

CURRICULUM VITAE ET STUDIORUM

Prof. MAURIZIO PETRELLI (PhD)

PERSONAL DATA

name: Maurizio Petrelli
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RESUME

Professor of Petrology and Volcanology at the University of Perugia. His research advances quantitative igneous petrology and volcanology through analytical investigation of natural samples, numerical modelling, experimental approaches, and machine learning, with applications to magma dynamics, volcanic hazard, risk mitigation, and critical raw materials. Over the past decade, he has published more than 100 articles in leading international scientific journals and authored two books. Over the past few years, he has secured approximately €6 million in competitive funding. He conceived and currently coordinates the MSCA REALISE Doctoral Network and the REALI3SE Staff Exchange, two of the largest recent collaborative efforts in igneous petrology.

PROFESSIONAL APPOINTMENTS

Dec 2021 – Now University of Perugia: **Associate Professor**
Dec 2018 – 2021 University of Perugia: **Researcher, tenure track**
Aug 2015 – 2023 Istituto Nazionale di Fisica Nucleare (INFN): **Scientific Association**
Aug 2014 – Dec 2018 University of Perugia: **Researcher**
Nov 2009 – Aug 2014 Out of academia: a personal choice to take care of his three daughters: Anna and Caterina, the two just-born twin daughters (April 2009), and Agata (Nov 2005).
Nov 2005 – Nov 2009 University of Perugia: **Post Doc Fellow**
Dec 2003 – Jan 2004 ENEA: **Contract Researcher:** XIX Italian Antarctic Expedition

PUBLICATION METRICS

SCOPUS profile: <https://tinyurl.com/yhj2kwfb> – Google Scholar: <https://tinyurl.com/4rjkuker>

RECENT FUNDING ACHIEVEMENTS

- 2026 - 2030 *Project title:* "REALISE: Bridging igneous petrology and machine learning for science and society" - <https://doi.org/10.3030/101226206>
Funding Scheme: Marie Skłodowska-Curie Actions (MSCA) Doctoral Networks
Role: **Coordinator & Principal Investigator** – Budget: ~4.357.000 €
- 2026 - 2030 *Project title:* "REALI3SE: Bridging Igneous Petrology and Machine Learning through Intersectoral, Interdisciplinary, and Intercontinental Staff Exchanges"
Funding Scheme: Marie Skłodowska-Curie Actions (MSCA) Staff Exchange
Role: **Coordinator & Principal Investigator** – Budget: ~1.172.000 €
- 2024 - 2025 *Project title:* "VOLC-LAPSE: Exploring uncharted realms of volcanic eruptions using experimental petrology and ground deformation data"
Funding Scheme: MUR – PNRR – Return (Multi-risk science for resilient communities under a changing climate) extended partnership – Spoke 3 – Earthquake and volcanoes – Cascade Funding
Role: **Co-Principal Investigator** – Budget: 350.000 €
- 2024 - 2025 *Project title:* "AI-VISIO-LAB: Prototyping an Immersive Platform for Scientific Big Data Processing and Visualization in Astrophysics and Planetary Geology"
Funding Scheme: MUR – PNRR – ICSC (National Research Center for High-Performance Computing, Big Data, and Quantum Computing) – Spoke 3 – Astrophysics and Cosmos Observation – Cascade Funding
Role: **Principal Investigator** – Budget: ~200.000 €
- 2024 - 2025 *Project title:* "Civil Safety and Security for Society"
Funding Scheme: University of Perugia, base research funding
Role: **WP leader** – Total Budget: 450.000 € - WP Budget: 120.000 €
- 2024 - 2026 *Project title:* COMET - Consolidating the radiocarbon calibration over the 12-40 ka interval using paired ¹⁴C and ⁴⁰Ar/³⁹Ar dating of Mediterranean tephra
Funding Scheme: MUR-PRIN
Role: **Research Unit Leader** – Total Budget: 229.824 € – Unit Budget: ~100.000 €
- 2024 - 2026 *Project title:* Volcanoes for Cryosphere and Atmosphere (VolCA) - Volcano plumbing systems and eruptions in northern Victoria Land: implications for ice cover and atmospheric circulation
Funding Scheme: MUR-PNRA
Role: **Research Unit Leader** – Total Budget: ~300.000 € – Unit Budget: ~100.000 €
- 2023 - 2024 *Project title:* "Study of Multi-Hazard Scenarios for Natural Disasters in Central and Southern Italy and Sicily "
Funding Scheme: University of Perugia, base research funding
Role: **Principal Investigator** – Budget: ~95.000 €

EDUCATION

February 2006 – **Ph.D. in Earth Sciences** – University of Perugia, Italy

July 2001 – **Master's Degree in Geology** cum laude – University of Perugia, Italy

DEVELOPMENT OF ANALYTICAL FACILITIES

Nov 2002 – Now University of Perugia: **Development of the LA-ICP-MS analytical facility**

Since 2002, he has built and led the LA-ICP-MS laboratory at the University of Perugia, directing instrument development, analytical protocols, and the analysis of natural and experimental samples. The facility currently hosts two LA-ICP-MS systems and plays a key role in multiple scientific projects.

PROGRAMMING SKILLS

Proficient in Python programming. Author of two books on the topic, both with Springer: “Introduction to Python in Earth Science Data Analysis” (2021; <https://doi.org/10.1007/978-3-030-78055-5>) and “Machine Learning for Earth Sciences” (2023; <https://doi.org/10.1007/978-3-031-35114-3>)

AWARDS

2016 – Microsoft Azure Research Award (CRM:0518576), Microsoft Corporation.

2006 – *PhD Thesis Award*: Società Italiana di Mineralogia e Petrografia (SIMP).

2002 – *Master Thesis Award*: Associazione “per un sorriso Monica De Carlo” – ONLUS.

TEACHING ACTIVITY

2023 – now University of Perugia, Bachelor's degree in Geological Sciences. Teaching course in “Petrography” – 9 ECTS

2019 – now University of Perugia, Master's degree in Geological Sciences and Technologies. Teaching course in “Introduction to Experimental Petro-Volcanology” – 6 ECTS

2019 – now University of Perugia, Master's degree in Geological Sciences and Technologies. Teaching course in “Mathematical Methods in Earth Sciences” – 6 ECTS

2016 – now University of Perugia, PhD's level International Short Course on “Application of Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) to Earth Sciences” – 3 ECTS

2022 – now University of Perugia, PhD's level International Short Course on “Machine Learning for Data Analysis, and Image Classification in the Earth Sciences” – 3 ECTS

June 2025 Facultad de Ciencias Geológicas - Universidad Complutense de Madrid, Short course in “Introduction to Earth Science Data Modelling: from Descriptive Statistics to Machine Learning by Python Programming” – 18 hours

May 2023	Department of Petrology & Geochemistry, Eötvös University Budapest (ELTE), Short course in “Machine Learning in Earth Sciences” – 18 hours
Feb 2023	Leibniz Universität Hannover Institut für Mineralogie, Short course in “Machine Learning in Earth Sciences” – 18 hours
Aug 2022	Zhejiang University of Hangzhou, School of Earth Sciences, Short course in “Introduction to Earth Science Data Modelling: from Descriptive Statistics to Machine Learning by Python Programming” – 24 hours
Aug 2021	Zhejiang University of Hangzhou, School of Earth Sciences, Short course in “Introduction to Earth Science Data Modelling: from Descriptive Statistics to Machine Learning by Python Programming” – 24 hours
Feb 2020	Leibniz Universität Hannover Institut für Mineralogie, Short course in “Introduction to Python Programming in Earth Sciences” – 18 hours
Dec 2018	Department of Petrology & Geochemistry, Eötvös University Budapest (ELTE), Short course in “Introduction to Python Programming in Earth Sciences” – 18 hours
2017 – 2019	University of Perugia, Master’s degree in Geological Sciences and Technologies. Teaching course in “Data analysis and Data Interpretation in Geological Sciences” – 6 ECTS
2015 – 2016	University of Perugia, Master’s degree in Geological Sciences and Technologies. Teaching course in “Igneous Petrology” – 6 ECTS

SELECTED INVITED TALKS AND SEMINARS

- 2026 – Invited Scientific Workshops and Seminars (On-site) at the China University of Geosciences (Beijing), Zhejiang University (Hangzhou), and the University of Hong Kong (Hong Kong) on the applications of Machine Learning in igneous petrology and volcanology
- 2024 – Invited Talk at Goldschmidt2024 (On-site, Chicago). Session: “25 years of GEOROC and PetDB: the past, present and future of research with global geochemical databases”. Talk title: “Modern Igneous Petrology Needs More, High-Quality, Data: A Tribute to GEOROC and PetDB”
- 2024 – Invited Talk at the “Machine Learning in Solid Earth Geoscience Conference” organized by the Center for Nonlinear Studies at Los Alamos National Laboratory (On-site, Santa Fe). Talk title: “Machine Learning in Petrology and Volcanology”
- 2023 – Invited Scientific Seminars and Lectures at the China University of Geosciences (On-site, Beijing). Seminar title: “Machine Learning Applications in Petrology and Volcanology: State-of-the-Art and Perspectives”
- 2021 – Invited Scientific Seminar at the Zhejiang University of Hangzhou (virtual). Seminar title: “Machine Learning Application in Volcanology and Petrology”
- 2019 – Keynote Scientific Talk at Joint SIMP, SGI, and SOGEL Congress (On-site, Parma). Session: “New Developments and Challenges in Volcanology: Insights from Experimental, Analytical and Field Studies”. Talk title: “Volcanic plumbing system dynamics: unraveling rates and timescales of

magma transfer, storage, and eruption”

2018 – Invited Scientific Seminar at the Eötvös Loránd University (On-site, Budapest). Seminar title: “Applications of Machine Learning Techniques to Volcanological and Petrological Studies”

COMMUNITY INVOLVEMENT SINCE 2015

2023 – Present **Associate Editor**, Artificial Intelligence in Geosciences (Elsevier)

2023 – Present **Coordinator** of the “Disasters and Complex Crisis” Work Package, University of Perugia, University Plan for Collaborative and Cross-cutting Actions in Research

2022 – Present **Deputy for Research Activity**, Department of Physics and Geology, University of Perugia

2020 – Present **Associate Editor**, American Mineralogist (Min. Soc. of America)

2020 – Present **Member of the PhD Board**, PhD school in “Earth System and Global Changes”, Department of Physics and Geology, University of Perugia

2015 – Present **Member of the Department Council**, Department of Physics and Geology, University of Perugia

2021 – 2023 **Member of the Coordination Board**, PhD school in “Earth System and Global Changes”, Department of Physics and Geology, University of Perugia

2015 – 2019 **Member of the PhD Board**, PhD school in “PhD Science and Technology for Physics and Geology”, Department of Physics and Geology, University of Perugia

2015 – 2019 **Guest Associate Editor**, American Mineralogist, Special Collection “Dynamics of Magmatic Processes”

Dec 2023 **Organizer** of a thematic session at the AGU Fall Meeting in San Francisco, USA: “Data-Driven Science Applied to Magmatic and Volcanic Systems”

Jul 2022 **Organizer** of a thematic session at the Goldschmidt 2022 in Honolulu, USA: “From source to the surface: Characterizing magma generation and ascent processes from the rock record”

Jun 2020 **Organizer** of a thematic session at the Goldschmidt 2020 (Virtual): “Constraining Petrological and Geochemical Variations in Magmas to Capture the Evolution of Volcanoes over Space and Time”

May 2020 **Organizer** of a thematic session at the EGU General Assembly in Virtual mode: “The Dynamics of Magmatic Plumbing System”

Apr 2019 **Organizer** of a thematic session at the EGU General Assembly in Vienna, Austria: “Rates, timescales and mechanisms of magmatic and volcanic processes: from mantle source to emplacement or eruption”

Dec 2018 **Organizer** of a thematic session at the AGU Fall Meeting in Washington, DC, USA: “Origin and Timescales of Magmatic Systems: Discussing Ages, Rates, Transport, and Storage Processes of Magmas from the Source to Emplacement or Eruption”

Dec 2017 **Organizer** of a thematic session at the AGU Fall Meeting in New Orleans, USA: “Processes of Magma Crystallization from Depth to Surface”

- Nov 2016 **Organizer** of a thematic session at the Cities on Volcanoes 9 in Puerto Varas, Chile: “Understanding volcanic dynamics and related time scales: coupling volcanological, petrological, and geophysical data”
- Apr 2016 **Organizer** of a thematic session at the 2016 European Geosciences Union General Assembly in Vienna, Austria: “Mind the Gap! Techniques to overcome multi-scale issues in geological and geomorphic processes”
- Aug 2015 **Organizer** of a thematic session at the 2015 Goldschmidt conference in Prague, Czech Republic: “Dynamics of Magmatic Processes: From Magma Mixing to Crystal Residence Time”

SUPERVISION AND MENTORING

- B.Sc. and M.Sc. He has supervised and mentored numerous B.Sc. and M.Sc. students in research projects focused on geochemistry, petrology, and magma dynamics. His most recent supervisees include Augusto Fabbroni, Enrico Scricciolo, Benedetta Calvi, Halyl Soltanmammedov, Manoj Yadav Golla, Giulia Fisauli, and Samuele Ottaviani.
- Ph.D.. He has supervised and mentored several Ph.D. students, including his last doctoral candidates, Giulia Fisauli and Marco Baroni.
- Post Docs His supervision has also extended to postdoctoral researchers, including Alberto Caracciolo, Alessandro Musu, and Mónica Ágreda López.

COOPERATION PARTNERS

EU cooperation partners outside Italy

- Leibniz Universität Hannover (DE), Institut für Mineralogie: *Prof. Francois Holts, Prof. Monika Sester*
- University of Geneva (CH), Department of Earth Sciences: *Prof. Luca Caricchi*
- Eötvös Loránd University of Budapest (HU), Department of Petrology and Geology: *Prof. Szabolcs Harangi, Dr. Réka Lukács*
- KU Leuven (BE), Faculty of Science: *Prof. Olivier Namur, Prof. Anouk Borst*
- University of Orleans (FR), Institut des Sciences de la Terre: *Prof. Fabrice Gaillard, Prof. Kennet Koga, Dr. Giada Iacono Marziano*
- University of Bonn (DE) Faculty of Mathematics and Natural Sciences: *Prof. Georg Zellmer*
- Sorbonne Université (FR): *Prof. Balcone-Boissard Hèléne, Prof. Paola Cinnella*
- Institut de physique du globe de Paris (FR): *Prof. Razvan Caracas*

Extra-EU cooperation partners

- The University of Queensland (AU), School of the Environment: *Prof. Teresa Ubide*
- China University of Geosciences of Beijing (CN), Frontiers Science Center for Deep-time Digital Earth, School of Earth Sciences and Resource: *Prof. Kunfeng Qiu*
- School of Earth Sciences, Zhejiang University, China: *Prof. J. Zhangzhou*

Cooperation partners in Italy

- University of Pisa (IT), Department of Earth Sciences: *Prof. Sergio Rocchi*
- National Institute of Geophysics and Volcanology (IT): *Dr. Chiara Montagna, Dr. Claudia D’Oriano, Dr. Ilenia Arienzo, Dr. Alessio Di Roberto, Dr. Paola del Carlo, Dr. Giuseppe Re, Dr. Laura Spina, Dr. Giuseppe La Spina*
- University of Camerino, Department of Earth Sciences (IT): *Prof. Fabio Arzilli*
- University of Naples Federico II, Department of Earth Sciences (IT): *Prof. Massimo D’Antonio, Prof. Daniele Morgavi, Prof. Paola Petrosino*
- University of Milano-Bicocca, Department of Earth and Environmental Sciences: *Prof. Alessandro Fabbrizio*
- University of Parma (IT), Department of Chemical Sciences, Life Sciences, and Environmental Sustainability: *Prof. Sabrina Nazzareni*
- University of Trieste, Department of Mathematics, Informatics and Geosciences: *Prof. Davide Lenaz*

LIST OF BOOKS

- 1) **Petrelli M.** (2023). *Machine Learning for Earth Sciences*. Springer. DOI: 10.1007/978-3-031-35114-3
- 2) **Petrelli M.** (2021). *Introduction to Python in Earth Science Data Analysis*. Springer. DOI: 10.1007/978-3-030-78055-5. This book has also been translated into Chinese (ISBN: 9787115602589)

LIST OF PUBLICATIONS

- 1) **Petrelli M.** (2024). Machine Learning in Petrology: State-of-the-Art and Future Perspectives. *Journal of Petrology*, DOI: 10.1093/petrology/egae036
- 2) Ágreda-López M., Parodi V., Musu A., Jorgenson C., Carfi A., Mastrogiovanni F., Caricchi L., Perugini D., **Petrelli M.** (2024). Enhancing machine learning thermobarometry for clinopyroxene-bearing magmas. *Computers & Geosciences*, DOI: 10.1016/j.cageo.2024.105707
- 3) Lukács R., Guillong M., Szepesi J., Szymanowski D., Portnyagin M., Józsa S., Bachmann O., **Petrelli M.**, Müller S., Schiller D., Fodor L., Chelle-Michou C., Harangi S. (2024). Mid-Miocene silicic explosive volcanism of the Tokaj Mts., eastern-central Europe: Eruption chronology, geochemical fingerprints and petrogenesis. *Gondwana Research*, DOI: 10.1016/j.gr.2024.01.004
- 4) Vetere F., Merseburger S., Pisello A., Perugini D., Viti C., **Petrelli M.**, Musu A., Almeev R., Caricchi L., Iezzi G., Cassetta M., Holtz F. (2024). The role of deformation on the early crystallization and rheology of basaltic liquids. *Earth and Planetary Science Letters*, DOI: 10.1016/j.epsl.2024.118934
- 5) Rocchi., Tomassini A., Masotta M., **Petrelli M.**, Ágreda López M., Rocchi S. (2024). Textures and Chemistry of Crystal Cargo of the Pleiades Volcanic Field, Antarctica: Potential Influence of Ice Load in Modulating the Plumbing System. *Journal of Petrology*, DOI: 10.1093/petrology/egae027
- 6) Pelullo C., Arienzo I., D’Antonio M., Giaccio B., Iovine R.S., Leicher N., Palladino D.M., **Petrelli M.**,

- Petrosino P., Russo Ermolli E., Sottili G., Totaro F., Zanchetta G. (2024). Explosive volcanic activity in Central-Southern Italy during Middle Pleistocene: A tale from tephra layers of the Acerno basin. *Quaternary Science Advances*, DOI: 10.1016/j.qsa.2024.100186
- 7) Petrocchia A., Carosi R., Montomoli C., Iaccarino S., Forshaw J.B., **Petrelli M.** (2024). Transtension or transpression? Tectono-metamorphic constraints on the formation of the Monte Grighini dome (Sardinia, Italy) and implications for the Southern European Variscan belt. *International Journal of Earth Sciences*, DOI: 10.1007/s00531-024-02410-0
 - 8) Mohanty S., Papadopoulos A., **Petrelli M.**, Papadopoulou L., Sengupta D. (2023). Geochemical Studies of Detrital Zircon Grains from the River Banks and Beach Placers of Coastal Odisha, India. *Minerals*, DOI: 10.3390/min13020192
 - 9) Bonechi B., Fabbrizio A., Perinelli C., Gaeta M., **Petrelli M.** (2023). Experimental investigation of trace element partitioning between amphibole and alkali basaltic melt: Toward a more general partitioning model with implications for amphibole fractionation at deep crustal levels. *American Mineralogist*, DOI: 10.2138/am-2022-8536
 - 10) Capriotti S., Medeghini L., Mignardi S., **Petrelli M.**, Botticelli M. (2023). The blue road: Provenance study of azurite samples from historical locations through the analysis of minor and trace elements. *Heliyon*, DOI: 10.1016/j.heliyon.2023.e19099
 - 11) Di Roberto A., Re G., Scateni B., **Petrelli M.**, Tesi T., Capotondi L., Morigi C., Galli G., Colizza E., Melis R., Torricella F., Giordano P., Giglio F., Gallerani A., Gariboldi K. (2023). Cryptotephra in the marine sediment record of the Edisto Inlet, Ross Sea: Implications for the volcanology and tephrochronology of northern Victoria Land, Antarctica. *Quaternary Science Advances*, DOI: 10.1016/j.qsa.2023.100079
 - 12) Musu A., Corsaro R.A., Higgins O., Jorgenson C., **Petrelli M.**, Caricchi L. (2023). The magmatic evolution of South-East Crater (Mt. Etna) during the February–April 2021 sequence of lava fountains from a mineral chemistry perspective. *Bulletin of Volcanology*, DOI: 10.1007/s00445-023-01643-2
 - 13) Razum I., Ilijanić N., **Petrelli M.**, Pawlowsky-Glahn V., Miko S., Moska P., Giaccio B. (2023). Statistically coherent approach involving log-ratio transformation of geochemical data enabled tephra correlations of two late Pleistocene tephra from the eastern Adriatic shelf. *Quaternary Geochronology*, DOI: 10.1016/j.quageo.2022.101416
 - 14) Carvalho B.B., Bartoli O., Cesare B., Satish-Kumar M., **Petrelli M.**, Kawakami T., Hokada T., Gilio M. (2023). Revealing the link between A-type granites and hottest melts from residual metasedimentary crust. *Geology*, DOI: 10.1130/G51097.1
 - 15) Gianola O., Costa B., Ferri F., Gilio M., **Petrelli M.**, Murri M., Barbaro A., Alvaro M., Rodríguez-Vargas A., Poli S., Cesare B. (2023). Melt Inclusions in Arclogitic Xenoliths Constrain the Genesis of the Lower Continental Arc Crust beneath the Northern Volcanic Zone, Colombia. *Journal of Petrology*, DOI:

10.1093/petrology/egad038

- 16) Romero J.E., Morgado E., Pisello A., Boschetty F., **Petrelli M.**, Cáceres F., Alam M.A., Polacci M., Palma J.L., Arzilli F., Vera F., Gutiérrez R., Morgavi D. (2023). Pre-eruptive Conditions of the 3 March 2015 Lava Fountain of Villarrica Volcano (Southern Andes). *Bulletin of Volcanology*, DOI: 10.1007/s00445-022-01621-0
- 17) **Petrelli M.**, Ágreda López M., Pisello A., Perugini D. (2023). Pre-eruptive dynamics at the Campi Flegrei Caldera: from evidence of magma mixing to timescales estimates. *Earth, Planets and Space*, DOI: 10.1186/s40623-023-01765-z
- 18) Wieser P.E., **Petrelli M.**, Lubbers J., Wieser E., Özyaydin S., Kent A.J.R., Till C.B. (2022). Thermobar: An open-source Python3 tool for thermobarometry and hygrometry. *Volcanica*, DOI: 10.30909/vol.05.02.349384
- 19) Marchesini B., Carminati E., Aldega L., Mirabella F., **Petrelli M.**, Caracausi A., Barchi M.R. (2022). Chemical interaction driven by deep fluids in the damage zone of a seismogenic carbonate fault. *Journal of Structural Geology*, DOI: 10.1016/j.jsg.2022.104668
- 20) Genge M.C., Zattin M., Witt C., Derycke A., Gautheron C., Mazzoli S., **Petrelli M.**, Cogné N., Bosch D., Bruguier O., Marquez M. (2022). Denudation of the Cordillera and intraplate belt in central Patagonia inferred by detrital multi-dating of foreland basin deposits. *Sedimentary Geology*, DOI: 10.1016/j.se-dgeo.2022.106237
- 21) Nazzareni S., Morgavi D., **Petrelli M.**, Bartoli O., Perugini D. (2022). Magmatic Processes at Euganean Hills (Veneto Volcanic Province, Italy): Clinopyroxene Investigation to Unravel Magmatic Interactions. *Geosciences (Switzerland)*, DOI: 10.3390/geosciences12030108
- 22) Rooyackers S.M., Stix J., Berlo K., Morgavi D., **Petrelli M.**, Rusiecka M.K., Barker S.J., Charlier B.L.A., Neave D.A., Vetere F.P., Perugini D. (2022). Rifting and recharge as triggers of the mixed basalt–rhyolite Halarauður ignimbrite eruption (Krafla, Iceland). *Contributions to Mineralogy and Petrology*, DOI: 10.1007/s00410-021-01881-7
- 23) Lenaz D., Velicogna M., **Petrelli M.**, Schmitz B. (2022). The Österplana Fossil Meteorites and... What Else? Terrestrial Cr-Spinels and Zircons in the Ordovician Limestones of the Thorsberg Quarry (Sweden). *Geosciences (Switzerland)*, DOI: 10.3390/geosciences12020054
- 24) Monaco L., Leicher N., Palladino D.M., Arienzo I., Marra F., **Petrelli M.**, Nomade S., Pereira A., Sottili G., Conticelli S., D'Antonio M., Fabbrizio A., Jicha B.R., Mannella G., Petrosino P., Regattieri E., Tzedakis P.C., Wagner B., Zanchetta G., Giaccio B. (2022). The Fucino 250–170 ka tephra record: New insights on peri-Tyrrhenian explosive volcanism, central mediterranean tephrochronology, and timing of the MIS 8-6 climate variability. *Quaternary Science Reviews*, DOI: 10.1016/j.quascirev.2022.107797
- 25) Morgavi D., Laumonier M., **Petrelli M.**, Dingwell D.B. (2022). Decrypting Magma Mixing in Igneous

Systems. *Reviews in Mineralogy and Geochemistry*, DOI: 10.2138/rmg.2022.87.13

- 26) Landi P., D'Oriano C., **Petrelli M.**, Nazzari M., Andronico D. (2022). Inferences on the magmatic plumbing system at Stromboli volcano (Italy) from trace element geochemistry of matrix glasses and minerals in different types of explosive eruptions. *Contributions to Mineralogy and Petrology*, DOI: 10.1007/s00410-022-01962-1
- 27) González-García D., **Petrelli M.**, Perugini D., Giordano D., Vasseur J., Paredes-Mariño J., Marti J., Dingwell D.B. (2022). Pre-Eruptive Conditions and Dynamics Recorded in Banded Pumices from the El Abrigo Caldera-Forming Eruption (Tenerife, Canary Islands). *Journal of Petrology*, DOI: 10.1093/petrology/egac009
- 28) Ricci L., **Petrelli M.**, Frondini F., Zucchini A., Comodi P., Bisciotti A., Vescovi D., Trippella O. (2022). The Achievements of the RockStar Group (Perugia) on Astrophysical Modelling and Pallasite Geochemistry. *Universe*, DOI: 10.3390/universe8030156
- 29) Jorgenson C., Higgins O., **Petrelli M.**, Bégué F., Caricchi L. (2022). A Machine Learning-Based Approach to Clinopyroxene Thermobarometry: Model Optimization and Distribution for Use in Earth Sciences. *Journal of Geophysical Research: Solid Earth*, DOI: 10.1029/2021JB022904
- 30) Gençoğlu Korkmaz G., Kurt H., Asan K., **Petrelli M.**, Leybourne M. (2022). The role of peridotite and pyroxenite melts in the origin of the Karapınar basalts, Cappadocia Volcanic Province, Central Anatolia. *Journal of Geosciences (Czech Republic)*, DOI: 10.3190/jgeosci.362
- 31) Bamber E.C., La Spina G., Arzilli F., de' Michieli Vitturi M., Polacci M., Hartley M.E., **Petrelli M.**, Fellores J., Burton M. (2022). Basaltic Plinian eruptions at Las Sierras-Masaya volcano driven by cool storage of crystal-rich magmas. *Communications Earth and Environment*, DOI: 10.1038/s43247-022-00585-5
- 32) Venier M., Ziberna L., Princivalle F., **Petrelli M.**, Lughì V., Logvinova A., Sobolev N.V., Turco G., Lenaz D. (2022). Trace Elements in Chromian Spinel from Four Siberian Kimberlites. *Minerals*, DOI: 10.3390/min12111439
- 33) Di Roberto A., Scateni B., Di Vincenzo G., **Petrelli M.**, Fisauli G., Barker S.J., Del Carlo P., Colleoni F., Kulhanek D.K., McKay R., De Santis L., The I. (2021). Tephrochronology and Provenance of an Early Pleistocene (Calabrian) Tephra From IODP Expedition 374 Site U1524, Ross Sea (Antarctica). *Geochemistry, Geophysics, Geosystems*, DOI: 10.1029/2021GC009739
- 34) Vetere F., **Petrelli M.**, Perugini D., Haselbach S., Morgavi D., Pisello A., Iezzi G., Holtz F. (2021). Rheological evolution of eruptible Basaltic-Andesite Magmas under dynamic conditions: The importance of plagioclase growth rates. *Journal of Volcanology and Geothermal Research*, DOI: 10.1016/j.jvolgeores.2021.107411
- 35) Viccaro M., Cannata A., Cannavò F., De Rosa R., Giuffrida M., Nicotra E., **Petrelli M.**, Sacco G. (2021).

- Shallow conduit dynamics fuel the unexpected paroxysms of Stromboli volcano during the summer 2019. *Scientific Reports*, DOI: 10.1038/s41598-020-79558-7
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Sincerely

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