

Alberto Vitale Brovarone — Curriculum Vitae

(October 2025 - <https://www.unibo.it/sitoweb/alberto.vitaleb/cv-en>)

Full Professor of Petrology, Alma Mater Studiorum Università di Bologna, Italy

Italian nationality

Spoken languages:

- *Italian (native)*
- *English (speaking, writing)*
- *French (speaking, writing)*

alberto.vitaleb@unibo.it

PROFESSIONAL AND ACADEMIC ACHIEVEMENTS

From 2024: Member of the *Centro Linceo Giovani* of the *Accademia Nazionale dei Lincei*

From 2020: Full Professor of Petrology, Alma Mater Studiorum Università di Bologna, Italy

2018 – 2020: “Levi Montalcini” research position, Italy (“Brain-gain” Excellence program by the Italian Ministry of Education, University and Research).

From 2014: CNRS researcher (CR2) at *Institut de Minéralogie et de Physique des Milieux Condensés* (IMPMC), Paris, France. On secondment from 2018.

2017: Italian National Scientific Habilitation for Associate and Full Professor (Professore Ordinario 04/A1).

2017: French HDR (Habilitation à la Direction de Recherche HDR).

2012 – 2014: postdoc at IMPMC-UPMC and Ecole Normale Supérieure (ENS), Paris (France). Laboratoire d'excellence (LabEx) Matisse fellowship. HP fluid-rock interactions and C cycling.

2011-2012: post-doc at ISTeP, Paris VI, CNRS, Paris (France), on the tectono-metamorphic evolution of New Caledonia.

EDUCATION

2008-2011: PhD Thesis, Torino-Montpellier (bi-national). “From rifting to orogen: structure of Alpine Corsica and inheritance of rifting-related architectures in HP terranes”.

2007: MSc in Geological Sciences, note 110/110 magna cum laude. “Distribution and tectono-metamorphic evolution of metabasalts from low-grade to lawsonite-bearing eclogite in the area of Morosaglia, Alpine Corsica, France”, declared “worth of printing”.

HONORS AND AWARDS

2024: **Feltrinelli Giovani award by Accademia Nazionale dei Lincei, Italy.** To scholars who have achieved results of clear originality, autonomy, and international relevance.

2019: **Joubin James award, University of Toronto, Canada.**

2018: **“Giuseppe and Paolo Gatto” award by Accademia dei Lincei, Italy.**

2017: **Deep Carbon Observatory (DCO) Emerging Leader Award**, to early career scientists for distinguished performance and unique potential as leaders of the deep carbon sciences.

2015 – 2018: Prime d'Excellence Scientifique (allowance for Scientific Excellence) CNRS for Research and doctoral supervision.

2008: Winner of the “**Ugo Pognante**” 2008 prize: best MA thesis on Alpine geology.

RESEARCH GRANTS

2023: PRIN2022, MUR grant “Competing geological and biological processes in underground carbon and hydrogen storage” (**PI, 224.000€**)

2023: AlmaAttrezzature grant for the construction of analytical facilities, Alma Mater Studiorum (**PI, 400.000€**)

2022-2027: FARE, MUR grant “Unconventional water forms from DRY hydrogen and rocks (DRYNK)” on unconventional metamorphic water formation (**PI, 494.873€**)

2021-2026: ERC Consolidator grant “Deep serpentinization, H₂, and high-pressure abiotic CH₄” (**PI, 2.470.000€**)

2020: Richard Lounsbery Foundation “Deep Degassing of abiotic hydrocarbons” (co-PI, 100.000\$)

2018-2020: MIUR – Rita Levi Montalcini grant “High-pressure serpentinites and abiotic methanogenesis” in subduction zones (**PI, 247.000€**)

2018: ANR (Agence Nationale des Recherches) T-ERC grant on metamorphic abiotic hydrocarbons (**PI, 150.000€**)

2017-2018: Institut National de Sciences de l'Univers (INSU), CNRS « High-pressure abiotic methane in metamorphic serpentinites » (**PI, 7.000€**)

2017-2018: Institut National de Sciences de l'Univers (INSU), CNRS « Les inclusions de diamant des grenatites des massifs Basiques et Ultrabasiques du nord-est algérien » (Participant, 12.000€)

2017-2018: Musée National d'Histoire Naturelle de Paris « High-pressure serpentinites and abiotic methanogenesis » (**PI, 14.000€**)

2014-2017: Deep Carbon Observatory (DCO) field studies (Participant, 150.000€)

2016-2017: Deep Carbon Observatory (DCO) “High-pressure carbonation” (**PI, 5.000\$**)

SUPERVISION OF GRADUATE and UNDERGRADUATE STUDENTS

Post-Docs

2024-2026: Orlando Sébastien Olivieri. H₂-CH₄ characterization in Precambrian metamorphic rocks (ERC-funded position).

2024-2026: Claudia Isabel Roig Gonzáles. H₂-carbon interactions in metasedimentary rocks (PRIN-funded position).

2023-2025: Ritabrata Dobe. H₂-mediated deformation in crustal metamorphic rocks (ERC-funded position). **Now MSCA fellow, Liverpool, UK.**

2022-2025: Kevin Wong. Global H₂ fluxes from mantle wedge hydration: a numerical simulation (ERC-funded position). **Now PostDoc at Cambridge, UK; from late 2025: PostDoc at Carnegie, Washington D.C., USA.**

2022-2024: Veronica Peverelli. Geochronological study of H₂-CH₄ formation and migration at subduction zones (ERC-funded position). **Now PostDoc at Trinity College, Dublin, Ireland.**

2021-202023: Guillaume Siron. Development of numerical codes for coupled thermodynamic and isotope modeling (ERC-funded position). **Now Assistant Professor, Besancon, France.**

2021-2012: Francesco Giuntoli. Petrological and microstructural study of metamorphic rocks deformed under reducing conditions (ERC-funded position). **Now Assistant Professor, Bologna, Italy.**

2021-2023: Zeudia Pastore. Unravelling redox variations and natural H₂ formation in subduction zones through rock magnetism. Finanziato da Research Council of Norway.

2018-2020: Pauline Bacle (co-sup. F. Pietrucci, IMPMC). Molecular dynamic simulations of HP CH₄-producing reaction rates.

2018-2019: Francesco Giuntoli. Quantitative microstructural study of fluid-mediated HP abiotic methanogenic processes. **Now Assistant Professor, Bologna, Italy.**

PhD students

2024-2027: Ella Do Hanh-Tu. H₂-rock interactions in the crust and upper mantle (FARE-funded position).

2021-2024: Francesco Ressico. Formation, transformation, and distribution of magnetite in high-pressure serpentinites (ERC-funded position).

2021-2024: Orlando Olivieri. Genesis and mobility of H₂ at subduction zone conditions (ERC-funded position). **Now PostDoc in Bologna.**

2018-2021: Han Hu, Peking University, China (“foreign supervisor”). **Now Faculty member in Beijing.**

2018-2021: Antoine Boutier, DST, Torino University. **Freelance numerical modeling research consultant.**

2014-2017: Francesca Piccoli, IMPMC, UPMC-DCO. **Now Research Assistant at Bern Univeristy, Switzerland.**

ERASMUS+ (post M2)

2017: Giulia Consuma, University of Padova. *Analytical and experimental study on serpentine reduction at high-pressure conditions.* Now PostDoc at ESA.

Undergraduate students

Supervision of more than 18 undergraduate students.

COMMUNITY SERVICE

2023: Co-convener Goldschmidt 2023 session “Competing carbon and hydrogen storage processes” (Lyon, France).

2021: Member of Lithos Editorial Board.

2019-: Evaluator for the Horizon2020 and HorizonEurope Marie Skłodowska-Curie action.

2019-2021: Councilor, European Association of Geochemistry (EAG).

2016-2020: Co-organizer of the Serpentine Days 2020, Sestri Levante, Italy.

2019: Co-organizer of the 2019 FORSTERITE workshop on thermodynamic modeling (Pyrenees, France).

2017: French candidature committee for the 2022 International Eclogite Conference.

2018: Co-organizer of the Goldschmidt 2018 session “Linking the Lithosphere, Hydrosphere, and Biosphere Through Serpentinization Reactions”.

2017: Co-organizer of the Goldschmidt 2017 session “Metamorphic and melting processes: from subduction zones to ultra-high temperature terranes”.

2014: Co-convener of the AGU fall meeting session “Processes, pathways, and properties along the subduction interface”

2013: Co-convener of the AGU fall meeting session “Fluids in Slabs: Chemical and Physical Studies of Volatile-Bearing Minerals in Subduction Zones” (V013).

2013: Associate editor of the Lawsonite special issue, Journal of Metamorphic Geology, in

progress (ISI Journal Citation Reports © Ranking: 2011: 2/47 -Geology).

2011: Field leader of the pre-meeting field trip, CorseAlp2011, Monte San Petrone, Corsica, France, 10-11/4/2011.

2011: Co-organizer of the international CorseAlp2011 meeting (Alpine Workshop), Saint Florent, Corsica, France, 10-16/4/2011.

Reviewer of manuscripts for: Science, PNAS, Nature Geoscience, Nature Communications, Scientific Reports, Science Advances, Geology, Journal of Petrology, Journal of Metamorphic Geology, LITHOS, Tectonophysics, International Journal of Earth Sciences, Tectonics, European Journal of Mineralogy, Earth Planets and Space, Lithosphere, Applied Geochemistry ...

INVITED SEMINARS & COMMUNICATIONS

Invited and keynote presentations

2025 – Estremoz talks on Earth dynamics (EsTED), Portugal, **Keynote**.

2025 – Beijing, China. Workshop on Earth's habitability, **Invited**.

2024 – SGTSG, Armidale, Asutralia, **Keynote**.

2023 – Goldschmidt 2023, Lyon, Francia. **Keynote**.

2023 – Yale University, New Haven, USA. Invited seminar.

2023 – National Museum of Natural History, New York, USA. **Invited seminar**.

2019 – Deep Carbon 2019, National Academy of Science, Washington D.C., USA. **Invited**.

2019 – Goldschmidt 2019, Barcelona, Spain. **Invited**.

2018 – Goldschmidt 2018, Boston, USA. **Invited**.

2018 – Metamorphic Studies Group meeting, Plymouth, UK. **Keynote**.

2017 – Third DCO international symposium 2017, St. Andrews, Scotland. **Invited**.

2017 – Goldschmidt 2017, Paris, France. **Keynote**.

2017 – SGI-SIMP international meeting, Pisa, Italy. **Keynote**.

2015 – SGI-SIMP international meeting, Firenze, Italy. **Invited**.

Invited seminars

NTU Taipei, Taiwan (2011), NCKU Tainan, Taiwan (2011), IStEP Paris VI (2012), ENS Paris (2012), ETH Zurich (2012), Lausanne (2013), IMPMC Paris VI (2013), IPGP (2014), Orléans BRGM (2014), Clermont-Ferrand (2015), Orléans ISTO (2015), Kyoto (2016), St Andrews, Scotland, DCO meeting (2017); Bern, (2109); Padova (2019), Toronto (2019), Napoli (2020).

MEDIA AND OUTREACH

Media

2025: Rai Radio3 Scienza: Geologic hydrogen research in the continental crust.

2025: RaiNews24: Broadcasting Norway on natural hydrogen research.

2024: RaiNews24: Broadcasting Greenland on natural hydrogen research.

2024: Rai Radio3 Scienza “In the land of Polar Bears” interview on natural hydrogen research in Greenland.

2024: Rai Radio3 Scienza “A breath of oxygen”.

2024: ANSA Along the Greenland fjords, searching for hydrogen: Greenland Expedition Blog, hosted by ANSA (Italy)

2024: Repubblica (Green&Blue) An Italian mission to Greenland to unravel the mysteries of natural hydrogen.

2023: Sole24Ore “The hidden treasure of hydrogen in the underground”.

2023: Rai Radio3 Scienza The methane that carried us away: Rai Radio3 Scienza (Italy) (<https://www.raiplaysound.it/audio/2023/07/Radio3-Scienza-del-28072023-04566b22-789d-4360-8cc0-bcbdc1742a7e.html>)

2023: Nature Italy: The methane hunter. <https://www.nature.com/articles/d43978-023-00157-x> .

Outreach

2025: CICAP Festival, Padova “”Endless” resources as seen by a geologist”.

2025: BergamoScienza “Ecology of the mineral kingdom”.

2024: Festival della Scienza di Genova “C as carbon”.

2023: Festival della Scienza di Genova “Five stories about carbon from the beginning of the Universe to the current climate crisis” (<https://www.festivalscienza.it/i-protagonisti?letter=V>)

2023: CICAP festival, Padova Deep biosphere, the exploration of the hidden ecosystem (<https://www.cicapfest.it/programma/836>)

2023: Festival della Scienza di Genova “The World below our feet” (<https://www.festivalscienza.it/i-protagonisti?letter=V>)

TEACHING

2024- : Geosciences for the Energy Transition, BiGeA, Bologna University

2021- : Petrography, BiGeA, Bologna University

2020- : Applied Petrology, BiGeA, Bologna University

2018 - : Introduction to rocks and minerals, DST, Torino University.

2014 - 2017: Tectonics, Université Paris Diderot, Paris, France.

2016: Student camp, Western Alps, Université Paris Diderot, Paris, France.

2016 Geochemical cycling at convergent margins, Ecole Normale Supérieure, Paris, France.

2013: Petrology, Ecole Normale Supérieure, Paris, France.

2011: Student camp, Taiwan, University of Montpellier, France.

2009: Student camp, Corsica, University of Montpellier, France.