Mattia Luca Mazzucchelli

Institute of Earth Sciences – University of Lausanne
UNIL-Mouline, CH-1015, Lausanne (Switzerland)
mattia.mazzucchelli@unil.ch • ORCID • Scopus
Google Scholar • ResearchGate

Updated on 13th November, 2025

Positions

Junior lecturer (Premier Assistant)
University of Lausanne, Switzerland — *June 2023 - now*
Institute of Earth Sciences

Alexander von Humboldt Postdoctoral Fellow
Johannes-Gutenberg University of Mainz, Germany — *April 2021 - May 2023*
Funded by the A. von Humboldt Foundation
Mainz Institute of Multiscale Modeling & Institute of Geosciences

Postdoctoral researcher
Johannes-Gutenberg University of Mainz, Germany — *Oct. 2020 - March 2021*
Mainz Institute of Multiscale Modeling & Institute of Geosciences

Postdoctoral researcher
University of Pavia, Italy — *Mar. 2019 - Sept. 2020*
Funded by the European Research Council
(ERC grant agreement N. 714936 to M. Alvaro)

Visiting Scholar
University of Nevada, Las Vegas, USA — *Jan. 2016 - Apr. 2016*

Education

Ph.D., Mineral Physics
University of Pavia, Italy — *2019*
Development of computational mechanics methods
for geobarometry of non-ideal host-inclusion systems
Advisors: Prof. M. Chiara Domeneghetti, Dr. Ross J. Angel

Master Degree in Applied Geology
University of Pavia, Italy — *2015*
110/100 cum laude and with honours
Non-linear elastic geobarometry: methods and applications
Advisors: Prof. M. Chiara Domeneghetti, Dr. Ross J. Angel

Bachelor Degree in Geology
University of Pavia, Italy — *2013*
110/100 cum laude
Inclusions in diamonds: new thermoelastic parameters for pyrope
Advisors: Prof. M. Chiara Domeneghetti

Teaching and other institutional responsibilities

Courses: "Numerical Modeling" and "Tectonics and Geodynamics"
Assistant lecturer *2024-2025*
Institute of Earth Sciences, University of Lausanne, Switzerland

Courses: "Metamorphic petrogenesis" and "Mineral equilibria modeling"
Assistant lecturer *2021-2022*
Institute of Geosciences, Johannes-Gutenberg University of Mainz, Germany

Course: "Physical properties of minerals"
Lecturer *2019-2021*
Department of Earth and Environmental Sciences, University of Pavia, Italy

Course: "Optical mineralogy and laboratory"
Teaching assistant *2013-2019*
Department of Earth and Environmental Sciences, University of Pavia, Italy

PhD students representative
Department council *2016-2018*
University of Pavia

Supervising activities

- 2017 - 2025 – Supervisor and co-supervisor of six students for bachelor (B.Sc.), master (M.Sc.) and Ph.D. theses.

Invited lectures and presentations

- 2025 – Invited speaker at the annual meeting of the Italian society of mineralogy and petrology (Padova, Italy)
- 2023 – University of Oslo (Norway)
- 2022 – Two invited presentations at the 23rd International Mineralogical Association (IMA) General Meeting, Lyon (France)
- 2021 – Johannes Gutenberg University of Mainz (Germany)
- 2019 – University of Lausanne (Switzerland); PETROCHRO19: Melting, modelling, dating the crust, University of Potsdam (Germany)
- 2017 – University of Wien (Austria)

Grants and awards

- 2023 – Eigene Stelle Grant – Deutsche Forschungsgemeinschaft (DFG), Germany - Principal investigator - (214 k€). Declined to accept the position of Premier Assistant at the University of Lausanne.
- 2020 – Alexander von Humboldt fellowship, Germany - Principal investigator - (86 k€)
- 2020 – Scientific habilitation as Associate Professor (Abilitazione II fascia 04/A1) - Italian Ministry of University and Research
- 2019 – Best Ph.D. thesis award - Italian society of mineralogy and petrology (SIMP)
- 2018 – Travel Grant to attend the EGU Galileo conferences *Exploring new frontiers in fluids processes in subduction zones* - Italian society of mineralogy and petrology (SIMP)

- 2016 – Ph.D. Student Award – International Mineralogical Association (IMA)
- 2016 – Travel Award – Minerals international journal
- 2016 – Travel Grant to attend the International School of Crystallography (Erice, Italy) – NATO Advanced Study Institute

Main scientific collaborations

- Stefan Schmalholz (University of Lausanne, Switzerland)
- Evangelos Moulas (University of Mainz, Germany)
- Matteo Alvaro (University of Pavia, Italy)
- Ross J. Angel (CNR Padova, Italy)
- Pamela Burnley (University of Nevada, Las Vegas, USA)
- Boriana Mihailova (University of Hamburg, Germany)
- Fabrizio Nestola (University of Padua, Italy)
- Alessandro Reali (University of Pavia, Italy)
- Marco Scambelluri (University of Genova, Italy)

Organization of scientific meetings and workshops

- Sept. 2022 - **Co-convener** - session *"Stressed minerals and microstructures: a link between grain-scale processes and lithosphere dynamics"* - SGI-SIMP conference, Torino, Italy
- July 2022 - **Principal convener** - session *"Minerals and rocks under stress: a way to unravel geological processes"* - 23rd International Mineralogical Association (IMA) General Meeting, Lyon, France
- Sept. 2019 - **Principal convener** - session *"Integrated mineralogy, petrology and modelling to decipher fluid-rock interaction and tectonic histories recorded by metamorphic rocks from the deep Earth"* - SGI-SIMP conference, Parma, Italy

Reviewer for scientific journals

- American Mineralogist, Canadian Mineralogist, Contributions to Mineralogy and Petrology, Lithos, Minerals

Funded research proposals at large scale facilities

- 2016 – Coesite in Diamond: a unique piezothermometer for geology (Diamond Light Source, DSL: I19, experiment number EE14928)

Software development

EntraPT: Web-app for elastic thermobarometry and data processing $\rightarrow Website$

Eosfit-Pinc: Program with graphical interface for isotropic elastic thermobarometry $\rightarrow Website$

Public outreach

- **European Researcher's Night** - Coordinator of Earth Sciences activities - Pavia (2019)
- **Science journalist** - *Meridiana* (journal of the canton Ticino astronomical society, Switzerland, 2011/2012) and *Corriere del Ticino* (daily newspaper, Switzerland, 2011)

Bibliometric record

- 32 published research publications in peer-reviewed international journals ($\rightarrow Scopus$)
- >25 scientific communications at national and international conferences as presenting author
- 8 invited talks and seminars at national and international institutions
- H-index: 18 ($\rightarrow GoogleScholar$), 18 ($\rightarrow Scopus$)

Publications and contributions to conferences and meetings

Articles

[1] R. J. Angel, M. L. Mazzucchelli, M. Alvaro, P. Nimis, and F. Nestola. "Geobarometry from host-inclusion systems: The role of elastic relaxation". In: *American Mineralogist* 99.10 (2014), pp. 2146–2149. DOI: 10.2138/am-2014-5047.

[2] M. Alvaro, R. J. Angel, C. Marciano, S. Milani, L. Scandolo, M. L. Mazzucchelli, G. Zaffiro, G. Rustioni, M. Briccola, M. C. Domeneghetti, and F. Nestola. "A new micro-furnace for in situ high-temperature single-crystal X-ray diffraction measurements". In: *Journal of Applied Crystallography* 48.4 (2015), pp. 1192–1200. DOI: 10.1107/s1600576715011371.

[3] R. J. Angel, M. Alvaro, F. Nestola, and M. L. Mazzucchelli. "Diamond thermoelastic properties and implications for determining the pressure of formation of diamond–inclusion systems". In: *Russian Geology and Geophysics* 56.1-2 (2015), pp. 211–220. DOI: 10.1016/j.rgg.2015.01.014.

[4] R. J. Angel, P. Nimis, M. L. Mazzucchelli, M. Alvaro, and F. Nestola. "How large are departures from lithostatic pressure? Constraints from host–inclusion elasticity". In: *Journal of Metamorphic Geology* 33.8 (2015), pp. 801–813. DOI: 10.1111/jmg.12138.

[5] S. Milani, F. Nestola, M. Alvaro, D. Pasqual, M. L. Mazzucchelli, M. C. Domeneghetti, and C. A. Geiger. "Diamond–garnet geobarometry: The role of garnet compressibility and expansivity". In: *Lithos* 227.0 (2015), pp. 140–147. DOI: 10.1016/j.lithos.2015.03.017.

[6] L. Scandolo, M. L. Mazzucchelli, M. Alvaro, F. Nestola, F. Pandolfo, and M. C. Domeneghetti. "Thermal expansion behaviour of orthopyroxenes: the role of the Fe-Mn substitution". In: *Mineralogical Magazine* 79.1 (2015), pp. 71–87. DOI: 10.1180/minmag.2015.079.1.07.

[7] R. J. Angel, M. L. Mazzucchelli, M. Alvaro, and F. Nestola. "EosFit-Pinc: A simple GUI for host-inclusion elastic thermobarometry". In: *American Mineralogist* 102.9 (2017), pp. 1957–1960. DOI: 10.2138/am-2017-6190.

[8] S. Milani, R. J. Angel, L. Scandolo, M. Mazzucchelli, T. Ballaran, S. Klemme, M. Domeneghetti, R. Miletich, K. Scheidl, M. Derzsi, K. Tokár, M. Prencipe, M. Alvaro, and F. Nestola. "Thermo-elastic behavior of grossular garnet at high pressures and temperatures". In: *American Mineralogist* 102.4 (2017), pp. 851–859. DOI: 10.2138/am-2017-5855.

[9] N. Campomenosi, M. L. Mazzucchelli, B. Mihailova, M. Scambelluri, R. J. Angel, F. Nestola, A. Reali, and M. Alvaro. "How geometry and anisotropy affect residual strain in host-inclusion systems: Coupling experimental and numerical approaches". In: *American Mineralogist* 103.12 (2018), pp. 2032–2035. DOI: 10.2138/am-2018-6700CCBY.

[10] M. L. Mazzucchelli, P. Burnley, R. J. Angel, S. Morganti, M. C. Domeneghetti, F. Nestola, and M. Alvaro. "Elastic geothermobarometry: Corrections for the geometry of the host-inclusion system". In: *Geology* 46.3 (2018), pp. 231–234. DOI: 10.1130/G39807.1.

[11] M. Murri, M. L. Mazzucchelli, N. Campomenosi, A. V. Korsakov, M. Prencipe, B. D. Mihailova, M. Scambelluri, R. J. Angel, and M. Alvaro. "Raman elastic geobarometry for anisotropic mineral inclusions". In: *American Mineralogist* 103.11 (2018), pp. 1869–1872. DOI: 10.2138/am-2018-6625CCBY.

[12] C. Anzolini, F. Nestola, M. L. Mazzucchelli, M. Alvaro, P. Nimis, A. Gianese, S. Morganti, F. Marone, M. Campione, M. T. Hutchison, and J. W. Harris. "Depth of diamond formation obtained from single periclase inclusions". In: *Geology* 47.3 (2019), pp. 219–222. DOI: 10.1130/G45605.1.

[13] M. L. Mazzucchelli, A. Reali, S. Morganti, R. J. Angel, and M. Alvaro. "Elastic geobarometry for anisotropic inclusions in cubic hosts". In: *Lithos* (2019), p. 105218. DOI: 10.1016/j.lithos.2019.105218.

[14] F. Nestola, G. Zaffiro, M. L. Mazzucchelli, P. Nimis, G. B. Andreozzi, B. Periotto, F. Princivalle, D. Lenaz, L. Secco, L. Pasqualetto, A. M. Logvinova, N. V. Sobolev, A. Lorenzetti, and J. W. Harris. "Diamond-inclusion system recording old deep lithosphere conditions at Udachnaya (Siberia)". In: *Scientific Reports* 9.1 (2019). DOI: 10.1038/s41598-019-48778-x.

[15] M. Alvaro, M. L. Mazzucchelli, R. J. Angel, M. Murri, N. Campomenosi, M. Scambelluri, F. Nestola, A. Korsakov, A. A. Tomilenko, F. Marone, and M. Morana. "Fossil subduction recorded by quartz from the coesite stability field". In: *Geology* 48.1 (2020), pp. 24–28. DOI: 10.1130/G46617.1.

[16] R. J. Angel, M. L. Mazzucchelli, M. Alvaro, and F. Nestola. ""EosFit-Pinc: A simple GUI for host-inclusion elastic thermobarometry"—Reply to Zhong et al." In: *American Mineralogist* 105.10 (2020), pp. 1587–1588. DOI: 10.2138/am-2020-7616CCBY.

[17] N. Campomenosi, M. L. Mazzucchelli, B. D. Mihailova, R. J. Angel, and M. Alvaro. "Using polarized Raman spectroscopy to study the stress gradient in mineral systems with anomalous birefringence". In: *Contributions to Mineralogy and Petrology* 175.2 (2020), pp. 1–16. DOI: 10.1007/s00410-019-1651-x.

[18] S. Morganti, M. L. Mazzucchelli, M. Alvaro, and A. Reali. "A numerical application of the Eshelby theory for geobarometry of non-ideal host-inclusion systems". In: *Meccanica* (2020), pp. 1–14. DOI: 10.1007/s11012-020-01135-z.

[19] R. Angel, M. Mazzucchelli, J. Gonzalez-Platas, and M. Alvaro. "A self-consistent approach to describe unit-cell-parameter and volume variations with pressure and temperature". In: *Journal of Applied Crystallography* 54.6 (2021), pp. 1621–1630. DOI: 10.1107/S1600576721009092.

[20] N. Campomenosi, M. Scambelluri, R. J. Angel, J. Hermann, M. L. Mazzucchelli, B. Mihailova, F. Piccoli, and M. Alvaro. "Using the elastic properties of zircon-garnet host-inclusion pairs for thermobarometry of the ultrahigh-pressure Dora-Maira whiteschists: problems and perspectives". In: *Contributions to Mineralogy and Petrology* 176.5 (2021), p. 36. DOI: 10.1007/s00410-021-01793-6.

[21] J. P. Gonzalez, M. L. Mazzucchelli, R. J. Angel, and M. Alvaro. "Elastic Geobarometry for Anisotropic Inclusions in Anisotropic Host Minerals: Quartz-in-Zircon". In: *Journal of Geophysical Research: Solid Earth* 126.6 (2021), e2021JB022080. DOI: 10.1029/2021JB022080.

[22] M. L. Mazzucchelli, R. J. Angel, and M. Alvaro. "EntraPT: An online platform for elastic geothermobarometry". In: *American Mineralogist* 106.5 (2021), pp. 830–837. DOI: 10.2138/am-2021-7693CCBYNCND.

[23] R. J. Angel, M. Gilio, M. Mazzucchelli, and M. Alvaro. "Garnet EoS: a critical review and synthesis". In: *Contributions to Mineralogy and Petrology* 177.5 (2022), p. 54. DOI: 10.1007/s00410-022-01918-5.

[24] M. Murri, J. P. Gonzalez, M. L. Mazzucchelli, M. Prencipe, B. Mihailova, R. J. Angel, and M. Alvaro. "The role of symmetry-breaking strains on quartz inclusions in anisotropic hosts: Implications for Raman elastic geobarometry". In: *Lithos* 422-423 (2022), p. 106716. DOI: 10.1016/j.lithos.2022.106716.

[25] R. J. Angel, M. L. Mazzucchelli, K. A. Musiyachenko, F. Nestola, and M. Alvaro. "Elasticity of mixtures and implications for piezobarometry of mixed-phase inclusions". In: *European Journal of Mineralogy* 35.4 (2023), pp. 461–478. DOI: 10.5194/ejm-35-461-2023.

[26] M. J. Kohn, M. L. Mazzucchelli, and M. Alvaro. "Elastic Thermobarometry". In: *Annual Review of Earth and Planetary Sciences* 51.1 (2023), pp. 331–366. DOI: 10.1146/annurev-earth-031621-112720.

[27] J. P. Gonzalez, J. B. Thomas, M. L. Mazzucchelli, R. J. Angel, and M. Alvaro. "First evaluation of stiff-in-soft host–inclusion systems: experimental synthesis of zircon inclusions in quartz crystals". In: *Contributions to Mineralogy and Petrology* 179.2 (2024), p. 13. DOI: 10.1007/s00410-023-02081-1.

[28] M. L. Mazzucchelli, E. Moulas, B. J. P. Kaus, and T. Speck. "Fluid-mineral Equilibrium Under Nonhydrostatic Stress: Insight From Molecular Dynamics". In: *American Journal of Science* 324 (2024). DOI: 10.2475/001c.92881.

[29] R. J. Angel, M. L. Mazzucchelli, L. Baratelli, C. F. Schweinle, T. Balić-Žunić, J. Gonzalez-Platas, and M. Alvaro. "Uncertainties of recalculated bond lengths, angles and polyhedral volumes as implemented in the *Crystal Palace* program for parametric crystal structure analysis". In: *Acta Crystallographica Section A Foundations and Advances* 81.3 (2025), pp. 202–210. DOI: 10.1107/S2053273325002682.

[30] L. Eberhard, M. L. Mazzucchelli, S. M. Schmalholz, H. Stünitz, A. Addad, P. Cordier, and O. Plümper. "Coupling antigorite deformation and dehydration in high-pressure experiments". In: *Contributions to Mineralogy and Petrology* 180.9 (2025), p. 64. DOI: 10.1007/s00410-025-02255-z.

[31] M. Gilio, R. J. Angel, M. L. Mazzucchelli, and M. Alvaro. "The pressure-induced stiffening of quartz and its effect on the strain-stress relationship. Implications for elastic geobarometry". In: *Lithos* 514-515 (2025), p. 108210. DOI: 10.1016/j.lithos.2025.108210.

[32] J. P. Gonzalez, M. L. Mazzucchelli, J. B. Thomas, R. J. Angel, R. S. Darling, K. X. Atchinson, M. Gilio, and M. Alvaro. "Elastic thermobarometry of natural and experimental quartz inclusions in garnet (QuiG) under tension". In: *Contributions to Mineralogy and Petrology* 180.10 (2025), p. 70. DOI: 10.1007/s00410-025-02252-2.

[33] M. L. Mazzucchelli, P. Cordier, and C. A. Trepmann. "Carrying the planet on their backs: how minerals respond to stress". In: *Elements* Accepted (2026).

Abstracts

[1] S. Milani, M. L. Mazzucchelli, F. Nestola, M. Alvaro, R. J. Angel, C. A. Geiger, and C. Domeneghetti. "The PT conditions of garnet inclusion formation in diamond: thermal expansion of synthetic end-member pyrope". In: *EGU 2013 - European Geoscience Union Assembly*. Wien, A: EGU assembly, 2013, p. 13133.

[2] M. Alvaro, R. J. Angel, M. L. Mazzucchelli, F. Nestola, and C. Domeneghetti. "Isomekes: A fundamental tool to determine the formation pressure for diamond-inclusion pairs". In: *EGU 2014 - European Geoscience Union Assembly*. Vol. 16. Wien, Austria, 2014.

[3] M. Alvaro, R. J. Angel, M. L. Mazzucchelli, F. Nestola, and P. Nimis. "Isomekes: A chemically-independent method for geobarometry of UHPM rocks". In: *SGI-SIMP 2014 - The Future of the Italian Geosciences - The Italian Geosciences of the Future*. 2014.

[4] R. J. Angel, M. Alvaro, M. L. Mazzucchelli, P. Nimis, and F. Nestola. "How much differential stress can a rock support?" In: *EGU 2014 - European Geoscience Union Assembly*. Vol. 16. Wien, Austria, 2014.

[5] M. L. Mazzucchelli. "High-temperature behaviour of pyrope, Mg3Al2Si3O12: implications for the depth of diamond formation". In: *1st European Crystallography School*. Pavia, Italy, 2014.

[6] M. L. Mazzucchelli, R. J. Angel, M. Alvaro, F. Nestola, and P. Nimis. "Geobarometry for host-inclusion systems: the role of elastic relaxation". In: *SGI-SIMP 2014 - The Future of the Italian Geosciences - The Italian Geosciences of the Future*. Milano, Italy, 2014.

[7] L. Scandolo, M. L. Mazzucchelli, C. M. Domeneghetti, M. Alvaro, F. Nestola, and F. Pandolfo. "Thermal expansion behavior of orthopyroxenes: the role of the Fe-Mn substitution". In: *SIMP-SGI 2014*. Milano, Italy, 2014.

[8] M. Alvaro, R. J. Angel, M. L. Mazzucchelli, C. M. Domeneghetti, and F. Nestola. "Elastic geobarometry for UHPM rocks: A link between mineralogy and petrology". In: *SIMP-AIV-SoGeI-SGI 2015*. Florence, Italy, 2015.

[9] M. L. Mazzucchelli, R. J. Angel, M. Alvaro, P. Nimis, C. M. Domeneghetti, and F. Nestola. "Elastic geobarometry for ultra high pressure metamorphic (UHPM) rocks". In: *EGU 2015 - European Geoscience Union Assembly*. Vol. 17. Vienna, Austria, 2015.

[10] M. L. Mazzucchelli, R. J. Angel, M. Alvaro, P. Nimis, C. M. Domeneghetti, and F. Nestola. "Host-inclusion geobarometry for ultra-high pressure metamorphic (UHPM) rocks". In: *SIMP-AIV-SoGeI-SGI 2015*. Florence, Italy, 2015.

[11] S. Milani, L. Scandolo, G. Zaffiro, M. Di Prima, M. L. Mazzucchelli, M. Alvaro, C. M. Domeneghetti, and F. Nestola. "On the determination of the entrapment pressure for garnet inclusions in diamond". In: *SIMP-AIV-SoGeI-SGI 2015*. Florence, Italy, 2015.

[12] G. Rustioni, R. J. Angel, S. Milani, M. L. Mazzucchelli, P. Nimis, C. M. Domeneghetti, F. Marone, M. Alvaro, J. W. Harris, and F. Nestola. "Elastic geobarometry for host-inclusion systems: Pressure release and the role of brittle failure". In: *SIMP - AIV - SoGeI - SGI 2015*. Vol. 18. Florence, Italy, 2015, p. 307322.

[13] M. Alvaro, R. J. Angel, C. Marciano, G. Zaffiro, L. Scandolo, M. L. Mazzucchelli, S. Milani, G. Rustioni, C. M. Domeneghetti, and F. Nestola. "Development of a new micro-furnace for "in situ" high-temperature single crystal X-ray diffraction measurements." In: *DGK 2016 - 24th Annual Meeting of the German Crystallographic Society*. Universität Stuttgart, Germany, 2016.

[14] M. Alvaro, R. J. Angel, M. L. Mazzucchelli, and F. Nestola. "New constraints on PT evolution of metamorphic rocks from single inclusion piezobarometery". In: *EMC 2016 - 2nd European Mineralogical Conference*. Rimini, Italy., 2016.

[15] R. J. Angel, M. Alvaro, M. L. Mazzucchelli, P. Nimis, and F. Nestola. "Single inclusion piezobarometry confirms high-temperature decompression path for Variscan granulites". In: *EGU 2016 - European Geoscience Union Assembly*. Vol. 18. Wien, Austria, 2016, p. 140351.

[16] M. L. Mazzucchelli, R. J. Angel, P. Burnley, M. C. Domeneghetti, F. Nestola, and M. Alvaro. "Elastic geobarometry: principles and practice". In: *International School of Crystallography*. Erice, Italy, 2016.

[17] M. L. Mazzucchelli, R. J. Angel, G. Rustioni, S. Milani, P. Nimis, M. C. Domeneghetti, F. Marone, J. W. Harris, F. Nestola, and M. Alvaro. "Elastic geobarometry and the role of brittle failure on pressure release". In: *EGU 2016 - European Geoscience Union Assembly*. Vol. 13569. Wien, Austria, 2016.

[18] M. L. Mazzucchelli, P. Burnley, R. J. Angel, C. M. Domeneghetti, F. Nestola, and M. Alvaro. "Elastic geobarometry: uncertainties arising from the shape of the inclusion". In: *EMC 2016 - 2nd European Mineralogical Conference*. Rimini, Italy, 2016.

[19] G. Rustioni, R. J. Angel, M. L. Mazzucchelli, S. Milani, P. Nimis, M. C. Domeneghetti, F. Marone, J. W. Harris, F. Nestola, and M. Alvaro. "Pressure release for host – inclusion systems: the interplay between brittle failure and fluid phase". In: *EMC 2016 - 2nd European Mineralogical Congress*. Rimini, 2016.

[20] M. Alvaro, M. Murri, M. L. Mazzucchelli, M. Prencipe, N. Campomenosi, and R. J. Angel. "Elastic geobarometry for UHP metamorphic rocks". In: *IEC 2017 - 12th International Eclogite Conference*. Åre, Sweden, 2017.

[21] R. J. Angel, M. Alvaro, M. L. Mazzucchelli, and F. Nestola. "EosFit-Pinc : a GUI program to calculate pressures in host-inclusion systems". In: *EGU 2017 - European Geoscience Union Assembly*. Vol. 19. Wien, Austria, 2017, p. 307322.

[22] R. J. Angel, M. L. Mazzucchelli, F. Nestola, and M. Alvaro. "Elastic geobarometry: state of the art". In: *ISC 2017 - 12th International Eclogite Conference*. Åre, Sweden, 2017.

[23] N. Campomenosi, M. Scambelluri, B. D. Mihailova, M. Alvaro, F. Nestola, M. L. Mazzucchelli, M. Murri, R. J. Angel, and M. Prencipe. "Experimental evidence on natural host-inclusion mineral systems to characterize the role of geometry and size of the inclusions for Raman elastic geobarometry". In: *IEC 2017 - 12th International Eclogite Conference*. Åre, Sweden, 2017.

[24] N. Campomenosi, M. Scambelluri, B. D. Mihailova, M. Alvaro, F. Nestola, M. L. Mazzucchelli, M. Murri, R. J. Angel, and M. Prencipe. "Geometry and size effects on Raman shifts in natural host-inclusion systems: an experimental validation". In: *SIMP-AIV-SoGeI-SGI 2017*. Pisa, Italy, 2017.

[25] M. L. Mazzucchelli, P. Burnley, R. J. Angel, C. M. Domeneghetti, F. Nestola, and M. Alvaro. "Elastic geobarometry : uncertainties arising from the geometry of the host-inclusion system". In: *EGU 2017 - European Geoscience Union Assembly*. Vol. 19 - 2060. Wien, Austria, 2017, p. 307322.

[26] M. L. Mazzucchelli, P. C. Burnley, R. J. Angel, C. M. Domeneghetti, F. Nestola, and M. Alvaro. "Elastic geobarometry: the strain and the stress distribution in the host-inclusion system revealed by Finite Element Modeling (FEM)". In: *SIMP-AIV-SoGeI-SGI 2017*. Pisa, Italy, 2017.

[27] M. Murri, M. L. Mazzucchelli, M. Prencipe, B. D. Mihailova, M. Scambelluri, N. Campomenosi, R. J. Angel, and M. Alvaro. "Ab initio simulation on quartz (SiO2) under hydrostatic stress vs isotropic strain". In: *AIC 2017 - Associazione Italiana di Cristallografia*. Perugia, Italy, 2017.

[28] M. Murri, M. L. Mazzucchelli, M. Prencipe, B. D. Mihailova, M. Scambelluri, N. Campomenosi, R. J. Angel, and M. Alvaro. "How does quartz respond to deviatoric stresses? Ab initio calculations on SiO2 tectosilicate". In: *SIMP-AIV-SoGeI-SGI 2017*. Pisa, Italy, 2017.

[29] G. Zaffiro, R. J. Angel, M. L. Mazzucchelli, and M. Alvaro. "Towards a reliable equation of state for zircon". In: *SIMP-AIV-SoGeI-SGI 2017*. Pisa, Italy, 2017.

[30] R. J. Angel, M. Murri, M. L. Mazzucchelli, M. Prencipe, B. D. Mihailova, and M. Alvaro. "Using Raman scattering to measure strains in crystals under non-hydrostatic stress conditions". In: *DGK 2018 - 26th Annual Meeting of the German Crystallographic Society (DGK)*. Essen, Germany, 2018.

[31] N. Campomenosi, M. L. Mazzucchelli, B. Mihailova, M. Korsakov A.V. Scambelluri, R. J. Angel, and M. Alvaro. "Relations between induced birefringence haloes and polarized raman spectra in host cubic crystals". In: 2018.

[32] N. Campomenosi, M. L. Mazzucchelli, B. Mihailova, M. Scambelluri, C. Stangarone, R. J. Angel, and M. Alvaro. "Raman spectroscopy as a tool to determine elastic strain in natural host-inclusion systems". In: *GeoRaman 2018*. Catania, 2018.

[33] N. Campomenosi, M. L. Mazzucchelli, B. D. Mihailova, M. Scambelluri, R. J. Angel, and M. Alvaro. "Elastic geobarometry: a comparison between experiments and numerical simulations". In: *EGU 2018 - European Geoscience Union Assembly*. Vol. 20. Wien, Austria, 2018.

[34] M. L. Mazzucchelli, R. J. Angel, S. Morganti, A. Reali, and M. Alvaro. "Elastic geobarometry for elastically anisotropic inclusions." In: *SGI - SIMP "Geosciences for the environment, natural hazard and cultural heritage"*. Catania, Italy, 2018.

[35] M. L. Mazzucchelli, R. J. Angel, F. Nestola, and M. Alvaro. "Pressure estimates from fluid and solid inclusions in minerals from UHPM rocks". In: *EGU Galileo conferences - Exploring new frontiers in fluids processes in subduction zones*. Leibnitz, Austria, 2018.

[36] M. Murri, M. L. Mazzucchelli, N. Campomenosi, A. V. Korsakov, M. Prencipe, B. D. Mihailova, M. Scambelluri, R. J. Angel, and M. Alvaro. "Raman elastic geobarometry for anisotropic mineral inclusions". In: *SGI - SIMP "Geosciences for the environment, natural hazard and cultural heritage"*. Catania, Italy, 2018.

[37] M. Alvaro, R. J. Angel, M. L. Mazzucchelli, N. Campomenosi, M. Murri, and M. Scambelluri. "The absence of deviatoric stresses in diamond-grade eclogites". In: *IUGG International Union for Geodesy and Geophysics General Assembly 2019*. Montreal, Canada, 2019.

[38] M. Alvaro, M. L. Mazzucchelli, R. J. Angel, M. Murri, N. Campomenosi, M. Scambelluri, F. Nestola, A. Korsakov, A. Tomilenko, F. Marone, and M. Morana. "Preserved quartz inclusions from eclogite xenoliths record past subduction in Siberian craton". In: *Goldschmidt Conference 2019*. Barcelona, Spain, 2019.

[39] N. Campomenosi, M. L. Mazzucchelli, B. Mihailova, R. J. Angel, and M. Alvaro. "Using polarized Raman spectroscopy to detect strain gradient in optical anomalous host-inclusion mineral systems". In: *9th European Conference on Mineralogy and Spectroscopy*. Prague, Czech Republic, 2019.

[40] N. Campomenosi, M. L. Mazzucchelli, M. Scambelluri, and M. Alvaro. "Analysis of induced birefringence in host-inclusion mineral systems: a Raman spectroscopy approach". In: *EGU General Assembly 2019*. Vienna, Austria, 2019.

[41] M. L. Mazzucchelli, R. J. Angel, S. Morganti, and M. Alvaro. "EntraPT: a GUI program for anisotropic elastic thermobarometry". In: *Congresso congiunto SIMP-SGI*. Parma, Italy, 2019.

[42] M. L. Mazzucchelli, R. J. Angel, S. Morganti, M. Murri, N. Campomenosi, M. Scambelluri, F. Marone, A. Korsakov, M. Morana, and M. Alvaro. "Quartz inclusions from eclogite xenoliths record past subduction". In: *Goldschmidt Conference 2019*. Barcelona, Spain, 2019.

[43] J. P. Gonzalez and M. L. Mazzucchelli. "Elastic Geothermobarometry For Fully Anisotropic Host-Inclusion Systems". In: *European Mineralogical Conference*. Cracow, Poland, 2021.

[44] M. L. Mazzucchelli, R. J. Angel, and M. Alvaro. "EntraPT: An Online Platform For Elastic Geothermobarometry". In: *European Mineralogical Conference*. Cracow, Poland, 2021.

[45] G. Mingardi, N. Campomenosi, M. L. Mazzucchelli, C. Chopin, M. Scambelluri, and M. Alvaro. "Elastic Thermobarometry On Zircon-In-Garnet (Zig) From The Brossasco-Isasca Unit (Dora-Maira Massif, Western Alps)". In: *European Mineralogical Conference*. Cracow, Poland, 2021.

[46] M. Murri, J. P. Gonzalez, M. L. Mazzucchelli, M. Prencipe, B. Mihailova, R. J. Angel, and M. Alvaro. "The Role Of Symmetry Breaking Strains In Anisotropic Host-Inclusion Systems: An Ab Initio Study On Alpha Quartz". In: *European Mineralogical Conference*. Cracow, Poland, 2021.

[47] R. J. Angel, M. Gilio, M. Mazzucchelli, and M. Alvaro. "Determining accurate EoS of minerals by combining datasets". In: *23rd International Mineralogical Association General Meeting*. Lyon, France, 2022.

[48] R. J. Angel, M. Gilio, M. L. Mazzucchelli, and M. Alvaro. "Garnet EoS: a critical review and synthesis". In: *EGU 2022 - European Geoscience Union Assembly*. Wien, Austria, 2022.

[49] P. Biswabhanu, M. L. Mazzucchelli, A. Reali, and M. Alvaro. "Investigation of microscale fracture opening in host inclusion systems". In: *Congresso congiunto SIMP-SGI*. Torino, Italy, 2022.

[50] N. Campomenosi, M. Mazzucchelli, M. Alvaro, and B. D. Mihailova. "Analysing the stress gradient in host-inclusion systems by polarized Raman spectroscopy". In: *23rd International Mineralogical Association General Meeting*. Lyon, France, 2022.

[51] M. Mazzucchelli, R. J. Angel, and E. Moulas. "Elastic geobarometry: state of the art". In: *23rd International Mineralogical Association General Meeting*. Lyon, France, 2022.

[52] M. Mazzucchelli, E. Moulas, B. Kaus, and T. Speck. "Effect of nonhydrostatic stress on mineral-fluid equilibria assessed by molecular dynamics". In: *23rd International Mineralogical Association General Meeting*. Lyon, France, 2022.

[53] M. L. Mazzucchelli, R. J. Angel, and M. Alvaro. "EntraPT: an online platform for host-inclusion elastic thermobarometry". In: *Congresso congiunto SIMP-SGI*. Torino, Italy, 2022.

[54] M. L. Mazzucchelli, Z. Geddo, J. P. Gonzalez, and E. Moulas. "Statistical analysis of the residual strain of inclusions measured by Raman spectroscopy". In: *23rd International Mineralogical Association General Meeting*. Lyon, France, 2022.

[55] M. L. Mazzucchelli, E. Moulas, B. Kaus, and T. Speck. "The influence of non-hydrostatic stress on mineral equilibria: insights from molecular dynamics". In: *Congresso congiunto SIMP-SGI*. Torino, Italy, 2022.

[56] M. L. Mazzucchelli, E. Moulas, B. Kaus, and T. Speck. "The influence of non-hydrostatic stress on mineral equilibria: insights from Molecular Dynamics". In: *EGU 2022 - European Geoscience Union Assembly*. Wien, Austria, 2022.

[57] G. Mingardi, N. Campomenosi, M. L. Mazzucchelli, C. Chopin, M. Scambelluri, and M. Alvaro. "Elastic thermobarometry on Zircon-in-Garnet (ZiG) from the Brossasco-Isasca unit (Dora-Maira Massif, Western Alps)". In: *EGU 2022 - European Geoscience Union Assembly*. 2022.

[58] M. Murri, J. P. Gonzalez J. P., M. Mazzucchelli, M. Prencipe, B. D. Mihailova, and M. Alvaro. "The effects of symmetry-breaking strains in quartz and pyrope". In: *23rd International Mineralogical Association General Meeting*. Lyon, France, 2022.

[59] M. L. Mazzucchelli, E. Moulas, B. Kaus, and T. Speck. "Fluid-mineral equilibrium under stress: insight from molecular dynamics". In: *EGU 2023 - European Geoscience Union Assembly*. Vienna, Austria, 2023.

[60] M. L. Mazzucchelli, E. Moulas, B. Kaus, and T. Speck. "Fluid-mineral equilibrium under stress: insight from molecular dynamics". In: *Scales conference 2023 - Multiscale Modeling of Complex systems*. Mainz, Germany, 2023.

[61] M. L. Mazzucchelli, E. Moulas, S. M. Schmalholz, B. Kaus, and T. Speck. "Fluid-mineral equilibrium under stress investigated through molecular dynamics". In: *Swiss Geoscience Meeting 2023*. Mendrisio, Switzerland, 2023.

[62] R. J. Angel, M. L. Mazzucchelli, M. Alvaro, and J. Gonzalez-Platas. "A self-consistent approach to describe unit-cell parameter and volume variations with pressure and temperature". In: *32th annual meeting of the German Crystallographic Society (DGK)*. Bayreuth, Germany, 2024.

[63] M. L. Mazzucchelli, E. Moulas, S. M. Schmalholz, B. Kaus, and T. Speck. “Precipitation in fluid-mineral systems under differential stress investigated through molecular dynamics”. In: *EGU 2024 - European Geoscience Union Assembly*. Vienna, Austria, 2024.

[64] R. J. Angel, M. L. Mazzucchelli, L. Baratelli, C. Schweinle, J. Gonzalez-Platas, T. Balic-Zunic, and M. Alvaro. “Uncertainties of recalculated bond lengths and angles as implemented in the Crystal Palace program for parametric crystal structure analysis”. In: *33th annual meeting of the German Crystallographic Society (DGK)*. Hannover, Germany, 2025.

[65] L. Eberhard, M. L. Mazzucchelli, S. M. Schmalholz, H. Stunitz, P. Cordier, A. Addad, and O. Plümper. “How is dehydration of antigorite coupled to deformation?” In: *Goldschmidt Conference 2025*. Prague, Czech Republic, 2025.

[66] M. L. Mazzucchelli, E. Moulas, S. M. Schmalholz, B. Kaus, and T. Speck. “Instability and equilibration of fluid-mineral systems under stress investigated through molecular dynamics”. In: *EGU 2025 - European Geoscience Union Assembly*. Vienna, Austria, 2025.