Curriculum Vitae – Dr. Chiara Petroselli

Researcher unique identifier (ORCID): 0000-0003-2281-6142

Professional Experience:

2022 – 2023: Research Fellow, University of Perugia (Italy)
2019 – 2021: Research Fellow, University of Southampton (UK)
2018 – 2019: Research Fellow, University of Perugia (Italy)

Education:

2014 – 2018: PhD in Chemical Sciences, University of Perugia (Italy), [SSD: CHIM/12] (PhD award date 28)
PhD Thesis title: *"Physical and chemical characterisation of Saharan dust transported in the central Mediterranean area: climatology and focuses on intense intrusion events"*
2012 – 2014: Master Degree (MsC) in Chemical Sciences, University of Perugia (Italy), [LM-54]
Final grades: 110/110 *cum laude* (MsC award date 24/07/2014)
Thesis topics: environmental chemistry, atmospheric aerosol, Saharan dust
2009 – 2012: Bachelor Degree (BD) in Chemistry, University of Perugia (Italy), [L-27]
Final grades: 110/110 *cum laude* (BD award date 27/09/2012)
Thesis topics: solid-phase PAHs fluorimetry method development

Research Experience:

Environmental analytical chemistry. Quantification of trace elements (ICP-OES, ICP-MS) and soluble fraction (ion chromatography) in various environmental matrices (atmospheric aerosol, water, snow, soil, biologic plant and animal material). Metals speciation and coordination in different environmental (aerosol, snow) and biological (plant organs) matrices. Nutrients dynamics in soil and plant-soil interactions, relevant to agricultural activities.

Fieldwork experience in aerosol sampling in urban, rural and Arctic environments: operating sampling instruments, handling various types of filters (quartz fiber, polycarbonate, Teflon, sterilized filters for microbiological sampling), aerosol vertical profiles measurements using tethered balloon systems. Fieldwork experience in snow sampling in Arctic environments: snow-pit excavation, stratigraphy assessment and snow sampling, samples preservation and pre-processing.

Publications:

1. Keyes et al. 2022 *"Multimodal correlative imaging and modeling of phosphorus ultake from soil by hyphae of mycorrhizal fungi"* New Phytologist, doi 10.1111/nph.17980
2. Moroni et al. 2021 *"Characteristics and Extent of Particulate Matter Emissions of a Ropeway Public Mobility System in the City Center of Perugia (Central Italy)"* Atmosphere 12, 1356 (2021), https://doi.org/10.3390/atmos12101356
3. Williams et al. 2021 *"Physical characterization of chia mucilage polymeric gel and its implications on rhizosphere science – Integrating imaging, MRI and modelling to gain insights into plant and microbial amended soils"* Soil Biology and Biochemistry 162 (2021) 108404, https://doi.org/10.1016/j.soilbio.2021.108404
4. Beck et al. 2021 *"Differing mechanisms of new particle formation at two Arctic sites"* Geophysical Research Letters 28 (2021), issue 4, https://doi.org/10.1029/2020GL091334
5. Petroselli et al. 2021 *"Characterization of long-range transported bioaerosols in the Central Mediterranean"* Science of the Total Environment 763 (2021) 143010, https://doi.org/10.1016/j.scitotenv.2020.143010
6. Crocchianti et al. 2020 *"Spatiotemporal correlation of urban pollutants by long-term measurements on a mobile observation platform"* Environmental pollution 268 (2021) 115645, https://doi.org/10.1016/j.envpol.2020.115645
7. Petroselli et al. 2020 *"Space and Time-Resolved Monitoring of Phosphorus Release from a Fertilizer Pellet and its Mobility in Soil Using Microdialysis and X-ray Computed Tomography"* Soil Science Society of America Journal 2021; 1-12, https://doi.org/10.1002/saj2.20161

8. Petroselli et al. 2020 *"Iron speciation in different Saharan dust advections and effect of the procedural blank on the results from X-ray Absorption Spectroscopy and selective leaching experiments"* Atmosphere 2020, 11, 735, https://doi.org/10.3390/atmos11070735
9. Tositti et al. 2020 *"Deposition processes over complex topographies: experimental data meets atmospheric modeling"* Science of the Total Environment 744, 140974 https://doi.org/10.1016/j.scitotenv.2020.140974
10. Ruiz et al. 2020 *"Image-based quantification of soil microbial dead zones induced by nitrogen fertilization"* Science of the Total Environment 727, 138197, https://doi.org/10.1016/j.scitotenv.2020.138197
11. McKay Fletcher et al. 2019 *"Linking root structure to functionality: the impact of root system architecture on citrate-enhanced phosphate uptake"* New Phytologist 227, 376-391, https://doi.org/10.1111/nph.16554
12. Goretti et al. 2019 *"Heavy metal bioaccumulation in honey bee matrix, an indicator to assess the contamination level in terrestrial environments"* Environmental Pollution 256, 113388, https://doi.org/10.1016/j.envpol.2019.113388
13. Selvaggi et al. 2019 *"Evaluation of geochemical baselines and metal enrichment factor values through high ecological quality reference points: a novel methodological approach"* Environmental Science and Pollution Research 27, pages 930-940, https://doi.org/10.1007/s11356-019-07036-3
14. Moroni et al. 2019 *"Potential source contribution function analysis of long-range transported aerosols in the Central Mediterranean: a comparative study of two background sites in Italy"* Rendiconti Lincei. Scienze Fisiche e Naturali 30, pages 337-349, https://doi.org/10.1007/s12210-019-00792-x
15. Petroselli et al. 2018 *"Iron Speciation of Natural and Anthropogenic Dust by Spectroscopic and Chemical Methods"* Atmosphere 10, 8, https://doi.org/10.3390/atmos10010008
16. Petroselli et al. 2018 *"Disentangling the major source areas for an intense aerosol advection in the Central Mediterranean on the basis of Potential Source Contribution Function modeling of chemical and size distribution measurements"* Atmospheric Research 204, 67-77, https://doi.org/10.1016/j.atmosres.2018.01.011
17. Federici, Petroselli et al. 2018 *"Airborne bacteria and persistent organic pollutants associated with an intense Saharan dust event in the Central Mediterranean"* Science of the Total Environment 645, 401-410, https://doi.org/10.1016/j.scitotenv.2018.07.128
18. Goretti et al. 2018 *"Mustelids as bioindicators of the environmental contamination by heavy metals"* Ecological Indicators 94, 320-327, https://doi.org/10.1016/j.ecolind.2018.07.004
19. Petroselli 2018 *"Physical and chemical characterization of Saharan dust transported in the Central Mediterranean area: climatology and focuses on intense intrusion events"* PhD Thesis

Awards:

- International Brian Chambers Award 2020 for Early Career Researchers' Achievements in Crop Nutrition, International Fertiliser Society (IFS). Overall winner with the study *"Fertiliser granules release all the phosphorus shortly after soil wetting: a high-resolution spatiotemporal study"*

Affiliations:

- Member of the Italian Chemical Society (SCI) since 2017
- Member of the Italian Aerosol Society (IAS) since 2015