

Curriculum vitae et studiorum

Name: Veronica Stopponi

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Date of birth: 11 October 1994

Nationality: Italian

Education

- **Sapienza University of Rome, Faculty of Mathematical, Physical and Natural Sciences, Department of Earth Sciences (November 2018 - January 2022)**
PhD candidate in Earth Sciences, Curriculum in Geosciences
PhD project: “*Viscosity, atomic structure and ascent rate of volatile-bearing magmas at Earth’s upper mantle conditions*”. Tutor: Prof. V. Stagno.
Award date: 24/03/2022, prot. 18571.
- **Sapienza University of Rome, Faculty of Mathematical, Physical and Natural Sciences, Department of Earth Sciences (October 2016 - October 2018)**
M.Sc. Exploration Geology (LM-74). Final mark: 110/110 cum laude
Master’s thesis: “*Viscosity of CO₂-bearing melts in the Earth’s upper mantle: implications for the mobilization, ascent rate and emplacement over time*”. Supervisor: Prof. Vincenzo Stagno.
Award date: 25/10/2018, prot. 13359/403.
- **University College London (UCL), Faculty of Mathematical and Physical Sciences, Department of Earth Sciences (January 2017 - June 2017)**
Affiliate student for Erasmus+ programme.
- **Sapienza University of Rome, Faculty of Mathematical, Physical and Natural Sciences, Department of Earth Sciences (October 2013 - December 2016)**
B.Sc. in Geological Sciences (L-34). Final mark: 104/110
Bachelor’s thesis: “*Experimental viscosity measurements of carbonatitic magmas at pressures and temperatures of the Earth’s upper mantle*”. Supervisor: Prof. Vincenzo Stagno. Co-supervisor: Prof. Mario Gaeta.
Award date: 19/12/2016, prot. 12562/478.

Work experience

- **Consiglio Nazionale delle Ricerche -Istituto di Scienza, Tecnologia e Sostenibilità per lo Sviluppo dei Materiali Ceramici (September 2024 - present)**
Postdoctoral Research Fellow (CNR-ISSMC n° 073.24.03.07) – Prot. n. 299498 del 02/09/2024)
Project: “*Analisi spettroscopiche della struttura e delle proprietà fisico-chimiche di vetri e fusi vulcanici ad alta temperatura e pressione presso sincrotroni – progetto NANOVOLC*”, URT of CNR-ISSMC at Roma Tre University, Italy .
- **Consiglio Nazionale delle Ricerche - Istituto Officina dei Materiali (February 2023 - August 2024)**
Postdoctoral Research Fellow (n° IOM AR 019/2022 – Prot. IOM-CNR n. 3562 del 30/11/2022)
Project: “*Radiazione terahertz e infrarossa, fotoemissione, materiali topologici*” at SISSI-MAT beamline, CNR-IOM at Elettra Sincrotrone Trieste, Italy.

- **Consiglio Nazionale delle Ricerche - Istituto Officina dei Materiali (February 2022 - February 2023)**

Research Fellow (n° IOM AR 015/2021 TS - Prot. CNR-IOM n. 3012 del 22/11/2021)

Project: “*Infrared and Terahertz Spectroscopy at High Pressure with Synchrotron Light*” at SISSI-MAT beamline, CNR-IOM at Elettra Sincrotrone Trieste, Italy.

Fellowships and grants awarded

- Honorable mention by the European Mineralogical Union for the poster “*Mobility of volatile-bearing magmas in oxidized planetesimals: implications for CO₂ loss and storage during accretion*” presented at EMC2021 conference.
- SIMP grant to attend European Mineralogical Conference 2021. Cracow, Poland 29 August - 2 September 2021 (110€).
- FY2021 collaborative research for Premier Research Institute for Ultrahigh-pressure Sciences (PRIUS) project at Geodynamics Research Center, Ehime University, Japan.
- Research Dissemination Travel Award 2020 by PhD program in Earth Sciences, Sapienza University of Rome for outstanding presentation (1500€).
- FY2020 joint usage/research for Premier Research Institute for Ultrahigh-pressure Sciences (PRIUS) project at Geodynamics Research Center, Ehime University, Japan (economic support for flight ticket and accommodation).
- Initial Research Project 2020 by Sapienza University of Rome for the project “*Pressure-induced structural changes at the atomic scale in volatile-bearing glasses and melts determined by in-situ vibrational spectroscopy: implications for the transport of volatile-bearing magmas and the cycle of volatiles through the Earth's interior*” (1000€).
- Carla Cauletti Fellowship 2019 to attend the “XV School on Synchrotron Radiation “Gilberto Vlaic”: Fundamentals, Methods and Applications” held by the Italian Society of Synchrotron Radiation (SILS) in collaboration with ELETTRA-Sincrotrone Trieste, 16 - 27 September 2019 (250€).
- Cities partnerships Programme 2019-2020 funding for joint research and PhD student exchange UCL/Sapienza University Rome (total 5000£ for research group).
- Early Career Scientist Travel Support to attend EGU general assembly, 8 - 13 April 2018 Vienna, Austria (155€).
- SIMP grant to attend Third DCO Early Career Scientist Workshop to study Mt. Etna, Nicolosi, Italy, 28 August - 2 September 2017 (350€).
- Erasmus+ mobility grant (Faculty of Mathematical, Physical and Natural Sciences, Sapienza University of Rome A.A. 2016-2017) to study at University College London (UCL), UK, January 2017 - June 2017.

Conference abstracts

- *Mineralogical and spectroscopic investigation of bridgmanite-like inclusions trapped in sublithospheric diamonds: clues of back-transformation reactions and redox-driven diamond formation.* Marras G., Angellotti A., Chariton S., Rivers M., Piccirilli F., **Stopponi V.**, Macis S., Lupi S., Kaminsky F., Stagno V. AGU fall meeting 2023, San Francisco, CA, USA, 11 - 15 December 2023.
- *Extraordinary optical transmittance generation on Si₃N₄ membranes.* Paolozzi M.C, Macis S., A., Piccirilli F., **Stopponi V.**, Lupi S. LEES 2023, St. Pölten, Austria, 25 - 30 June 2023.

- *Mobility of volatile-bearing magmas in oxidised planetesimals: implications for CO₂ loss and storage during accretion.* **Stopponi V.**, Stagno, V., Sena, F., Marras, G., Codispoti, N., Greaux, S. Session T6-S1. EMC2021 (online), 29 August - 2 September 2021.
- *Experimental viscosity measurements of basaltic and picritic melts at pressures and temperatures of the Earth's upper mantle.* **Stopponi V.**, Bonechi, B., Hrubciak, R., Misiti, V., Perinelli, C., Gaeta, M., Nazzari, M., Scarlato, P., Stagno, V. Session T9-S2. EMC2021 (online), 29 August - 2 September 2021.
- *Atomic structure of CO₂-bearing melts along the carbonatite-basalt join at high pressure and temperature.* **Stopponi V.**, D'Arco, A., Hrubciak R., Kono Y., Lupi S., Manning C.E., Nazzari M., Poe B.T., Romano C., Stagno V. Session S-IT17. Japan Geoscience Union Meeting (online), 30 May - 6 June 2021.
- *Experimental constraints on mobility of volatile-bearing magmas and timing of melt-rock interaction in the Earth's upper mantle.* **Stopponi V.**, Stagno V., Kono Y., Hrubciak R., Misiti V., Scarlato P., Gaeta M. Session S7. Conferenza A. Rittmann, Catania, Italy, 12 - 14 February 2020.
- *Viscosity and atomic structure of CO₂-bearing magmas in the Earth's interior.* Stagno V., **Stopponi V.**, Kono Y., Romano C., Poe B.T., Lupi S., D'Arco A., Hrubciak R., Scarlato P. Bonechi B., Perinelli C., Gaeta M., Manning C.E. Session 02g. Goldschmidt conference, Barcelona, 18 - 23 August 2019.
- *Experimental measurements of viscosity and melt structure of CO₂-bearing melts at high pressure and temperature.* **Stopponi V.**, Stagno V., Kono Y., Manning C.E., Scarlato P., Irifune T. Session S20. Congresso congiunto SGI-SIMP Catania, Italy, 12 - 14 September 2018.
- *Viscosity and melt structure of CO₂-bearing melts in the Earth's upper mantle: implications for the mobilization, ascent rate and emplacement of carbonatite rocks over time.* **Stopponi V.**, Stagno V., Kono Y., Scarlato P., Irifune T. Geophysical Research Abstracts vol. 20 EGU2018-1109-1. Session GMPV3.2/GD2.5/TS2.7 European Geosciences Union General Assembly, Vienna, Austria, 8 - 13 April 2018.
- *Experimental viscosity measurements of carbonatitic magmas at pressures and temperatures of the Earth's upper mantle.* **Stopponi V.**, Stagno V., Kono Y. Third DCO Early Career Scientist Workshop to study Mt. Etna, Nicolosi, Italy, 28 August - 2 September 2017.
- *From carbon in meteorites to carbonatite rocks on the Earth's surface (keynote lecture).* Stagno V., Kono Y., Greaux S., Kebukawa Y., **Stopponi V.**, Scarlato P., Lustrino M., Irifune T. Session 05g Goldschmidt Conference, Paris, France, 13 - 18 August 2017.
- *An experimental study on the origin and emplacement of carbonate-rich melts through time.* Stagno V., Kono Y., **Stopponi V.**, Scarlato P., Lustrino M., Irifune T. Third DCO International Science Meeting, St. Andrews, Scotland, 23 - 25 March 2017.

Published peer-reviewed articles

- **Stopponi, V.**, D'Arco, A., Kono, Y., Piccirilli, F., Poe B.T., Lupi, S., Nazzari, M., Pappalardo, L., Marras, G., Zacchigna, M., Manning, C.E., Romano, C., Stagno, V., 2024. *In situ investigation of the atomic structure of carbonate-silicate liquids at high pressure-temperature and spectroscopic characterization of the recovered quenched glasses.* Chemical Geology 659, 122152.
- Macis, S., D'Arco, A., Mosesso, L., Paolozzi, M.C., Tofani, S., Tomarchio, L., Tummala, P.P., Ghomi, S., **Stopponi, V.**, Bonaventura, E., Massetti, C., Codegoni, D., Serafini, A., Targa, P., Zacchigna, M., Lamperti, A., Martella, C., Molle, A., Lupi, S., 2024. *Terahertz and Infrared Plasmon Polaritons in PtTe₂ Type-II Dirac Topological Semimetal.* Advanced Materials, 2400554.

- Macis, S., Paolozzi, M.C., D'Arco, A., Piccirilli, F., **Stopponi, V.**, Rossi, M., Moia, F., Toma, A., Lupi, S., 2023. *Extraordinary Optical Transmittance Generation on Si₃N₄ membranes*. *Nanoscale* 15, 16002-16009.
- **Stopponi, V.**, Piccirilli, F., D'Arco, A., Hrubciak, R., Lupi, S., Stagno, V., 2023. *In-situ investigation of the vibrational properties of H₂O-CO₂-bearing and dry K-rich basaltic glasses at high pressure by mid infrared spectroscopy*. *Journal of Non-Crystalline Solids* 602, 122085.
- Celata, B., Stagno, V., Capizzi, L., Bosi, F., Ballirano, P., D'Arco, A., **Stopponi, V.**, Lupi, S., Scarlato, P., Skogby, H., Andreozzi, G.B., 2023. *Schorl breakdown at upper mantle conditions: insights from an experimental study at 3.5 GPa*. *Lithos*, 438-439, 106999.
- Stagno, V., **Stopponi, V.**, Kono, Y., D'Arco, A., Lupi, S., Romano, C., Poe, B.T. Poe, Foustoukos, D., Scarlato, P., Manning, Craig E., 2020. *The viscosity and atomic structure of volatile-bearing mellitic melts at high pressure and temperature and the transport of deep carbon*. *Minerals* 10, 267.
- Stagno, V., Kono, Y., **Stopponi, V.**, Masotta, M., Scarlato, P., Manning, C.E., 2020. *The viscosity of carbonate-silicate transitional melts at Earth's upper mantle P-T conditions by in-situ falling-sphere technique*. In Manning, C.E., Lin, J-F., Mao, W. (Eds) *Carbon in Earth's Interior*, AGU monographs 249.
- Stagno V., **Stopponi V.**, Kono Y., Manning C.E., Irifune T., 2018. *Experimental determination of the viscosity of Na₂CO₃ melt between 1.7 and 4.6 GPa at 1200-1700 °C: Implications for the rheology of carbonatite magmas in the Earth's upper mantle*. *Chemical Geology* 501, 19-25.

Manuscripts in preparation/under review

- Di Pietro, P., Schmidt, J., Adhlakha, N., Chaluvadi, S.K., Mazzola, F., **Stopponi, V.**, Tomarchio, L., Orgiani, P., Lupi, S., Perucchi, A. *Impact of terahertz short pulses on the oxygen defect state in TiO_{2-x}*. Under review.
- Angellotti, A., Marras, G., Morana, M., Chariton, S., **Stopponi, V.**, Medeghini, L., Romano, C., Correale, A., Bindi, L., Kaminsky, F.V., Stagno, V. *A unique lithospheric origin for a diamond from the Rio Sorriso area, Brazil*. Under review.
- Marras, G., Lu, Y., **Stopponi, V.**, Tao, R., Lin, Y., Stagno, V. *High Pressure and Temperature investigation of silicic acid ± water: implications for the effect of silica on the H₂O_{liq}-iceVI-iceVII polymorphic transformation*. To be submitted.
- **Stopponi, V.**, et al. *Structural investigation of picritic glasses at ambient and high pressure by in situ FTIR microspectroscopy and multi-angle energy dispersive X-ray diffraction*. To be submitted.
- **Stopponi, V.**, et al. *Viscosity and structure of K-rich basaltic melts at high pressure-temperature and the role of volatiles*. To be submitted.
- **Stopponi, V.**, et al. *Structure and viscosity of picritic melts at high pressures and temperatures*. To be submitted.

Accepted and allocated proposals at synchrotron radiation facilities

- *Silicic acid at high pressure through mid-IR with possible geobarometric applications on natural gem-quality diamonds* (Proposal id: 20225431) - [SISSI Material Science branch, Elettra Sincrotrone Trieste \(Italy\)](#), principal investigator.
- *High Pressure IR measurement of Quasicrystals reflectivity and optical conductivity* (Proposal id: 20225357) - [SISSI Material Science branch, Elettra Sincrotrone Trieste \(Italy\)](#), principal investigator.

- *Atomic structure of volatile-rich melts at high pressure and temperature* (Proposal id: 74107) - [13ID-C GSECARS, APS, Argonne National Laboratory \(Lemont, IL, USA\)](#), principal investigator.
- *Viscosity and melt structure of volatile-bearing magmas at Earth's upper mantle conditions with implications for their ascent rate underneath active Italian volcanic systems* (Proposal id: 64371) - [16BM-B HPCAT, APS, Argonne National Laboratory \(Lemont, IL, USA\)](#), principal investigator.
- *In-situ spectroscopic investigation of cinnabar (HgS) stability at high pressure and temperature using the diamond anvil cell* (Proposal id: 20235493) - [SISSI Material Science branch, Elettra Sincrotrone Trieste \(Italy\)](#), participant.
- *Atomic structure of CO₂-bearing glasses at high pressure by mid infrared spectroscopy with implications for the rheology of carbonated magmas in the interior of Earth* (Proposal id: 20190568) – [SISSI Material Science branch, Elettra Sincrotrone Trieste \(Italy\)](#), participant.
- *Viscosity and mobility of Ti-rich volatile-bearing melts representative of metasomatic fluids in the Earth's upper mantle* (Proposal id: 73927) - [16BM-B HPCAT, APS, Argonne National Laboratory \(Lemont, IL, USA\)](#), participant.
- *Chemical characterization of fluid microinclusions trapped in a natural diamond: insight into redox-driven diamond forming processes* (Proposal id: 20210235) - [SISSI Material Science branch, Elettra Sincrotrone Trieste \(Italy\)](#), participant.
- *Rheology of CO₂-rich magmas at Earth's mantle conditions as function of SiO₂ and FeO content: implications for the carbon cycle and the geophysical observables* (Proposal id: 57402) - [16BM-B HPCAT, APS, Argonne National Laboratory \(Lemont, IL, USA\)](#), participant.
- *Bridgmanite to enstatite back-transformation kinetics investigated by vibrational spectroscopy: a potential geo-speedometer for the ascent rate of diamonds from the Earth's lower mantle* (Proposal id: 20210307) - [SISSI Material Science branch, Elettra Sincrotrone Trieste \(Italy\)](#), participant.
- *Infrared radiative study of Schottky Ni/Si junction* (Proposal id: 20220360) - [SISSI Material Science branch, Elettra Sincrotrone Trieste \(Italy\)](#), participant.

Short courses and workshops attendance

- *Spectroscopy Methods and Nanophotonics* (FIS/03 Sapienza University of Rome), October 2020 - December 2020.
- *Ferrous Metals* (Tooling U-SME), July 2020. [*Certificate of completion.*](#)
- *XV School on Synchrotron Radiation "Gilberto Vlaic": Fundamentals, Methods and Applications*, Italian Society of Synchrotron Radiation (SILS)-ELETTRA-Sincrotrone Trieste, Muggia, Italy, 16 - 27 September 2019. [*Certificate of attendance.*](#)
- *Melts, glasses and magmas* short course, Ludwig-Maximilians University, Munich, Germany, 3 - 7 June 2019. [*Certificate of attendance.*](#)
- *Magma Rheology, Transport and Volcanic Eruption*, Roma Tre University, Rome, Italy, 16 - 19 April 2019. [*Certificate of attendance.*](#)
- *High-Pressure Experimental Techniques and Applications to the Earth's Interior* DMG-Short Course hands-on training, Bayerisches Geoinstitut, University of Bayreuth, Germany 19 - 23 February 2018 [*Certificate of attendance and final exam result \(grade 1.0\).*](#)

- *International Diamond School 2018, 29 January - 2 February 2018, Brixen, Italy. Certificate of attendance. Poster presentation.*

Conference attendance

- European Mineralogical Conference 2021, 29 August - 2 September 2021, online. Oral and poster presentations.
- Japan Geoscience Union Meeting, 30 May - 6 June 2021, online. Oral presentation.
- Conferenza A. Rittmann, Catania, Italy, 12 - 14 February 2020. Oral presentation.
- SGI-SIMP Congress, Catania, Italy, 12 - 14 September 2018. Oral presentation.
- European Geosciences Union General Assembly, Vienna, Austria, 8 - 13 April 2018. Oral presentation.
- Third Deep Carbon Observatory Early Career Scientist Workshop to study Mt. Etna, Nicolosi, Italy, 28 August - 2 September 2017. Oral and poster presentation.

Language skills

Mother tongue: Italian

Other languages:

- English: Overall level (*): C2 (Erasmus+ OLS, 2017)
(*): Common European Framework of Reference (CEFR) level. Certification: Cambridge First Certificate of English, 2012
- Chinese: basic communication, understanding and use of simple words and phrases

Practical skills

Synthesis of materials/assembly preparation/sample preparation/use of:

- Paris-Edinburgh press (with combined use of synchrotron radiation)
- Quick Press
- Furnace
- Diamond anvil cell (with combined use of synchrotron radiation)
- Infrared spectrometer (with combined use of synchrotron radiation)
- Raman spectrometer
- Nano-infrared Scattering-Scanning Near Field Microscope s-SNOM (with combined use of synchrotron radiation)
- Electron microprobe analyser
- Scanning electron microscopy

Computer skills

- Image J/Fiji for viscosity calculations
- aEDXD for analysis of multi-angle energy dispersive X-ray diffraction patterns
- hpMCA
- LabSpec 6
- Opus
- Neascan
- REFit
- Peakfit
- WITec

Additional experience

- Peer-review activity for *Geophysical Research Letters*, *Minerals*, *Applied Sciences* journals.
- Scientific outreach activity within “Trieste Next 2023” CNR-IOM, Trieste, Italy, 24 September 2023.
- External supervisor of Master Thesis “Back-transformations reactions of MgSiO₃ bridgmanite at upper mantle conditions: a spectroscopic investigation with implications for the ascent rate of the sublithospheric diamonds”, A.A. 2020-2021.
- Training at CNR-IOM Materials Science branch of SISSI beamline, Elettra Sincrotrone Trieste (Italy). Infrared spectroscopy measurements of glasses at high pressure combined with the use of the diamond anvil cell. March 2020 - May 2020 (partly interrupted due to Covid pandemic).
- Co-supervisor of Bachelor Thesis “From planetesimals to Earth's accretion and the loss of primordial carbon”, A.A. 2019-2020.
- Internship at the National Institute of Geophysics and Volcanology (INGV) Rome, Italy. February 2018 - July 2018. Sample preparation and EMP analysis of carbonated glasses recovered from HP-HT experiments. Tutor: Dr. M. Nazzari
- Tutor for Mineralogy, Petrography and Cartography courses, Department of Earth Sciences, Sapienza University of Rome, Italy, October 2017 - February 2018.
- Scientific outreach activity within “Vulcano Informa” project, INGV visitor centre, Vulcano, Aeolian Islands, Italy, 27 July - 3 August 2017.