

Carlotta Ferrando

Fixed-term researcher (RTDA)

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EDUCATION AND TRAINING

2018

Ph. D. Research in igneous petrology in the context of the FP7-PEOPLE-2013-ITN MARIE CURIE Training network on reactive geological systems from the mantle to the abyssal sub-seafloor (Multi-partner ITN)

Melt transport and dissolution-precipitation processes through the heterogeneous lower oceanic crust microstructural and petro-geochemical constraints from drill cores
University of Montpellier - Montpellier – FR

2014

Masters Degree in Geology and Geological Techniques

Microstructural and petrological investigations on troctolites olivine gabbros and peridotites in ophiolites outcrop Erro Tobbio (Piani di Praglia Genova) - 110/110 e lode
University of Genova - Genova - IT

2013

Bachelors Degree in Geology

Pyroxenite layers in peridotites at Monte Maggiore (Cap Corse France) petrographic chemical and geothermometric investigations
University of Genova - Genova - IT

PROFESSIONAL HISTORY

2022 - ONGOING

Researcher (RTD-A)

Investigation of petrological and geochemical processes involved in the formation of the oceanic lithosphere from mantle melting beneath spreading centers to crystallization and cooling of the gabbroic sequences in the lower oceanic crust. Teaching activity (see dedicated section)

University of Genova - Genova - IT

2020 - 2022

Post-doctoral fellow in igneous petrology (funding CNR ECORD - IODP-Italia 2018)

Principal Investigator of the project funded by ECORD - IODP-Italia 2018 aiming at understanding the interaction between magmatism deformation and hydrothermalism during formation and exhumation of the lower oceanic crust along slow-spreading ridges. This study included a first microstructural investigation of olivine gabbros (EBSD) followed by petrographic observations of brown amphiboles occurring in various lithologies within the oceanic crust exposed at the Atlantis Bank Oceanic Core Complex coupled with analysis of mineral geochemical compositions (EPMA and LA-ICP-MS) and analysis of O and H stable isotopes in amphibole (SIMS)

University of Pavia - Pavia – IT

2018 - 2019

Teaching assistant - Attaché Temporaire à l' Enseignement et à la Recherche (ATER)

Practical activities of Structural geology for the first year of the Geological Engineering School (École Nationale Supérieure de Géologie) - equivalent to the third year of the Italian Bachelor in geology. Practical activities of Geochemistry atmosphere and climate changes for the second year of the Geological Engineering School (École Nationale Supérieure de Géologie) - equivalent to the first year of the Italian Master in geology. Teaching of 'Magmatic petrology and geodynamics' for the second year of Master in geology - Master2 Terre Planètes formation à la Recherche par la recherche
University of Lorraine - Nancy - FR

2018 - 2020

Post-doctoral fellow in igneous petrology

Investigation of melt migration processes through the lower oceanic crust along ultraslow-spreading ridges. This study included a first petrographic observation of grain-size variations in olivine gabbros followed by determination of the mineral geochemical compositions (EPMA and LA-ICPMS) compared with numerical models of fractional crystallization and melt-rock interactions (AFC).
Centre de Recherche Petrographiques et Geochimiques - Nancy - FR

Language skills

Italian

Mother tongue

English

Proficient

French

Proficient

Spanish

Proficient

ACADEMIC APPOINTMENTS

[academic year 2025-2026 - oggi](#)

Teaching in the role of RTDA

co-teacher (2 CFU) with Prof. E. Rampone of 'LITOLOGY' for the second year of Bachelor in Environmental and Natural Sciences and responsible of the practical activities in 'PETROGRAPHY' (0.5 CFU) for the second year of Bachelor in Geology. Co-teacher (5 CFU) of 'EVOLUTION OF THE OCEANIC LITHOSPHERE' for the first year of Master in Earth Sciences UniGE – curriculum 'Geosciences of the marine environment'.

Department of Earth, Environmental and Life Sciences, University of Genova

Teaching for the Doctoral Program in Science and Technologies for the Earth and Environment - STAT (DISTAV)

Responsible of the teaching course 'Dynamic evolution of the oceanic lithosphere at mid-ocean ridges' addressed to DISTAV PhD students and others (2 CFU)

Department of Earth, Environmental and Life Sciences, University of Genova

Supervision of PhD thesis of Caterina Battifora (PhD defense in 2026)

co-supervision of the PhD thesis of Caterina Battifora (ciclo XXXVIII) at the DISTAV. Title of the PhD thesis: "Diffusive reactive percolation and impregnation processes in the Oman peridotites: a multidisciplinary and multiscale investigation". Supervisors: E. Rampone, C. Ferrando and L. Crispini

Department of Earth, Environmental and Life Sciences, University of Genova

External supervision of the PhD thesis of Sampriti Mukherjee (PhD defense in 2026)

Supervisors: Mathilde Cannat, Cecile Prigent and Armel Menant
Institut de Physique du Globe de Paris (France)

[academic year 2024-2025](#)

Teaching in the role of RTDA

co-teacher (1.5 CFU) with Prof. E. Rampone of 'LITOLOGY' for the second year of Bachelor in Environmental and Natural Sciences and responsible of the practical activities in 'PETROGRAPHY' (0.75 CFU) for the second year of Bachelor in Geology. Co-teacher (5 CFU) of 'EVOLUTION OF THE OCEANIC LITHOSPHERE' for the first year of Master in Earth Sciences UniGE – curriculum 'Geosciences of the marine environment'.

Department of Earth, Environmental and Life Sciences, University of Genova

Teaching for the Doctoral Program in Science and Technologies for the Earth and Environment - STAT (DISTAV)

Responsible of the teaching course 'Dynamic evolution of the oceanic lithosphere at mid-ocean ridges' addressed to DISTAV PhD students and others (2 CFU)

Department of Earth, Environmental and Life Sciences, University of Genova

Co-supervisor of bachelor research thesis in Earth Sciences, UniGE L-34 (student M.V. Costa).

Thesis title: Compositional heterogeneity of the gabbroic rocks from the lower oceanic crust sampled at the Oceanic Core Complex Atlantis Massif (30°N along the Mid-Atlantic Ridge; IODP Expedition 399). Supervisors: C. Ferrando e E. Rampone

Department of Earth, Environmental and Life Sciences, University of Genova

Dissemination activity

Seminar (2 hours) and field activity organized at the DISTAV addressed to 10 students from ligurian secondary school about 'Rocks, minerals and georesources: a journey to discover the Planet Earth' in the framework of the PCTO (7 May 2025)

[academic years 2022-2023, 2023-2024](#)

Teaching in the role of RTDA

co-teacher (1 CFU) with Prof. E. Rampone of 'LITOLOGY' for the second year of Bachelor in Environmental and Natural Sciences and responsible of the practical activities in 'PETROGRAPHY' (3 CFU) for the second year of Bachelor in Geology.

Department of Earth, Environmental and Life Sciences, University of Genova

Teaching for the Doctoral Program in Science and Technologies for the Earth and Environment - STAT (DISTAV)

Responsible of the teaching course 'Dynamic evolution of the oceanic lithosphere at mid-ocean ridges' addressed to DISTAV PhD students and others (2 CFU)

Department of Earth, Environmental and Life Sciences, University of Genova

Co-supervisor of bachelor research thesis in Earth Sciences, UniGE L-34 (student G. Gattuso).

Thesis title: Petrographic characterization of gabbroic rocks adjacent to the mantle-crust transition (CM drill-cores, Oman DP Program)

Supervisors: E. Rampone, C. Ferrando and C. Battifora

Department of Earth, Environmental and Life Sciences, University of Genova

Dissemination activity

- Seminar entitled "Viaggio all'interno della Terra: tra fantasia e realtà" the 'Festival della comunicazione 2022' at Camogli (10 September 2022)

<http://www.festivalcomunicazione.it/bio-ferrando-carlotta/>

- Seminario di 1 ora rivolto agli studenti del liceo scientifico Leonardo Da Vinci dal titolo 'La Terra pianeta dinamico: il ciclo delle rocce' nell'ambito delle attività di orientamento proposte dal DISTAV a favore delle scuole secondarie (15 febbraio 2023)

- Lezione di 1 ora presso Liceo classico d'Oria sull' argomento "Il ciclo delle rocce sul pianeta

Terra” (15 marzo 2023)

- Seminario di 1 ora rivolto agli studenti del liceo artistico Klee-Barabino dal titolo ‘I mille e un colore nelle rocce del pianeta Terra’ nell’ambito del programma ‘Art & Science across Italy - IV Edizione (2022-2024)’ organizzato dall’Istituto di Fisica Nucleare, dal CERN di Ginevra e dall’esperimento CMS di LHC rivolto ai Licei Italiani (20 aprile 2023)
- Lezione di 2 ore presso Liceo scientifico Leonardo Da Vinci sull’ argomento “Il ciclo delle rocce sul pianeta Terra” nell’ambito del PCTO (13 marzo 2024)
- Attività laboratoriale di 4 ore presso Liceo scientifico Leonardo Da Vinci sull’ argomento “Il riconoscimento delle rocce: osservazioni macroscopiche” nell’ambito del PCTO (15 marzo 2024)
- Seminario di 2 ore ed attività di terreno di 1 giorno in Val Graveglia rivolti a 11 studenti di scuole secondarie liguri sull’argomento ‘Terra e Georisorse’ nell’ambito del PCTO-PNRR (9 e 10 Maggio 2024)

2018-2021

Activity of assistant professor

- academic year 2018/2019 at the University of Lorraine (France): co-teacher of the practical activities of ‘Structural geology’ for the first year of the Geological Engineering School (École Nationale Supérieure de Géologie) – equivalent to the third year of the Italian Bachelor in Geology; co-teacher of the practical activities of ‘Geochemistry atmosphere and climate changes’ for the second year of the Geological Engineering School (École Nationale Supérieure de Géologie) – equivalent to the first year of the Italian Master in Geology; co-teacher of ‘Magmatic petrology and geodynamics’ for the second year of Master in Geology (Master2 Terre Planètes formation à la Recherche par la recherche)
- academic year 2020/2021 at the University of Pavia: co-teacher of the practical activities at the microscope in ‘Petrography’ for the second year of Bachelor in Geology.

Co-supervisor of research thesis in bachelor and master courses of geological sciences at the University of Pavia

- Sarah Scarani (Supervisor Prof. A. Sanfilippo), title of the bachelor thesis: Peridotites exhumed and exposed at the Doldrums Fracture Zone (8°N): petrographic and chemical investigations.
- Davide Mariani (Supervisor: Prof. R. Tribuzio), title of the master thesis: Amphibole-rich granoblastic dikes in the gabbroic crust exposed at the Atlantis Bank (57°E, Southwest Indian Ridge): microstructural and petrological investigations.

EXPERIENCE

MAIN SEMINARS

10/12/2018 ‘Melt transport and assimilation-precipitation processes through the heterogeneous oceanic crust: microstructural and petro-geochemical constraints from drill cores.’

Invited seminar addressed to PhD students, post-dics and researchers at the CRPG. Centre de Recherches Pétrographiques et Géochimiques (CRPG), CNRS – University of the Lorraine, Nancy (France).

10/12/2020 ‘A Hole in the bottom of the Sea’: 70 anni di perforazioni oceaniche.’

Invited webinar addressed to master students in Earth Sciences and to the scientific community of IODP-Italy.

Department of Earth, Environmental and Life Sciences, University of Genova

07/05/2021 – ‘Formation of the oceanic crust at slow-spreading ridges: understanding the megatransform systems’

Invited webinar addressed to PhD students of the PhD Course in Earth and Environmental Sciences and Technologies

Department of Earth, Environmental and Life Sciences, University of Genova

20/05/2021 ‘Deep drilling at the Atlantis Bank Oceanic Core Complex (IODP Expedition 360): Understanding the formation of an ultraslow-spreading oceanic crust’

Invited webinar addressed to researchers of the IGG-CNR.

Istituto di Geoscienze e Georisorse del CNR (IGG-CNR).

SCIENTIFIC RESPONSIBILITY FOR RESEARCH PROJECTS ACCEPTED FOR FUNDING ON THE BASIS OF COMPETITIVE CALLS INVOLVING PEER REVIEW

10/06/2019 Oceanic crust accretion at ultraslow-spreading ridges insights from a 800m-long crustal transect drilled at IODP Hole U1473A Atlantis Bank gabbroic massif (Southwest Indian Ridge)

Funding 'Bando CNR – ECORD - IODP-Italia' for research projects in the framework of the 'Integrated Ocean Discovery Program (IODP)' P.I.: Carlotta Ferrando

Funding: 85.000€ for two years of post-doc, among which 25.000€ for scientific research.

University of Pavia

11/11/2021 Amphibole-rich diabase dikes in the slow-spreading oceanic crust (Atlantis Bank, 57° E, Southwest Indian Ridge): where is the water coming from?

Funding 'ECORD Research Grant2021 for outstanding Early Career Researchers' for research activities in the framework of 'Integrated Ocean Discovery Program (IODP)'

Funding: 3.000€ for analytical work.

University of Pavia

07/2023 Isotopic analyses of pyroxenes in pyroxenites from the oceanic mantle.

Funding 'Deutscher Akademischer Austauschdienst (DAAD) - Research Stays for University Academics and Scientists' for research activities at German universities

Funding: 2.000€ for mission expenses.

University of Münster (Germany)

05/2024 Accretion of the lower oceanic crust along slow-spreading ridges (Atlantis Massif, 30° N along the Mid-Atlantic Ridge).

Funding 'IODP-Italia' for research projects in the framework of the 'Integrated Ocean

Discovery Program (IODP)' – IODP Expedition nr. 399 'Building blocks of life, Atlantis Massif'

Funding: 15.000€ for analytical work.

Department of Earth, Environmental and Life Sciences, University of Genova

PARTICIPATION IN OCEANOGRAPHIC EXPEDITIONS

OCEANOGRAPHIC CAMPAIGNS IN THE FRAMEWORK OF INTERNATIONAL COMPETITIVE CALL

30/11/2015 - 30/01/2016 Member of the scientific team on board of the oceanographic ship JOIDES Resolution during the 'IODP (Integrated Ocean Discovery Program) Expedition 360: "SW Indian Ridge Lower Crust and Moho (Atlantis Bank Oceanic Core Complex)'"

09/2023 Member of the scientific team (shore based) of the 'IODP (Integrated Ocean Discovery Program) Expedition 399: Building blocks of Life, Atlantis Massif'

OCEANOGRAPHIC CAMPAIGNS IN THE FRAMEWORK OF THE PRIN2017 PROJECT

Project: PRIN2017 'The oceanic megatransforms: A new class of plate boundaries'; P.I.: Marco Ligi (CNR-ISMAR Bologna)



04/09/2021 - 09/10/2021 Member of the scientific team on board of the oceanographic ship R/V Akademik S. Vavilov, Expedition V53: "The fracture zones 'Charlie Gibbs Fracture Zone' (Mid-Atlantic Ridge; 52°N) and 'Bight Fracture Zone' (Mid-Atlantic Ridge; 57°N)"

18/09/2020 - 25/10/2020 Member of the scientific team on board of the oceanographic ship R/V Akademik Nikolaj Strakhov, Expedition S50: "The fracture zone 'Charlie Gibbs Fracture Zone' (Mid-Atlantic Ridge; 52°N)"

25/10/2019 - 1/12/2019 Member of the scientific team on board of the oceanographic ship R/V Akademik Nikolaj Strakhov, Expedition S45: "The fracture zone 'Doldrums Fracture Zone' (Mid-Atlantic Ridge; 7°-8°N)"

TEACHING OR RESEARCH POSITIONS (FELLOWSHIPS) AT FOREIGN UNIVERSITIES AND RESEARCH INSTITUTES

2018-2021

Assistant professor activity

- co-teacher of the practical activities of 'Structural geology' for the first year of the Geological Engineering School (École Nationale Supérieure de Géologie) – equivalent to the third year of the Italian Bachelor in Geology;
- co-teacher of the practical activities of 'Geochemistry atmosphere and climate changes' for the second year of the Geological Engineering School (École Nationale Supérieure de Géologie) – equivalent to the first year of the Italian Master in Geology;
- co-teacher of 'Magmatic petrology and geodynamics' for the second year of Master in Geology (Master2 Terre Planètes formation à la Recherche par la recherche)
University of Lorraine (France)

PRIZES AND ACCOLADES FOR SCIENTIFIC ACTIVITY, INCLUDING MEMBERSHIP OF ACADEMIES

2021 Premio Angelo Bianchi

Prize based on the scientific production in the framework of Petrography and Petrology researches between 2019 and 2020. Number of publications ISI presented: 12. See link:

<https://www.socminpet.it/372/premio-angelo-bianchi.html>

Società Italiana di Mineralogia e Petrologia (SIMP)