

### Curriculum vitae et studiorum

Name: **Veronica Stopponi**

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### 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
- **Sapienza University of Rome, Faculty of Mathematical, Physical and Natural Sciences, Department of Earth Sciences (October 2016 – October 2018)**  
M.Sc. Exploration Geology. Final mark: 110/110 cum laude  
Master’s thesis: *“Viscosity of CO<sub>2</sub>-bearing melts in the Earth’s upper mantle: implications for the mobilization, ascent rate and emplacement over time”*. Supervisor: Prof. Vincenzo Stagno
- **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. 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

### Work experience

- **Consiglio Nazionale delle Ricerche – Istituto Officina dei Materiali (February 2023 – present)**  
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 SSSI-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 CO<sub>2</sub> 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 (Prof. A.P. Jones-K. Laxton)/Sapienza University Rome (Prof. V. Stagno-V. Stopponi) (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€).

## 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., and Stagno V. AGU fall meeting 2023, San Francisco, CA, 11 - 15 December 2023.
- *Mobility of volatile-bearing magmas in oxidised planetesimals: implications for CO<sub>2</sub> loss and storage during accretion.*  
**Stopponi V.**, Stagno, V., Sena, F., Marras, G., Codispoti, N., Greaux, S. Session T6-S1. EMC2021, 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, 29 August - 2 September 2021.
- *Atomic structure of CO<sub>2</sub>-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, 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, 12 - 14 February 2020.
- *Viscosity and atomic structure of CO<sub>2</sub>-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 CO<sub>2</sub>-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 CO<sub>2</sub>-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**

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 Si<sub>3</sub>N<sub>4</sub> 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 H<sub>2</sub>O-CO<sub>2</sub>-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 melilititic 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 Na<sub>2</sub>CO<sub>3</sub> 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 under review/to be submitted**

Angellotti, A., Marras, G., Morana, M., Chariton, S., **Stopponi, V.**, Medeghini, L., Romano, C., Correale, A., Bindi, L., Kaminsky, F.V., Stagno, V. *Multi analytical investigation of lithospheric mineral inclusions in a diamond from the Rio Sorriso area, Brazil, reveals its possible metasomatic origin.* Submitted to European Journal of Mineralogy, under revision.

**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. *In situ investigation of the atomic structure of carbonate-silicate liquids at high pressure-temperature and spectroscopic characterization of the recovered quenched glasses.* Submitted to Chemical Geology, under revision.

**Stopponi, V.**, et al. *In situ structural investigation of picritic glasses at high pressure by micro-FTIR spectroscopy 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: 20225431) - 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.
- Atomic structure of CO<sub>2</sub>-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 CO<sub>2</sub>-rich magmas at Earth's mantle conditions as function of SiO<sub>2</sub> 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.
- DMG-Short Course hands-on training "High-Pressure Experimental Techniques and Applications to the Earth's Interior" 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. Oral and poster presentations.
- Japan Geoscience Union Meeting. 30 May - 6 June 2021. 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

## **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
- Electron microprobe analyser
- Scanning electron microscopy

## **Computer skills**

- Image J for viscosity calculations
- aEDXD for analysis of multi-angle energy dispersive X-ray diffraction spectra
- LabSpec 6
- Opus
- REFFit
- Peakfit

## **Additional experience**

- Scientific outreach activity within “Trieste Next 2023” CNR-IOM, Trieste, Italy, 24 September 2023.
- External supervisor of Master Thesis “Back-transformations reactions of  $\text{MgSiO}_3$  bridgmanite at upper mantle conditions: a spectroscopic investigation with implications for the ascent rate of the sublithospheric diamonds”, A.A. 2020-2021.
- Training at Materials Science branch of SSSI 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.