 2721-2734

**Patent:** Maurino V., Minero C., Pellegrino F., Zangirolami M. – European Patent: “System for Lighting and measuring the Photo-Catalytic Activity of the Reactive Surface of a Material” - Application Number: 17000861.9-1554” - 19/05/2017

## CONTRIBUTIONS TO CONFERENCES and OTHER SCIENTIFIC EVENTS

- **Presenting Author for:**
  - 1 invited oral contributions to International School
  - 1 invited keynote oral contribution to National Conference
  - 1 keynote oral contribution to National Conference
  - 7 oral contributions to International Conferences
  - 5 oral contributions to National/Local Conferences
  - 8 poster contributions to National & International Conferences
- **Organizer for:**
  - 1 local Scientific Congress
  - 1 International School

Torino, 29/01/2024

Francesco Pellegrino

