


PERSONAL INFORMATION

Elisa Sacchi



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Date of birth 29/09/1965 | Nationality Italy

Current Position Associate Professor at the University of Pavia

RESEARCH INTERESTS

Summary

My main interests are in water, sediment and soil pollution, water-rock interaction and environmental applications of isotope geochemistry. In the last twenty years, I have developed two main lines of research. One concerns the origin and fate of potentially toxic elements in soils, sediments and groundwater, defining the natural background concentration and assessing the impact of agricultural practices. The second research line investigates nutrient cycling in agricultural watersheds and groundwater nitrate contamination, using isotope techniques and persistent organic pollutants, to discriminate urban from agricultural sources.

Bibliometric Indicators

SCOPUS (author ID7004076240, accessed on 11/04/2024): 66 documents (62 articles, 4 conference papers), 2942 total citations, h-index 25
 Google Scholar: h-index 28, citations 4370, i10-index 50

WORK EXPERIENCE

5/11/2020-Present

National scientific qualification as Full Professor

Disciplinary area 04/A1 - Geochemistry, Mineralogy, Petrology, Volcanology, Earth resources and Applications

1/10/2015-Present

Associate Professor

University of Pavia, Pavia (Italy)

- National classification sector GEO/08 - Geochemistry and Volcanology.
- Leading research projects in the fields of Isotope Hydrology and Environmental Geochemistry

1/11/2007-Present

Consultant

International Atomic Energy Agency, Vienna (Austria)

- International Expert for Technical Cooperation programmes in Isotope Hydrology (countries Seychelles, Mauritius, Albania, Algeria, Tunisia)
- Tutor for fellowship trainings, and International
- Expert for an internal audit

2/3/2002-30/9/2015

Researcher

University of Pavia, Pavia (Italy)

- National classification sector GEO/08 - Geochemistry and Volcanology.
- Conducting independent research in the fields of Isotope Hydrology and Environmental Geochemistry

1/1/1998-10/10/1998

Research Assistant

Nuclear Energy Agency (through the University of Paris-Sud), Paris (France)

- Research topic: literature review on porewater extraction from argillaceous rocks for hydrochemical and isotopic analyses. Supervisors: prof. J.L. Michelot and Dr. H. Pitsch (CEA)

4/8/1997-12/9/1997

Research Assistant

Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW (Australia)

- Research topic: development of analytical techniques for the determination of ¹⁴C, ³⁶Cl and ¹²⁹I in marine waters from the Mururoa and Fangataufa atolls. Supervisor: prof. C. Tuniz

1/1/1996–12/1996 **Research Assistant**

Laboratoire d'Hydrologie et de Géochimie Isotopique, Université de Paris XI, Paris (France)

- Research topic: hydrogeological investigation of a site under consideration for nuclear waste storage. Supervisor: prof. J.L. Michelot

EDUCATION AND TRAINING

1/2/1999–1/3/2002 **Post-doctoral fellowship**

University of Torino, Torino (Italy)

- Research topic: trace metal contamination in soils and sediments. Tutor: prof. A. Facchinelli.

1/11/1998–28/2/1999 **Post-doctoral fellowship (Government of Canada Award)**

University of Waterloo, Waterloo (Canada)

- Research topic: application of Cl stable isotopes to the study of deep-seated brines (Po Plain) and geothermal systems (Larderello, Italy). Tutor: prof. S. Frappe

1/10/1991–19/10/1995 **Ph.D. in Geochemistry**

EQF level 8

University of Torino, Torino (Italy)

- Ph.D. thesis in Isotope Geochemistry entitled "Water-rock interaction in fractured, low-permeability formations: a geochemical and isotopic approach". Research developed in France, in collaboration with the Commissariat à l'Energie Atomique (CEA) in the frame of the investigation on nuclear waste repository sites. Tutor: prof. G.M. Zuppi

4/10/1993–6/1/1994 **Training**

Australian Nuclear Science and Technology Organisation, Lucas Heights, NSW (Australia)

- Research topic: analytical techniques for the determination of ¹⁴C and ³⁶Cl by Accelerator Mass Spectrometry in groundwater samples. Tutor: prof. C. Tuniz

1/11/1994–31/10/1995 **Doctoral fellowship**

University of Pisa, Pisa (Italy)

- Research topic: hydrogeological investigation of low permeability fractured rocks in the frame of nuclear waste repository assessment. Developed at the Laboratoire d'Hydrologie et de Géochimie Isotopique, Université de Paris XI. Tutor: prof. J.L. Michelot

1/1/1991–31/12/1991 **International scholarship**

Communauté de Travail des Alpes Occidentales (COTRAO), Lyon (France)

- Research activities: water and solute migration in the Unsaturated Zone, developed at the Laboratoire d'Hydrologie et de Géochimie Isotopique in Thonon-les-Bains (Université Pierre et Marie Curie, Paris, France). Tutor: prof. M. Dray

1/9/1984–26/3/1990 **Master in Earth Sciences**

EQF level 7

University of Torino, Torino (Italy)

- Master thesis in Isotope Hydrology entitled: "Problems affecting groundwater quality at Ilha do Sal, Cape Verde Islands". Tutor: prof. G.M. Zuppi

PERSONAL SKILLS

Mother tongue(s) Italian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C1	C1	C2
TOEFL					
French	C2	C2	C2	C2	C2
Alliance; Grenoble II Degré					

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

INSTITUTIONAL
RESPONSIBILITIES

- 2016-2024 Member of the Review Group (Gruppo del Riesame) evaluating the performance of the Earth Sciences courses (L-34 and LM-74)
- 2009-2024 Erasmus coordinator for the Earth and Environmental Sciences Department. Managing outgoing and incoming students in Earth Sciences, mobility for traineeship, staff exchange and bilateral agreements with partner Universities
- 2010-2013 Member of the Didactic Commission for the Earth Sciences courses and representative of the SSD GEO/08
- 2011-2013 Member of the Departmental Board (Giunta di Dipartimento) as representative of the SSD GEO/08

 NATIONAL AND
INTERNATIONAL GRANTS
(as PI, last 10 years)

- 2019 and 2021-ongoing Research contract with R.S.A. S.r.l. for the definition of natural background concentrations of potentially toxic elements in groundwater from the former Balangero asbestos mine, (Site of National Interest for remediation) (19,000 Euro)
- 2020-2021 Research contract with GruppoCAP for tracing sewage leakage in groundwater from the Milan province using stable isotopes and persistent organic contaminants (58,250 Euro)
- 2009-2022 Research contract with Ferrarelle S.p.A. for an isotope hydrology study in the Boario and Riardo basins (about 96,000Euro)
- 2016-2019 Research project entitled "Squaring the cycle: the INTEgration of GROundwater processes in Nutrient budgets for a basin-oriented remediation strategy (INTEGRON)" funded by the Cariplo Foundation (300,000 Euro) <http://www-4.unipv.it/integron/>

 TEACHING ACTIVITY
(last 10 years)

- 2023-present Teaching *Soil and Water contamination by Intensive Farming* to Master students in Agri-Food Sustainability (LM-69) – 3 ECTS
- 2010-present Teaching *Environmental Geochemistry* to Master students in Applied Geological Sciences (LM74) and in Natural Sciences (LM60) - 6/9 ECTS
- 2017-2023 Teaching *Geochemistry* to undergraduate students in Earth Sciences (L34) - 6-9 ECTS
- 2006-present Tutor of 3 and co-tutor of 1 Italian Ph.D. students. Foreign tutor of 2 Ph.D. students (Myanmar, Mauritius).
- 2013-2016
- Teaching and research contract for the International Atomic Energy Agency, Department of Technical Cooperation, as expert for the project "Protecting and Safeguarding Vulnerable Areas against Contamination and Mapping Vulnerability and Risks of Groundwater Pollution" in Algeria
 - Fellowship trainings of about 2 months each for the International Atomic Energy Agency, Department of Technical Cooperation (ref. ALG/14023, ALG/14024, TUN/14018, MAR/16008)
 - Teaching and research contract for the International Atomic Energy Agency, as expert for the project "Use of Stable isotopes of dissolved nitrate, phosphorus and boron as indicators of the origin and fate of nitrate and phosphorus contamination in rivers of suburban region of Port Louis, Mauritius". The study is part of a Ph.D. of a Mauritian student.

 ORGANIZATION OF SCIENTIFIC
MEETINGS (in the last 10 years)

- 2022 Convener of the session "Environmental Geochemistry" of the 1st Meeting of the Italian Geochemical Association (So.Ge.I), Genova, 5-8 July 2022
- 2022 Member of the Scientific Committee del 3rd International Multidisciplinary Conference on Mineral and Thermal Waters (MinWat 2020), organised by the International Association of Hydrogeologists - IAH/AIH, Caserta (Italy), October 11-15, 2020 (postponed to June 26-30, 2022)
- 2016 Member of the Scientific Committee of the International Meeting on Water-Rock Interaction-15, organised by the Committee Water Rock Interaction International and the International Association of GeoChemistry, Evora Portugal, October 16-21, 2016

FURTHER INFORMATION

Participation to national and international work groups

- 2021-ongoing- Participant to the IAEA Coordinated Research Project on “Development and application of isotope techniques for efficient water resources management in mining areas”, with a project entitled “Assessing the origin and migration of potentially toxic elements in water resources from the former Balangero asbestos mine using water, sulphur and metal isotopes”
- 2016-2020 - Participant to the IAEA Coordinated Research Project on “Isotopes to study nitrogen pollution and eutrophication of rivers and lakes”, with a project entitled “Squaring the Cycle: the Integration of Groundwater Processes in Nutrient Budgets for a Basin-Oriented Remediation Strategy (INTEGRON)”
- 2014-2018 - Member of the Steering Committee of the bilateral Italy-India project TECO “Technological Eco-Innovation for the Quality control and Decontamination of Polluted Waters and Soils”, funded by the Delegation of the European Union to India and EuropAid Cooperation Office
- 2012-2014 - Participant to the bilateral Italy (CNR) - India (CSIR) project entitled “Assessment of environmental hazard and groundwater vulnerability from ash ponds using stable and unstable isotopes”.
- 2007 - Participant to the work group “Contaminated agricultural soils” for establishing guidelines for the definition of the natural and natural-anthropogenic content for metals and metalloids in agricultural soils, Italian Ministry of Agriculture (MiPAAF)
- 2006-2010 - Participant to the INPAR working group and network (Isotopes for improved management of Nitrate Pollution in Aqueous Resources), European Commission, Joint Research Centre, Institute for Reference Materials and Measurements (JRC-IRMM)
- Sacchi E., Pilla G., Gerbert-Gaillard L., Zuppi G.M. (2008) - A regional survey on nitrate contamination of the Po valley alluvial aquifer (Northern Italy). In: “The use of isotopes for improved management of nitrate pollution in aqueous resources”, S. Duta, F. Accoe and P. Taylor (Eds.), JCR Scientific and technical reports 49270, European Communities EUR 23658 EN
- Scarciglia F., Sacchi E., et al. (2007) - Caratteri geochimici, isotopici e mineralogici dei suoli di Muravera. In: Ottonello G. (Ed.) Geochemical Baselines of Italy, Pacini Editore, 87-147
- Sacchi E., Brenna S., Fornelli Genot S., Sale V. M., Azzolina L., Leoni M. A. (2007) - Analisi del contenuto in rame ed altri metalli nei suoli agricoli lombardi. Quaderni della Ricerca n. 61, Regione Lombardia, 111.
- Sacchi E., Michelot J.L., Pitsch H. (2000) - Pore-water extraction from argillaceous rocks for geochemical characterisation: methods and interpretations.- OECD publications, ISBN 92-64-17181-9,188.

Research monographs and chapters in collective volumes

Memberships

- from 2023 Vice-president of the International Association of Geochemistry and Cosmochemistry (IAGC)
- from 2019 Council Member of the International Association of Geochemistry and Cosmochemistry (IAGC)
- from 2013 Member of the International Association of Geochemistry and Cosmochemistry (IAGC)
- from 2013 to 2023 Associate Editor for “Applied Geochemistry”
- from 2006 to 2015, associated to the Institute of Geosciences and Earth Resources of the National Research Council (CNR-IGG)
- 1994 associated to the National Institute of Nuclear Physics (INFN) for a study on “cluster radioactivity” (¹⁴C production in U and Th ores)

Evaluation of research results

- Reviewer for International journals (list not exhaustive): Appl. Geochem., J. Hydrol., Agric. Ecosyst. Env., Sci. Total Env., Env. Sci. & Technol., GroundWater, Int. J. of Environ. Anal. Chem., Isot. Environ & Health Stu., Arab. J. Geosci., J. Afric. Earth Sci., Environ. Sci. Poll. Res., Environ. Poll., J. Geoch. Explor., Hydrol. Sci. J., J. Contam. Hydrol., Environ. Earth Sci., Environ. Monit. Assess.
- Project reviewer for the Agence Nationale de la Recherche (France) and for the Croatian Science Foundation
- Evaluator for the performance assessment of the research unit “Interaction et Dynamique des Environnements de Surface” (IDES, UMR 8148) of the Université Paris Sud on behalf of the Agence d'évaluation de la recherche et de l'enseignement supérieur (AERES), France
- Evaluator for a “Comparative Assessment of Nuclear Technologies” on behalf of the Office of Internal Oversight Services, International Atomic Energy Agency

Personal data

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

Date: Pavia, April 15, 2024

Signature: Elisa Sacchi

