

CURRICULUM VITAE

EUROPEAN FORMAT

PERSONAL INFORMATION

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Nationality	Italian
Place and Date of birth	Napoli, 13/12/1979

WORK EXPERIENCE

Actual position	PROFESSOR OF GEOCHEMISTRY AT THE DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES – UNIVERSITY OF PAVIA
November 2011 – July 2022:	RESEARCHER AT THE NATIONAL RESEARCH COUNCIL OF ITALY – INSTITUTE OF GEOSCIENCES AND EARTH RESOURCES (IGG-CNR) MANAGER OF THE LA-ICP-MS AND SEM LABORATORIES AT THE IGG-CNR OF PAVIA
Academic positions	2013-2021 Adjunct Professor at the Earth and Environmental Sciences Department of the Pavia University: 2021-2022 Petrology and geology of the Alps – 3 CFU 2013-2021 Laboratory of petrography - 3CFU/year Since 2017 Member board of the PhD program in Earth and Environmental Sciences (University of Pavia)
Post-doc experiences	July 2010 - October 2011 research grant at the National Research Council of Italy, Institute of Geosciences and Earth Resources - Pisa, on the topic: “Petrographic, geochemical and isotopic analyses of ophiolites and their alteration products”. Supervisor: Dr. Tonarini S. March 2010 - June 2010: research grant at the Dipartimento di Scienze della Terra e Geologico-Ambientali - Bologna, on the topic: “Crustal melting”. Supervisor: Dr. Braga R. June 2008 - February 2010: research grant at the National Research Council of Italy, Institute of Geosciences and Earth

Resources - Pavia, on the topic: "U-Th-Pb isotopic characterisation by LA-ICP-MS of accessory minerals in magmatic and metamorphic systems". Supervisor: Dr. Tiepolo M.

EDUCATION AND TRAINING

March 2008: *Ph.D. in Geological Sciences. Thesis title: Low-Pressure Hercynian metamorphism: tectono-metamorphic evolution of the Mandatoriccio complex (Sila Massif - Calabria). Main tutor: Prof. Alessandro Rottura (Bologna University).*

2005 - 2008: *Ph.D. student at the Department of the Earth and Geological-Environmental Sciences of the Bologna University (Italy).*

July 2004: Degree on geological sciences (cum laude). Thesis title: Structural and kinematics analyses of the eastern sector of the Curinga-Girifalco Shear Zone (northern Serre - Calabria): geodynamic implications. Supervisor: Prof. Giacomo Prosser (Basilicata University) and Dr. Erwan Gueguen (National Research Council of Italy).

RESEARCH INTERESTS

Since the beginning of my research activity I was attracted by topics dealing with metamorphic and magmatic petrology. During the master and PhD theses I always followed a multidisciplinary approach and I developed skills at determining the petrological and geochronological evolution of microstructures and/or rock microdomains. Thanks to these abilities I started my post-doc activity at the LA-ICP-MS laboratory of the IGG-CNR of Pavia as the researcher in charge for geochronological analyses of accessory minerals (zircon and monazite) directly on rock thin sections. The ability to date and interpret the geochronological data in the textural sites gave to me the opportunity to collaborate with several Italian and foreigner researchers on different geological contexts. Recently I developed the U-Pb methods for dating other accessory minerals such as rutile and titanite. Since the beginning I always combined the isotopic analyses with trace element characterization of accessory minerals by LA-ICP-MS or EMPA. The chemical composition of accessory minerals can provide useful petrological information about the protolith, the temperature history and the mineral assemblages evolution. Recently, thanks to the installation in the LAICPMS lab of Pavia of a new Mass Spectrometer (Triple Quadrupole 8900 Agilent) with high resolution and sensitivity, I developed analytical methods allowing to determine both U-(Th)-Pb isotopes and some trace elements on the same laser spot (the so called petro-chronology).

In the last years I dedicated large part of my research activities on the petrological and geochemical evolution of rocks at the crust-mantle boundary. In particular I focused on the magmatic, metasomatic and metamorphic processes occurring at this important discontinuity. Studying the high temperature environment at the crust-mantle boundary I was attracted by the deformation-induced geochemical changes at both the mineral

and rock scales. In particular, I'm studying the geochemical perturbation (isotopes and trace elements) of minerals in rocks affected by high-temperature deformation. On these topics I supervised several bachelor/master students as well as PhD students. The deformation-induced geochemical variations are also studied at rock sample scale by analysing and interpreting the major (XRF analyses) and trace element composition (ICP-MS analyses) of bulk rocks. The deformation-induced geochemical variations have been studied in both sub-solidus and supra-solidus conditions. The melt fluxing through deforming lower crustal/mantle rocks can severely change the chemistry without apparent microstructural evidences. On these topics I was involved in different research projects with colleagues from Australia, UK and France. All these skills allowed me to be involved, as participant or adjunct investigator, in several research projects.

FIELD WORK EXPERIENCES

Since the beginning of my research activities I was involved in several field trips with the aim of mapping and sampling basement rocks. I was involved in field works with Italian and foreigner colleagues in several remote localities, such as the north (2008) and southern Iran (2017) and Himalaya (Kali Gandaki valley; 2010), in the Alps (Adamello batholith; Cima di Gagnone; Ivrea-Verbano Zone) and other basement rocks exposed in Italy (Calabria, Tuscany, Elba Island and Sardinia). All the field works were framed and funded by national and international projects. My contribution to the field work was fundamental in order to study the field relationships among rock types and generally I had the role to select the more appropriate samples for the geochemical (bulk chemistry and isotopes) and/or geochronological purposes.

FIELD LEADERSHIP

- Field leader for the field trip entitled "From the upper to the lower continental crust exposed in Calabria", organized in the frame of the 86° Congresso Nazionale della Società Geologica Italiana - Arcavacata di Rende (CS) 2012. The field book was published on GFT - Geological Field Trips - Servizio Geologico d'Italia - ISPRA e della Società Geologica Italiana Geol.F.Trips, Vol. 5 No.1.2 (2013), 49 pp., 26 figs., 2 tabb. (DOI 10.3301/GFT.2013.02) dal 18-09-2012 al 20-09-2012;
- Field leader for the field trip entitled "Emplacement mechanisms of mantle peridotites at crustal levels and multi-stage igneous evolution of the continental crust." Ivrea-Verbano Zone, 28th-30th June 2018. The field trip was organized in the frame of the 3rd European Mantle Workshop (EMAW).

NATIONAL AND INTERNATIONAL RESEARCH PROJECTS

ANR-JCJC project (French National Research Agency- Jeunes Chercheuses - Jeunes Chercheurs Program) 2021 - Using underexplored accessory minerals to treat the AMNESIA of the

Earth's continental crust history – 4 years project - Principal Investigator: Emilie Bruand (CNRS-France). Role: participant

International Continental Drilling Project 2020 – Drilling the Ivrea-Verbano Zone (DIVE). Principal Investigator: Muntener O., Pistone M., Ziberna L., Zanetti A. Role: Co-operating Principal Investigator.

ASI-INAF n2018-16-HH.O. - “Olivine-bearing ungrouped achondrites and their parent bodies in the Solar System” (OL-BODIES) -Principal Investigator: Carli C. Role: Associate Investigator of the Pavia CNR Research Unit (12k euro).

MIUR - PNRA2018 - Chemical and physical characteristics of orthopyroxene-dominated ultramafic lens in the lithospheric mantle of the West Antarctic system. Principal Investigator Alberto Zanetti. Role: participant.

European Plate Observing System (EPOS) European Project – Implementation Phase (IP) H2020-EU.1.4.1.1 Grant agreement 676564 - 01-01-2015 / 31-12-2019. Role: participant

European Plate Observing System (EPOS) European Project – FP7 (Infrastructures, Specific Programme Capacities: Research Infrastructures) - H2020 Grant agreement 262229. 01-01-2017 - today. Role: participant

European Network of Observatories and Research Infrastructures for Volcanology” (EUROVOLC) - Grant Agreement 731070 — EUROVOLC — H2020- INFRAIA-2016-2017/H2020-INFRAIA-2017-1-two-stage. 01-01-2017 – today. Role: Participant.

MIUR PRIN 2017 (20178LPCPW) “Micro to Macro: How to unravel the nature of the Large Magmatic Events”. Principal Investigator, Massimo Coltorti (Ferrara University). Role: Associate Investigator of the Pavia CNR Research Unit (94k euro).

MIUR PRIN 2015 (20158A9CBM) “Geochemical and isotopic budget of highly metasomatised sub-continental mantle in the Africa and Europe geodynamic systems: Modern and fossil analogues.” Principal Investigator, Sandro Conticelli (Firenze University). Role: participant.

TEACHING & SUPERVISING STUDENT SUPERVISION

(Co)supervisor of 28 bachelor/master theses of students from Pavia, Pisa, Bari. The theses are mainly dealing with petrology, geochronology and geochemistry of basement rocks. The full list of theses is reported in Appendix 1.

(Co)supervisor of the following Phd students:

- Chinedu Ibe (DISTEGEO-UniBa) 2020-2023: Exposed young granites, testimony of fast exhumation process

- Stefania Corvò (DSTA-UniPv) 2018-2021: Petrological, geochemical and geochronological variations at the lithological interface
- Jonathan K. Munnikhuis (Macquarie University - Sydney Australia) 2017-2020: The metasomatic history of the Finero Mafic Complex, Ivrea-Verbano Zone, Italy: melt migration, melt-rock interaction, and effects on geochronology

POST-DOC SUPERVISION

(Co)Supervisor of 2 postdoctoral researchers:

- Mattia Bonazzi: Caratterizzazione di fasi minerali in rocce e meteoriti mediante spettroscopia RAMAN e LAICPMS: gli elementi del gruppo del platino (PGE); one year post-doc;
- Matteo Simonetti: Analisi geochemica, geocronologica e microstrutturale di zone di taglio di alta temperatura in crosta continentale profonda. one year post-doc.

SEMINAR FOR BACHELOR/MASTER STUDENTS AS INVITED LECTURE

- Linking geochronology and microstructures: examples from the Sila Massif (Calabria) and the Ulten Zone (Alps).

16th December 2010 – Dipartimento di Scienze della Terra of Cosenza; 2 hours.

- Complexities related to P-T and age determinations in basement rocks: examples from the Sila Massif (Calabria) and the Ulten Zone (Alps).

20th June 2011 – Dipartimento di Geoscienze of Padova 2 hours

- U-Th-Pb dating of accessory minerals by LA-ICP-MS: examples from the Sila Massif (Calabria) and the Ulten Zone (Alps);

- Exploring the biosphere by LA-ICP-MS how geochemistry supports other sciences.

February 2014 – Dipartimento di Scienze of Potenza 2hours

- U-Th-Pb dating of accessory minerals by LA-ICP-MS: principles and applications;

- Exploring the biosphere by LA-ICP-MS how geochemistry supports other sciences

19th May 2016 – Dipartimento di Fisica e Scienze della Terra of Ferrara; 2 hours.

- The evolution of the lithosphere: U-Th-Pb dating of accessory minerals by LA-ICP-MS.

12th October 2016 – Dipartimento di Scienze della Terra e dell'Ambiente of Pavia; 2 hours.

- Isotope geochemistry: a brief introduction to the analytical techniques;

- Climate change/paleoclimate & geochronology

06th November 2017 – Dipartimento di Scienze della Terra e dell'Ambiente of Pavia; 2 hours.

- Petrochronology: how and when the continental crust evolves.

18th December 2020 – Dipartimento di Scienze della Terra e
Geoambientali of Bari. 2 hours (webinar).

**ORGANIZER AND/OR
LECTURER AT NATIONAL
AND INTERNATIONAL
WINTER/SUMMER SCHOOLS**

- Organizer of the international summer school for PhD and researchers entitled: Zircon - a key mineral for dating and tracking geological processes. The school was funded by CARIPLO and the Earth and Environmental Sciences PhD Program of Pavia. 08-13 September 2013.
- Organizer and field leader of the multidisciplinary field trip at the Central Alps (Cima di Gagnone) for PhD and master students. The field trip has been promoted and funded by the Earth and Environmental Sciences PhD Program of Pavia. 21-23 June 2016 (3 CFU).
- Organizer of the International Winter School for PhD students and young researchers entitled "Melting and fluid/melt-rock reactions in the mantle". 13-17 February 2017
- Organizer and field leader of the multidisciplinary field trip at the Adamello batholith (Relationship among magmatism, deformation and metamorphism during the Alpine orogenesis) for PhD and master students. The field was promoted and funded by the Earth and Environmental Sciences PhD Program of Pavia. 11-13 July 2017 (3 CFU).
- Organizer and field leader of the multidisciplinary field trip at the Asinara Island (Relationship among magmatism, deformation and metamorphism during the Variscan orogenesis) for PhD and master students. The field trip was promoted and funded by the Earth and Environmental Sciences PhD Program of Pavia. 17-20 June 2018 (3 CFU).
- Organizer and field leader of the 3rd European Mantle Workshop held in Pavia. 26-28 June 2018.
- Organizer and lecturer for the workshop "Frontiers in ICP-MS/MS Application in Earth and Environmental Sciences" funded by the Earth and Environmental Sciences PhD Program of Pavia, CNR, Agilent and SIMP. Title of the lecture: "Applications of the LA-ICP-MS technique to the geological, environmental and biological sciences". Pavia, 27 May 2019
- Organizer of the multidisciplinary field trip at the Western Alps (From rifting to the Alpine chain) for PhD and master students. The field trip has been promoted and funded by the Earth and Environmental Sciences PhD Program of Pavia. 19-21 July 2019 (3 CFU).
- Organizer and lecturer for the International summer school "Structure and Composition of the Lower Continental Crust", promoted and funded by the Earth and Environmental Sciences PhD Program of Pavia. Title of the lecture: "U-Th-Pb geochronology of zircon and monazite in the lower continental crust: role of high temperature and deformation". Pavia, 07-10 October 2019

**NATIONAL AND
INTERNATIONAL MEETINGS
AND WORKSHOPS**

As a co-author I was involved in many other abstracts presented to international meetings and below I report only the list of oral/poster presentations (title/authors/conference) at international and national conferences.

**ATTENDANCE AND
PRESENTATION AT
INTERNATIONAL MEETINGS**

- Zircon Geochronology of Amph-Rich Gabbroic Rocks and Associated Granitoids from Kyushu Island (Southwest Japan Arc). Langone A, Morishita T & Tiepolo M. - Goldschmidt 2009 Davos, Switzerland; 21-26 June 2009. *Geochimica and Cosmochimica Acta* ISSN:0016-7037 DOI: <https://doi.org/10.1016/j.gca.2009.05.010> - Poster presentation

- Cretaceous amphibole-rich intrusives with high-mg andesite affinity from Japan: a petrological and geochronological study. Langone A, Tiepolo M, Morishita T & Tribuzio R. AGU 2009 San Francisco, California, USA; 14-18 December 2009. - Poster presentation

- Chromium behaviour during water-serpentinites interaction: first results from RESPIRA project in a Tuscan quarry (Italy). International Applied Geochemistry Symposium, Rovaniemi, Finland, 22-26 August 2011. Baneschi I., Langone A., Boschi C., Agostini S., Dallai L., Dini A., Guidi M., Tonarini S. - Poster presentation

- New Insights into the Evolution of the Finero Mafic Complex. Langone A., Renna M.R., Tiepolo M., Zanetti A., Mazzucchelli M. & Giovanardi T. Goldschmidt conference 2013 Florence, Italy, 25-30 August 2013.. - Poster presentation

- Zircon U-Pb dating of high-temperature lower crustal deformation within mafic granulites: the lucky case from the Val Cannobina (Ivrea-Verbano Zone; Southern Alps; Italy). Langone A., Zanetti A., Daczko N.R., Piazzolo S., Tiepolo M., Mazzucchelli M. European Geosciences Union (EGU) - 2016 Wien | Austria | 17–22 April 2016. - Poster presentation

- Dating the onset of a lower crustal shear zone: a (lucky) case from the northern sector of the Ivrea-Verbano Zone (Val Cannobina, Italy). Langone A., Zanetti A., Tiepolo M. & Mazzucchelli M. 2nd European Mineralogical Conference (EMC), Rimini, Italy. 11-15 September 2016. - Poster presentation

- The T-t Evolution of the Ivrea-Verbano Zone in Val Cannobina. Langone A., Tiepolo M. & Zanetti A. Goldschmidt conference 2019 – Barcelona, Spain; 18-23 August 2019. - Poster presentation

- Relict but not inert: the geochemical variations of garnet porphyroclasts during deformation. Langone A., Corvò S., Maino M., Piazzolo S. 3rd European Mineralogical Conference (EMC2) – Cracow - Poland – 29 August/2 September 2021- - Poster presentation

**ATTENDANCE AND
PRESENTATION AT
NATIONAL MEETINGS**

I have been author/co-author of many contributions to national meeting organized by SIMP, SGI, AIV, SOGEI (SGI 2021: 6 abstracts; SIMP, SGI, AIV, SOGEI 2019: 14 abstracts; SGI-SIMP 2018: 14 abstracts; SIMP, SGI, AIV, SOGEI 2017: 20 abstracts; SGI-SIMP 2014: 10 abstracts; SGI 2012: 5 abstracts; GeolItalia 2011: 7 abstracts; SIMP 2010: 4 abstracts).

- Zircon U-Pb dating of high-temperature lower crustal deformation within mafic granulites: the lucky case from the Val Cannobina (Ivrea-Verbano Zone, southern Alps, Italy). Langone A., Zanetti A., Daczko N.R., Piazzolo S., Tiepolo M. & Mazzucchelli M. - Oral Presentation at the SIMP-SGI-AIV-So.Ge.I. meeting. 03-06 September 2017 Pisa.

- Is the Ivrea-Verbano Zone subdivided in two sectors? New insights from the Kinzigite Formation exposed in the Val Cannobina (Northern Italy). Langone A., Tiepolo M., Zanetti A., & Mazzucchelli M. & Bergamaschi C. - Oral Presentation at the SGI-SIMP meeting. 10-12 September **2014** Milan.

- Chromium behaviour during water-serpentinites interactions: first results from petrographic and geochemical study of serpentinite soils and serpentinites in a Tuscan quarry (Italy). Langone A., Baneschi I., Boschi C., Agostini S., Dallai L., Dini A., Guidi M., Tonarini S. – Oral presentation at GeolItalia meeting. 19-23 September **2011** Turin.

- Crustal xenoliths from Tallante (Betic Cordillera, Spain): insights for an interlayered crust-mantle boundary? Bianchini G., Braga R., Langone A. – Poster presentation at GeolItalia meeting. 19-23 September **2011** Turin.

- Grain size vs. Th-Pb ages of monazite: examples from high-grade metapelitic gneiss from the Ulten Zone, Eastern Alps. Langone A., Braga R., Massonne H.-J. & Tiepolo M. - Oral presentation at the SIMP meeting. 13-15 September **2010** Ferrara

- Relations between grain size and Th-Pb ages of monazite: examples from high-grade metapelitic gneiss from the Ulten Zone, eastern Alps. Langone, Braga R., Massonne H.-J. & Tiepolo M. - Oral presentation at SGI meeting. 6-8 September **2010** Pisa

- Cretaceous amphibole-rich intrusives with high-Mg andesite affinity from Japan: A petrological and geochronological study. Langone A., Tiepolo M., Morishita T., Tribuzio R. - Poster presentation at the SIMP meeting. 13-15 September **2010** Ferrara

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CONVENER

- Convener of the session entitled: "Geochronology and geochemistry of accessory minerals: timing of petrogenetic processes and deformation" SIMP-SGI-AIV-So.Ge.I. meeting. Pisa 03-06 September 2017. Conveners and chairpersons: Deborah Lo Po' (UniBo), Antonio Langone (IGG-CNR), Leonardo

September 2022

Casini (UniSs), Matteo Maino (UniPv)

- Convener of the session entitled: "A multidisciplinary approach to unravel the evolution of basement geology". SIMP-SGI-SOGEI meeting, Parma 16-19 September 2019. Conveners and chairpersons: Langone A. (IGG-CNR), Montomoli C. (UniTo) & Iaccarino S. (UniTo)

**WORKSHOPS ON
LA-ICP-MS**

- "Data Handling in LA-ICP-MS U-Th-Pb Geochronology" - San Francisco, California, 12–13 December 2009" 12-13 December 2009 – Workshop organized by the LA-ICP-MS scientific community. Participant as member of a LA-ICP-MS lab involved in interlabs comparison works.

- "Handling, Processing and Archiving of LAICPMS U-Th-Pb Data: Statistical Interpretation of Age Information, LAICPMS and Beyond - College of Charleston, SC USA" 06-08 March 2013 – Participant. Workshop organized by the LA-ICP-MS scientific community. Participant as member of a LA-ICP-MS lab involved in interlabs comparison works.

- "Reaction Gases + ICP MS = New Frontiers for Earth Sciences" – Barcelona, Spain, 18-23 August 2019 – Workshop organized in the frame of the Goldschmidt 2018 conference. Participant

**ACTIVITY AS EDITOR
REVIEWER**

- Guest editor for the Special Issue "LA-ICP-MS Geochronology: From Petrology to Provenance and Sedimentation" Geosciences (MDPI) 2018-2020

- Guest editor for the Special Issue "Subduction and Exhumation of the Lithosphere: The Contribution of Structural Geology, Petrology and Geochronology" Geosciences (MDPI) 2020

I've been reviewer for several international journals such as Lithos, Journal of Metamorphic Geology, Contribution to Mineralogy and Petrology; European Journal of Mineralogy, Solid Earth; Chemical Geology; Minerals; Rendiconti Online

THESIS EXAMINER

I've been the examiner of master and PhD theses and I was involved as member of the committee for the examination of PhD theses.

AWARDS

2017 – Short Term Mobility Program CNR – 3 weeks stay at the School of Earth and Environment of Leeds - UK
2015 – Short Term Mobility Program CNR – 3 weeks stay at the “Geosciences Montpellier” - France
2014 - Winner of ‘Giorgio Dal Piaz’ Award sponsored by the Società Geologica Italiana (SGI)
2011 - Winner of a grant for a short-term mobility, sponsored by the Società Italiana di Mineralogia e Petrologia (SIMP) – one month stay at the “Institut de Physique du Globe de Paris” – France

SCIENCE COMMUNICATION

- Il lavoro del geologo e la formazione delle montagne. Invited talk at the Primary and secondary schools of Buccinasco (Mi) 17-11-2017
- La “fiumara” di Tito: caratteristiche geologiche e geomorfologiche. Invited by the Pro-loco association. Tito (Pz) 03-05-2019
- Il 23 novembre 1980: a quarantanni dal terremoto dell'Irpinia. Invited by town councillors. Tito (Pz) 23-11-2020 webinar.

MEMBERSHIP OF SOCIETIES

Since 2003 member of the Società Geologica Italiana (SGI).
2018 -today member of the SGI awards committee.
2020 President of the committee for the “Quintino Sella” award for the best PhD thesis on Geosciences.
Since 2015 member of the Società Italiana di Mineralogia e Petrologia (SIMP)

BOOKS AND ARTICLES

85 refereed articles in international journals and 3 book chapters amounting to more than 1698 citations (Google Scholar). I'm first author of 8 publications; 4 publications were published with student and post-doc I directly supervised. Large part of the other publications was in the frame of collaborative projects to which I was a major contributor.

1. Casini L., Maino M., **Langone A.**, Oggiano G., Corvò S., Estrada J.R., Liesa M., - HT-LP metamorphism and fluid-fluxed melting during multi-stage anatexis of continental crust (N Sardinia, Italy). J. of Metamorph. Geol. <https://doi.org/10.1111/jmg.12687>

2. Verberne R., van Schrojenstein Lantman H.W., Reddy S.M., Alvaro M., Wallis D., Fougereuse D., **Langone A.**, Saxey D.W., Rickard W.D.A., - Trace-element heterogeneity in rutile linked to dislocation structures: Implications for Zr-in-rutile geothermometry. J Metamorph Geol. 2022;1–22 - DOI: 10.1111/jmg.12686

3. Corvò S., Maino M., Piazzolo S., Seno S., Langone A. 2022 - Role of inherited compositional and structural heterogeneity in shear zone development at mid-low levels of the continental crust

(the Anzola shear zone; Ivrea-Verbano Zone, Southern Alps).
Lithos 422-423 (2022) 106745 -
<https://doi.org/10.1016/j.lithos.2022.106745>

4. Fanti F., Bell P.R., Vavrek M., Larson D., Koppelhus E., Sisson R.L., **Langone A.**, Campione N.E., Sullivan C. 2022 - Filling the Bearpaw Gap: evidence for palaeoenvironment-driven taxon distribution in a diverse, non-marine ecosystem from the late Campanian of west-central Alberta, Canada. Palaeogeography, Palaeoclimatology, Palaeoecology; <https://doi.org/10.1016/j.palaeo.2022.110923>

5. Bash V., Sanfilippo A., Vigliotti L., **Langone A.**, Rasul N., Khorsheed M., Al Nomani S., Al Qutub A., Ligi M., 2022 - Crustal Contamination and Hybridization of an Embryonic Oceanic Crust during the Red Sea Rifting (Tihama Asir Igneous Complex, Saudi Arabia). Journal of Petrology, Volume 63, Issue 3, March 2022

6. Piazza G., Bracchi V.A., **Langone A.**, Meroni A.N., Basso D. 2021 - Growth rate rather than temperature affects the B/Ca ratio in the calcareous red alga *Lithothamnion corallioides*. Biogeosciences, 19, 1047–1065, 2022

7. Cannaò E., Tiepolo M., Borghini G., Langone A., Fumagalli P. 2021 - The influence of oxygen fugacity and chlorine on amphibole/liquid trace element partitioning at upper mantle conditions. European Journal of Mineralogy, Eur. J. Mineral., 34, 35–57, 2022

8. Pandolfi L., Barbero E., Marroni M., Delavari M., Dolati A., Di Rosa M., Frassi C., **Langone A.**, Farina F., MacDonald C.S., Sacconi E., 2021 - The Bajgan Complex revealed as a Cretaceous ophiolite-bearing subduction complex: A key to unravel the geodynamics of Makran (southeast Iran). Journal of Asian Earth Sciences 222 (2021) 104965

9. Simonetti M., **Langone A.**, Corvò S., Bonazzi M. - Triassic-jurassic rift-related deformation and temperature-time evolution of the fossil adriatic margin: A review from ossola and strona di omegna valleys (Ivrea-Verbano Zone). Ofioliti, 46(2), 151-165.

10. Gliozzo E., Braschi E., **Langone A.**, Ignelzi A., Favia P., Giuliani R. New geochemical and Sr-Nd isotopic data on medieval plant ash-based glass: The glass collection from San Lorenzo in Carmignano (12th-14th centuries AD, Italy). Microchemical Journal, 168, doi: 10.1016/j.microc.2021.106371

11. Caucia F., Scacchetti M., Marinoni L., Gilio M., **Langone A.**, Bartoli O., Vanotti M., Foianini I. An attractive blue diopside from Slssone Valley, Western Alps, Italy. Minerals, 11, 8. Doi: 10.3390/min11080837

12. Benetti B., Montomoli C., Iaccarino S., **Langone A.**, Carosi R. 2021 - Mapping tectono-metamorphic discontinuities in

orogenic belts: implications for mid-crust exhumation in NW Himalaya. *Lithos* 392-393, DOI:10.1016/j.lithos.2021.106129

13. Tursi F., Acquafredda P., Festa V., Fornelli A., **Langone A.**, Micheletti M., Spiess R. 2021. What can high-pressure sheared orthogneisses tell us? An example from the Curinga–Girifalco Line (Calabria, southern Italy) – *Journal of Metamorphic Geology*, 37(7): 919- 944. DOI: 10.1111/jmg.12596

14. Spiess R., **Langone A.**, Caggianelli A., Stuart F.M., Zucchi M., Bianco C., Brogi A., Liotta D. 2021 - Unveiling ductile deformation during fast exhumation of a granitic pluton in a transfer Zone. *Journal of Structural Geology*, DOI: <https://doi.org/10.1016/j.jsg.2021.104326>

15. Karaoui A., Breitzkreuz C., Karaoui B., Yajoui Z., Mahmoudi A., Zanetti A., **Langone A.** 2021 - The Ediacaran volcano-sedimentary succession in the Western Skoura inlier (Central High Atlas, Morocco): facies analysis, geochemistry, geochronology and geodynamic implications. *International Journal of Earth Sciences* <https://doi.org/10.1007/s00531-021-01997-y>

16. Corvò S., Maino M., **Langone A.**, Schenker L.F., Piazzolo S., Casini L., Seno S. 2021 - Local variations of metamorphic record from compositionally heterogeneous rocks (Cima di Gagnone, Central Alps): Inferences on exhumation processes of (U)HP–HT rocks – *Lithos* <https://doi.org/10.1016/j.lithos.2021.106126>

17. Diella V., Bocchio R., Caucia F., Marinoni N., **Langone A.**, Possenti E., 2020 - New Insights for Gem-Quality Mn-Bearing Diopside-Omphacite, Violane Variety, from Saint Marcel (Val D'Aosta, Italy): Its Trace Elements and Spectroscopic Characterization. *Minerals* 2021, 11, 171. <https://doi.org/10.3390/min11020171>

18. Barbero E., Delavari M., Dolati A., Vahedi L., **Langone A.**, Marroni M., Pandolfi L., Zaccarini F., Saccani E. - Early Cretaceous plume-ridge interaction recorded in the Band-e-Zeyarat ophiolite (North Makran, Iran): New constraints from petrological, mineral chemistry and geochronological data. *Minerals* **2020**, 10, 1100; doi:10.3390/min10121100

19. Fornelli A., Gallicchio S., Micheletti F., **Langone A.** 2020 - Preliminary U-Pb detrital zircon ages from Tufiti di Tusa Formation (Lucanian Apennines, Southern Italy): evidence of Rupelian volcanoclastic supply. *Minerals* 2020, 10, 786; doi:10.3390/min10090786

20. Ventruti G., Caggianelli A., Festa V., **Langone A.** - Crystal chemistry of barian titanian phlogopite from a lamprophyre of the Gargano Promontory (Apulia, Southern Italy). *Minerals* 2020, 10, 766; doi:10.3390/min10090766

21. Carosi, R., Petroccia, A., Iaccarino, S., Simonetti, M., **Langone, A.**, Montomoli C. **2020** - Kinematics and timing constraints in a transpressive tectonic regime: the example of the Posada-Asinara shear zone (NE Sardinia, Italy) – *Geosciences* **2020**, 10, 288; doi:10.3390/geosciences10080288

22. Bonazzi, M., **Langone, A.**, Dellarole, E., Mazzucchelli, M., Giovanardi, T., Zanetti A., **2020** - Mantle derived corundum-bearing leucocratic dykes may survive only within the lower (refractory/inert) crust: evidence from zircon geochemistry and geochronology (Ivrea-Verbano Zone, Southern Alps). *Geosciences* 2020, 10, 281; doi:10.3390/geosciences10080281

23. Di Giulio, A., Amadori, C., Mueller, P., **Langone, A.**, **2020** - The Role of the Down-Bending Plate as Detrital Source in Convergent Systems Revealed by U-Pb Dating of Zircon Grains: Insights from Southern Andes and Western Italian Alps. *Minerals* 2020, 10, 632; doi:10.3390/min10070632

24. Fornelli A., Gallicchio S., Micheletti F., **Langone A.** **2020** - U-Pb detrital zircon ages from Gorgoglione Flysch sandstones in Southern Apennines (Italy) as provenance indicators - *Geological Magazine* <https://doi.org/10.1017/S0016756820000886>

25. Corvò, S., **Langone A.**, Padròn-Navarta J.A.; Tommasi A., Zanetti A. **2020**. Porphyroclasts: Source and Sink of Major and Trace Elements During Deformation-Induced Metasomatism (Finero, Ivrea-Verbano Zone, Italy). *Geosciences* 2020, 10, 196; doi:10.3390/geosciences10050196.

26. Cruciani, G., Fancello D., Franceschelli, M., Massonne, H.-J., **Langone A.**, Scodina M. **2020** -Geochemical and geochronological dataset of rutile from a Variscan metabasite in Sardinia, Italy. *Data in Brief* 31 (2020) 105925 - <https://doi.org/10.1016/j.dib.2020.105925>

27. Iaccarino, S., Montomoli, C., Montemagni, C., Massonne, H.-J., **Langone, A.**, Jain A. K., Visonà, D., Carosi, R. **2020**. The main central thrust zone along the Alaknanda and Dhauliganga valleys (Garhwal Himalaya, NW India): Insights into an inverted metamorphic sequence, *LITHOS* (2020), <https://doi.org/10.1016/j.lithos.2020.105669>

28. Pellegrino, L., Malaspina N., Zanchetta, S., **Langone A.**, Tumianti, S., **2020**. High pressure melting of eclogites and metasomatism of garnet peridotites from Monte Duria Area (Central Alps, N Italy): a proxy for melt-rock reaction during subduction. *Lithos* <https://doi.org/10.1016/j.lithos.2020.105391>

29. Diella V., Bocchio R., Marinoni N., Caucia F., Spalla M.I., Adamo I., **Langone A.**, Mancini L., 2019. Garnets from Val d'Ala Rodingites, Piedmont, Italy: An Investigation of Their Gemological, Spectroscopic and Crystal Chemical Properties.

30. Mueller P., **Langone A.**, Patacci M., Di Giulio A. (2019), Towards a Southern European Tethyan Palaeomargin provenance signature: sandstone detrital modes and detrital zircon U–Pb age distribution of the Upper Cretaceous–Paleocene Monte Bignone Sandstones (Ligurian Alps, NW Italy). *International Journal of Earth Sciences* <https://doi.org/10.1007/s00531-019-01797-5>
31. Oberti R., **Langone A.**, Boiocchi M., Bernabè E., Hawthorne C.F., 2019. News from the hellandite group: the redefinition of mottanaite and ciprianiite and the new mineral description of ferri-mottanaite-(Ce), the first Fe³⁺-dominant hellandite. *Eur. J. Mineral.* 2019, 31, 799–806
32. Bartoli O., Acosta-Vigil A., Cesare B., Remusat L., Gonzalez-Cano A., Wälle M., Tajčmanová L., **Langone A.** Geochemistry of Eocene-Early Oligocene low-temperature crustal melts from Greater Himalayan Sequence (Nepal): a nanogranitoid perspective. *Contributions to Mineralogy and Petrology* (2019) 174:82 <https://doi.org/10.1007/s00410-019-1622-2>
33. Cruciani G., Franceschelli M., **Langone A.**, Puxeddu M. - U-Pb zircon and Ar-Ar amphibole ages from Sardinian migmatites (Italy) and review of migmatite ages from the Variscan belt. *Periodico di Mineralogia* (2019) 88, 203-219
34. Ji, W.-Q., Malusà, M.G., Tiepolo, M., **Langone, A.**, Zhao, z., Wu, F.-Y., 2019 - Synchronous Periadriatic magmatism in the Western and Central Alps in the absence of slab breakoff. *Terra Nova* DOI: 10.1111/ter.12377
35. Zanoni D., Rasul N. M. A., **Langone A.**, Khorshid M. - Microstructure and Geochemistry of Magmatic Dykes from the Arabian Margin, Red Sea. *In Geological Setting, Palaeoenvironment and Archaeology of the Red Sea*, Najeeb M.A. Rasul & Ian C.F. Stewart Eds. Springer Nature Switzerland AG 2019. DOI <https://doi.org/10.1007/978-3-319-99408-6>; Hardcover ISBN978-3-319-99407-9
36. Diella V., Pezzotta F., Bocchio R., Marinoni N., Camara F., **Langone A.**, Adamo I., Lanzafame G. 2018. Gem-quality tourmaline from LCT pegmatite in Adamello Massif, Central southern Alps, Italy: an investigation of its mineralogy, crystallography and 3D inclusions. *Minerals* 2018, 8, 593; doi:10.3390/min8120593
37. Mueller P., **Langone A.**, Patacci M., Di Giulio A. (2018), Detrital signatures of impending collision: The deep-water record of the Upper Cretaceous Bordighera Sandstone and its basal complex (Ligurian Alps, Italy). *Sedimentary Geology* <https://doi.org/10.1016/j.sedgeo.2018.10.002>

38. Chen J., Carosi R., Cao H., Montomoli C., Iaccarino S., **Langone A.**, Li G. (2018), Structural setting of the Yalaxiangbo dome, SE Tibet (China). *Italian Journal of Geosciences.*, <https://doi.org/10.3301/IJG.2018.18>
39. Maino M., Gaggero L., **Langone A.**, Seno S., Fanning M., Cambro-Silurian magmatism at the northern Gondwana margin (Penninic basement of the Ligurian Alps). *Geoscience Frontiers* <https://doi.org/10.1016/j.gsf.2018.01.003>
40. Simonetti M., Carosi R., Montomoli C., **Langone A.**, D'Addario E., Mammoliti E., Kinematic and geochronological constraints on shear deformation in the Ferriere-Mollières shear zone (Argentera-Mercantour Massif, Western Alps): implications for the evolution of the Southern European Variscan Belt. *International Journal of Earth Sciences*, <https://doi.org/10.1007/s00531-018-1593-y>
41. **Langone A.**, Zanetti A., Daczko N., Piazzolo S., Tiepolo M., Mazzucchelli M. (2018) - Zircon U-Pb dating of a lower crustal shear zone: a case study from the northern sector of the Ivrea-Verbano Zone (Val Cannobina, Italy). *Tectonics*, DOI: 10.1002/2017TC004638
42. Iaccarino, S.; Montomoli, C.; Carosi, R.; Montemagni, C.; Massonne, H.-J.; **Langone, A.**; Jain, A.K.; Visonà, D. (2017) - Pressure-Temperature-Deformation-Time Constraints on the South Tibetan Detachment System in the Garhwal Himalaya (NW India). *Tectonics*, DOI: 10.1002/2017TC004566
43. Fornelli, A., **Langone, A.**, Micheletti, F., Piccarreta, G. (2017) – REE partitioning among zircon, orthopyroxene, amphibole and garnet in high-grade metabasic system. *Geol. Mag.* doi:10.1017/S001675681700067X
44. Tommasi A., **Langone A.**, Padrón-Navarta J.A., Zanetti A., Vauchez A. (2017) - Hydrous melts weaken the mantle, crystallization of pargasite and phlogopite does not: Insights from a petrostructural study of the Finero peridotites, southern Alps. *Earth and Planetary Science Letters* 477, 59-72.
45. **Langone A.**, Padrón-Navarta J.A., Ji W.Q., Zanetti A., Mazzucchelli M., Tiepolo M., Giovanardi T., Bonazzi M. (2017) - Ductile–brittle deformation effects on crystal-chemistry and U–Pb ages of magmatic and metasomatic zircons from a dyke of the Finero Mafic Complex (Ivrea–Verbano Zone, Italian Alps). *Lithos*, 284-285, 493-511
46. Gliozzo E., Braschi E., Giannetti F., **Langone A.**, Turchiano M. (2017) - New geochemical and isotopic insights into the Late Antique Apulian glass and the HIMT1 and HIMT2 glass productions — the glass vessels from San Giusto (Foggia, Italy) and the diagrams for provenance studies. *Archaeol Anthropol*

47. Frassi, C., Musumeci, G., Zucali, M., Mazzarini, F., Rebay, G., **Langone A.**, The Cotoncello Shear Zone (Elba Island, Italy): The deep root of a fossil oceanic detachment fault in the Ligurian ophiolites. *Lithos*, 278–281 (2017) 445–463
48. Mollo S., Blundy, J.D., Giacomoni P., Nazzari M., Scarlato P., Coltorti M., **Langone A.**, Andronico D., (2017), Clinopyroxene-melt element partitioning during interaction between trachybasaltic magma and siliceous crust: Clues from quartzite enclaves at Mt. Etna volcano. *Lithos*, 284–285, 447–461
49. Mollo, S., Vetere, F., Beherens, H., Tecchiato V., **Langone A.**, Scarlato P., Perugini, D., The effect of degassing and volatile exsolution on the composition of a trachybasaltic melt decompressed at slow and fast rates. *Periodico di Mineralogia* (2017) 86, 185-197
50. Rebay, G., Zanoni, D., **Langone, A.**, Luoni, P., Tiepolo, M., Spalla M.I., Dating of ultramafic rocks from the Western Alps ophiolites discloses Late Cretaceous subduction ages in the Zermatt-Saas Zone. *Geol. Mag.* doi:10.1017/S0016756817000334
51. Perotti M., Andreucci B., Talarico F., Zattin M., **Langone A.** - Multi analytical provenance analysis of Eastern Ross Sea LGM till sediments (Antarctica): petrography, geochronology and thermochronology detrital data. *Geochem. Geophys. Geosyst.*, 18, doi:10.1002/2016GC006728.
52. Narcisi, B., Petit, J.R., **Langone, A.**, Last glacial tephra layers in the Talos Dome ice core (peripheral EastAntarctic Plateau), with implications for chronostratigraphic correlations and regional volcanic history. *Quaternary Science Reviews* 165 (2017) 111-126
53. Tiepolo M., **Langone A.**, Danesino C., Sacchi E., Nola P., Ziliani S., Ficocelli S., Giuia R. Dendrochimica in situ mediante LA-ICP-MS: una finestra sull'evoluzione storica dell'inquinamento da metalli pesanti. Il caso dell'area di Taranto. ISBN 978-88-218-1123-4 2016 Collana: Atti dei Convegni Lincei – Bardi Editore Convegno: Evoluzione e controllo della qualità dell'aria sul territorio italiano – XXXII Giornata dell'ambiente
54. Gaggero, L., Gretter, N., **Langone, A.**, Ronchi, A. U-Pb geochronology and geochemistry of late Palaeozoic volcanism in Sardinia (southern Variscides) (2016) *Geoscience Frontiers*, <http://dx.doi.org/10.1016/j.gsf.2016.11.015>
55. Zanetti, A., Giovanardi, T., **Langone, A.**, Tiepolo, M., Wu, F.-Y., Dallai, L., Mazzucchelli, M. Origin and age of zircon-bearing chromitite layers from the Finero phlogopite peridotite (Ivrea–Verbano Zone, Western Alps) and geodynamic

consequences (2016) *Lithos*, 262, pp. 58-74.

56. Mongelli, G., Buccione, R., Gueguen, E., **Langone, A.**, Sinisi, R. Geochemistry of the apulian allochthonous karst bauxite, Southern Italy: Distribution of critical elements and constraints on Late Cretaceous Peri-Tethyan palaeogeography (2016) *Ore Geology Reviews*, 77, pp. 246-259.

57. Festa, V., Prosser, G., Caggianelli, A., Grande, A., **Langone, A.**, Mele, D. Vorticity analysis of the Palmi shear zone mylonites: New insights for the Alpine tectonic evolution of the Calabria–Peloritani terrane (southern Italy) (2016) *Geological Journal*, 51 (4), pp. 670-681.

58. Narcisi, B., Petit, J.R., **Langone, A.**, Stenni, B. A new Eemian record of Antarctic tephra layers retrieved from the Talos Dome ice core (Northern Victoria Land) (2016) *Global and Planetary Change*, 137, pp. 69-78.

59. Carosi, R., Montomoli, C., Iaccarino, S., Massonne, H.-J., Rubatto, D., **Langone, A.**, Gemignani, L., Visonà, D. Middle to late Eocene exhumation of the Greater Himalayan Sequence in the Central Himalayas: Progressive accretion from the Indian plate (2016) *Bulletin of the Geological Society of America*, 128 (11-12), pp. 1571-1592.

60. Iaccarino, S., Montomoli, C., Carosi, R., Massonne, H.-J., **Langone, A.**, Visonà, D. Pressure-temperature-time-deformation path of kyanite-bearing migmatitic paragneiss in the Kali Gandaki valley (Central Nepal): Investigation of Late Eocene-Early Oligocene melting processes (2015) *Lithos*, 231, pp. 103-121.

61. Fornelli, A., Micheletti, F., **Langone, A.**, Perrone, V. First U-Pb detrital zircon ages from Numidian sandstones in Southern Apennines (Italy): Evidences of African provenance (2015) *Sedimentary Geology*, 320, pp. 19-29.

62. Bianchini, G., Braga, R., **Langone, A.**, Natali, C., Tiepolo, M. Metasedimentary and igneous xenoliths from Tallante (Betic Cordillera, Spain): Inferences on crust-mantle interactions and clues for post-collisional volcanism magma sources (2015) *Lithos*, 220-223, pp. 191-199.

63. **Langone, A.**, Tiepolo, M. U-Th-Pb "multi-phase" approach to the study of crystalline basement: Application to the northernmost sector of the Ivrea-Verbano Zone (Alps) (2015) *Periodico di Mineralogia*, 84 (3B).

64. Cruciani, G., Franceschelli, M., **Langone, A.**, Puxeddu, M., Scodina, M. Nature and age of pre-Variscan eclogite protoliths from the low- to medium-grade metamorphic complex of north-central Sardinia (Italy) and comparisons with coeval Sardinian Eclogites in the northern Gondwana context (2015) *Journal of the Geological Society*, 172 (6), pp. 792-807.

65. Carosi, R., Montomoli, C., **Langone, A.**, Turina, A., Cesare, B., Iaccarino, S., Fascioli, L., Visonà, D., Ronchi, A., Rai, S.M. Eocene partial melting recorded in peritectic garnets from kyanite-gneiss, Greater Himalayan Sequence, central Nepal (2015). In *Tectonics of the Himalaya*; Mukherjee, S., Carosi, R., van der Beek, P. A., Mukherjee, B. K. & Robinson, D. M. (Eds). Geological Society Special Publication, 412 (1), pp. 111-129.
66. **Langone, A.**, Caggianelli, A., Festa, V., Prosser, G. Time constraints on the building of the Serre batholith: Consequences for the thermal evolution of the Hercynian continental crust exposed in Calabria (Southern Italy) (2014) *Journal of Geology*, 122 (2), pp. 183-199.
67. Fornelli, A., **Langone, A.**, Micheletti, F., Pascazio, A., Piccarreta, G. The role of trace element partitioning between garnet, zircon and orthopyroxene on the interpretation of zircon U-Pb ages: An example from high-grade basement in Calabria (Southern Italy) (2014) *International Journal of Earth Sciences*, 103 (2), pp. 487-507.
68. Laurita, S., Prosser, G., Rizzo, G., **Langone, A.**, Tiepolo, M., Laurita, A. Geochronological study of zircons from continental crust rocks in the Frido Unit (southern Apennines) (2014) *International Journal of Earth Sciences*, 104 (1), pp. 179-203. Cited 2 times.
69. Giovanardi, T., Mazzucchelli, M., Zanetti, A., **Langone, A.**, Tiepolo, M., Cipriani, A. Occurrence of phlogopite in the Finero mafic layered complex (2014) *Central European Journal of Geosciences*, 6 (4), pp. 588-613.
70. Ghorbani, M.R., Ahmadi, A.R., Tiepolo, M., **Langone, A.** Clinopyroxene chemistry in Tertiary alkaline volcanic rocks from Taleghan, central Alborz, Iran: Implications for two parental melts (2013) *Chemie der Erde - Geochemistry*, 73 (4), pp. 565-568.
71. Mollo, S., Blundy, J.D., Iezzi, G., Scarlato, P., **Langone, A.** The partitioning of trace elements between clinopyroxene and trachybasaltic melt during rapid cooling and crystal growth (2013) *Contributions to Mineralogy and Petrology*, 166 (6), pp. 1633-1654.
72. Montomoli, C., Iaccarino, S., Carosi, R., **Langone, A.**, Visonà, D. Tectonometamorphic discontinuities within the Greater Himalayan Sequence in Western Nepal (Central Himalaya): Insights on the exhumation of crystalline rocks (2013) *Tectonophysics*, 608, pp. 1349-1370.
73. Altenberger, U., Prosser, G., Grande, A., Günter, C., **Langone, A.** A seismogenic zone in the deep crust indicated by pseudotachylytes and ultramylonites in granulite-facies rocks of Calabria (Southern Italy) (2013) *Contributions to Mineralogy and*

Petrology, 166 (4), pp. 975-994.

74. Bianchini, G., Braga, R., **Langone, A.** Crustal xenoliths from Tallante (Betic Cordillera, Spain): Insights into the crust-mantle boundary (2013) Geological Magazine, 150 (5), pp. 952-958.

75. **Langone, A.**, Baneschi, I., Boschi, C., Dini, A., Guidi, M., Cavallo, A. Serpentinite-water interaction and chromium(VI) release in spring waters: Examples from Tuscan ophiolites (2013) Ofioliti, 38 (1), pp. 41-57.

76. Gretter, N., Ronchi, A., **Langone, A.**, Perotti, C.R. The transition between the two major Permian tectono-stratigraphic cycles in the central Southern Alps: Results from facies analysis and U/Pb geochronology (2013) International Journal of Earth Sciences, 102 (5), pp. 1181-1202.

77. Festa, V., Caggianelli, A., **Langone, A.**, Prosser, G. Time-space relationships among structural and metamorphic aureoles related to granite emplacement: A case study from the Serre Massif (southern Italy) (2013) Geological Magazine, 150 (3), pp. 441-454.

78. Fornelli, A., **Langone, A.**, Micheletti, F., Piccarreta, G. Application of U-Pb dating and chemistry of zircon in continental crust of Calabria (southern Italy). In: *Zircon and Olivine: Characteristics, Types and Uses*; G. Van Dijk & V. Van den Berg Eds. 2012 Nova Science Publishers, Inc. ISBN: 978-1-62100-990-0

79. Tiepolo, M., **Langone, A.**, Morishita, T., Yuhara, M. On the recycling of amphibole-rich ultramafic intrusive rocks in the arc crust: Evidence from Shikanoshima Island (Kyushu, Japan) (2012) Journal of Petrology, 53 (6), art. no. egs016, pp. 1255-1285.

80. Fornelli, A., **Langone, A.**, Micheletti, F., Piccarreta, G. Time and duration of Variscan high-temperature metamorphic processes in the south European Variscides: Constraints from U-Pb chronology and trace element chemistry of zircon (2011) Mineralogy and Petrology, 103 (1-4), pp. 101-122.

81. **Langone, A.**, Braga, R., Massonne, H.-J., Tiepolo, M. (2011). Preservation of old (prograde metamorphic) U-Th-Pb ages in unshielded monazite from the high-pressure paragneisses of the Variscan Ulten Zone (Italy). Lithos, 127 (1-2), pp. 68-85.

82. Liberi, F., Piluso, E., **Langone, A.** (2011). Permo-Triassic thermal events in the lower Variscan continental crust section of the Northern Calabrian Arc, Southern Italy: Insights from petrological data and in situ U-Pb zircon geochronology on gabbros. Lithos, 124 (3-4), pp. 291-307.

83. Tiepolo, M., Tribuzio, R., **Langone, A.** (2011) High-mg andesite petrogenesis by amphibole crystallization and ultramafic crust assimilation: Evidence from Adamello hornblendites (Central Alps, Italy). *Journal of Petrology*, 52 (5), art. no. egr016, pp. 1011-1045.
84. Festa, V., **Langone, A.**, Caggianelli, A., Rottura, A. Dike magmatism in the Sila Grande (Calabria, southern Italy): Evidence of Pennsylvanian-Early Permian exhumation (2010) *Geosphere*, 6 (5), pp. 549-566.
85. Cucciniello, C., **Langone, A.**, Melluso, L., Morra, V., Mahoney, J.J., Meisel, T., Tiepolo, M. U-Pb ages, Pb-Os isotope ratios, and platinum-group element (PGE) composition of the west-central Madagascar flood basalt province (2010) *Journal of Geology*, 118 (5), pp. 523-541.
86. **Langone, A.**, Godard, G., Prosser, G., Caggianelli, A., Rottura, A., Tiepolo, M. (2010). P-T-t path of the Hercynian low-pressure rocks from the Mandatoriccio complex (Sila massif, Calabria, Italy): New insights for crustal evolution. *Journal of Metamorphic Geology*, 28 (2), pp. 137-162.
87. Liotta, D., Caggianelli, A., Kruhl, J.H., Festa, V., Prosser, G., **Langone, A.** (2008) - Multiple injections of magmas along a Hercynian mid-crustal shear zone (Sila Massif, Calabria, Italy). *Journal of Structural Geology*, 30 (10), pp. 1202-1217.
88. **Langone, A.**, Gueguen, E., Prosser, G., Caggianelli, A., Rottura, A. (2006) - The Curinga-Girifalco fault zone (northern Serre, Calabria) and its significance within the Alpine tectonic evolution of the western Mediterranean. *Journal of Geodynamics*, 42 (4-5), pp. 140-158.

Pavia 01 September 2022

Antonio Langone

Appendix 1 list of bachelor and master theses

	A.A.	Dip.Univ	Student/Thesis degree/Title/Supervisors
1	2019-2020	DSTA-UniPV	Noemi Tosi Bachelor Thesis: Variazioni geochemiche della titanite attraverso una sezione di crosta continentale (Val D'Ossola, Zona Ivrea-Verbanò). Supervisor: Dr. Langone A. (IGG-CNR of Pavia); Dr. Corvò S. (DSTA-UniPV)
2	2019-2020	DSTA-UniPV	Eleonora Zangara Master Thesis: Caratterizzazione petrografica e geocronologica di un'intrusione superficiale nella sequenza varisica metamorfica di medio grado dell'isola Asinara (Sardegna). Supervisor: Dr. Maino M. (DSTA-UniPV); Dr. Langone A. (IGG-CNR of Pavia); Dr. Corvò S. (DSTA-UniPV)
3	2019-2020	DSTA-UniPV	Matilda Soldano Bachelor Thesis: Analisi degli elementi maggiori dei granati e caratterizzazione petrografica del complesso metamorfico in Val D'Ossola (Zona Ivrea-Verbanò) Supervisor: Dr. Langone A. (IGG-CNR of Pavia); Dr. Corvò S. (DSTA-UniPV)
4	2018-2019	DSTA-UniPV	Maria Vittoria Beduschi Bachelor thesis: Caratterizzazione petrografica del complesso metamorfico in Val d'Ossola (Ivrea-Verbanò Zone): indagini geocronologiche preliminari. Supervisor: Dr. Maino M. (UniPv); Dr. Langone A. (IGG-CNR of Pavia); Dr. Corvò S.
5	2017-2018	DSTA-UniPV	Christian Boatti Interazione tra fusi anatettici e gabbri: evidenze geochemiche e geocronologiche (crosta Varisica profonda, Arco Calabro-Peloritani, Palmi). Supervisors: Dr. Langone A. (IGG-CNR of Pavia); Dr. Renna M.R. (UniMe).
6	2017-2018	DSTA-UniPV	Matteo Draghi Bachelor thesis: Studio petrografico e geocronologico dei metasedimenti adiacenti alla sequenza di mantello di Alpe Morello (Val Strona). Supervisor: Prof. Tribuzio R. (UniPv); Dr. Langone A. (IGG-CNR of Pavia)
7	2016-2017	DSTA-UniPV	Anna Arrigoni Bachelor Thesis: Indagini preliminari per la geocronologia U-Pb degli zirconi nelle piroclastiti della Pietra Simona (Permiano, Valcamonica). Supervisor: Prof. Ronchi A. (UniPv); Dr. Langone A. (IGG-CNR of Pavia); Lombardi D.
8	2016-2017	DSTA-UniPV	Stefania Corvò Year: 2016-2017 Master thesis: Water content in nominally anhydrous minerals (NAMs) from the Finero complex (Italy). Supervisor: Dr. Zanetti A. & Dr. Langone A. (IGG-CNR of Pavia); Dr. Padròn Navarta J.A. (Geosciences Montpellier)
9	2016-2017	DSTA-UniPV	Angelica Mosconi Bachelor Thesis: Analisi petrografica e geotermobarometrica di una sequenza metamorfica: micascisti della Formazione Kinzigitica (Val Cannobina, IVZ). Supervisor: Dr. Langone A. (IGG-CNR of Pavia)

10	2016-2017	DSTA-UniPV	Giulia Domenighini Bachelor Thesis: Constraints on the metamorphic evolution of metapelites of Cima-Lunga unit (Central Alps, Switzerland). Supervisor: Dr. Maino M. (UniPv); Dr. Langone A. (IGG-CNR of Pavia)
11	2016-2017	DSTA-UniPV	Camilla Sani Bachelor Thesis: Analisi geocronologica di una sequenza metamorfica: micascisti della Formazione Kinzigitica (Val Cannobina, IVZ). Supervisor: Dr. Langone A. (IGG-CNR of Pavia)
12	2015-2016	DSTA-UniPV	Eleonora Zangara Bachelor Thesis: Studio geochimico dei fenocristalli di olivina di basalti alcalini (Arabia Occidentale). Supervisor: Dr. Sanfilippo A. (UniPv); Dr. Langone A. (IGG-CNR of Pavia)
13	2015-2016	DSTA-UniPV	Biancardi Raffaele Bachelor Thesis: Studio strutturale e petrochimico dell'Unità Gabbro Esterno del Complesso di Finero, Zona Ivrea-Verbano, Sudalpino. Supervisor: Dr. Zanetti A. & Dr. Langone A. (IGG-CNR of Pavia)
14	2015-2016	DSTA-UniPV	Vinella Greta Bachelor Thesis: Analisi petrografica e geochimica di corindoni provenienti da dicchi plumasitici del complesso di Finero (Zona Ivrea-Verbano). Supervisor: Dr. Zanetti A. & Dr. Langone A. (IGG-CNR of Pavia)
15	2015-2016	DSTA-UniPV	Fantoli Ivan Bachelor Thesis: Analisi delle interpretazioni tettonico-metamorfiche della "Linea del Pogallo". Supervisor: Dr. Langone A. (IGG-CNR of Pavia)
16	2015-2016	DSTA-UniPV	Bonzani Andrea Master thesis: Caratterizzazione microstrutturale e geochimica delle fasi minerali soggette a differenti gradi di deformazione dell'Unità Peridotite ad Anfibolo (Complesso Mafico di Finero, Zona Ivrea-Verbano). Supervisors: Dr. Langone A. (IGG-CNR of Pavia); Dr. Zanetti A. (IGG-CNR of Pavia)
17	2015-2016	DSTA-UniPV	Stelitano Matteo Master thesis: Analisi geocronologiche e geochimiche di zirconi in una shear zone duttile nell'unità Gabbro Esterno (Val Cannobina, Zona Ivrea-Verbano). Supervisors: Dr. Langone A. (IGG-CNR of Pavia); Dr. Zanetti A. (IGG-CNR of Pavia)
18	2015-2016	DSTA-UniPV	Bosoni Laura Master thesis: Studio petrologico-geochimico della transizione mantello-crosta nel Complesso di Finero (Zona Ivrea-Verbano). Supervisors: Dr. Langone A. (IGG-CNR of Pavia); Dr. Zanetti A. (IGG-CNR of Pavia)
19	2015-2016	DSTA-UniPV	Grammatica Michela Bachelor thesis: Analisi petrografica e microstrutturale della Zona di taglio milonitica nell'Unità Gabbro Esterno in Val Cannobina (Zona Ivrea-Verbano). Supervisor: Dr. Langone A. (IGG-CNR of Pavia)
20	2015-2016	DSTA-UniPV	Guarischì Beatrice Bachelor thesis: Caratterizzazione e datazioni U-Pb degli

			zirconi in rocce mafiche milonitiche di crosta inferiore (Unità Gabbro Esterno, Finero, Zona Ivrea-Verbanò). Supervisor: Dr. Langone A. (IGG-CNR of Pavia)
21	2014-2015	Dip. Sc. Terra - UniMi	Casiraghi Giulia Bachelor thesis: Studio delle variazioni petrografiche e geochemiche alla microscala nel Complesso Mafico di Finero (Zona Ivrea-Verbanò) prime evidenze di reazioni fuso-roccia. Supervisors: Prof. Tiepolo M. (UniMi); Dr. Langone A. (IGG-CNR of Pavia)
22	2014-2015	DSTA-UniPV	Berno Davide Master thesis: Analisi petrografica e geocronologica di dicchi intrusi nel Complesso Mafico di Finero (Zona Ivrea-Verbanò). Supervisors: Dr. Langone A. (IGG-CNR of Pavia); Dr. Zanetti A. (IGG-CNR of Pavia) & Tiepolo M. (UniMi)
23	2013-2014	DSTA-UniPV	Bergamaschi Carlo Master thesis: Rilevamento geologico-strutturale ed evoluzione tettonico-metamorfica della Formazione Kinzigitica (Zona Ivrea-Verbanò, Val Cannobina). Supervisor: Dr. Langone A. (IGG-CNR of Pavia)
24	2013-2014	Dip. Sc. Terra e Geoambientali- UniBa	Rochira Federica Bachelor Thesis: Processi di fusione parziale nella crosta continentale inferiore: le migmatiti dello Scoglio dell'Isola (Palmi, Calabria) Supervisors: Prof. Caggianelli A., (UniBa); Prof. Prosser G. (UniBAS); Dr. Langone A. (IGG-CNR of Pavia)
25	2011-2012	Dip. Sc. Terra UniPi	Borsani Angelo Master thesis: Analisi strutturale e geocronologia nell'Unità di Massa (Alpi Apuane settore occidentale) Supervisors: Prof. Carosi R.; Dr. Montomoli C. (UniPi); Dr. Langone A. (IGG-CNR of Pisa)
26	2011-2012	Dip. Sc. Terra UniPi	Gemignani Lorenzo Master thesis: La zona di taglio di Kalopani KSZ (massiccio dell'Annapurna, Mustang, Nepal) analisi strutturale e geocronologica Supervisors: Prof. Carosi R.; Dr. Montomoli C. (UniPi); Dr. Langone A. (IGG-CNR of Pisa)
27	2011-2012	Dip. Sc. Terra UniPi	Iaccarino Salvatore Master thesis: Discontinuità tettonico-metamorfiche nell'Higher Himalayan Crystallines: la Mangri shear zone, Himalaya centrale (NW Nepal)". Supervisors: Prof. Carosi R.; Dr. Montomoli C. (UniPi); Dr. Langone A. (IGG-CNR of Pisa)
28	2008-2009	DSTA-UniPV	Gretter Nicola Master thesis: Il Conglomerato della Val Daone (Permiano medio, Trentino occidentale): stratigrafia e dati geocronologici. Supervisors: Prof. Ronchi A., Prof. Cassinis G. (UniPV); Dr. Langone A. (IGG-CNR of Pavia)

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