

Institute of Geosciences
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Research profile

I am an Earth Scientist focussing on metamorphic processes. I use fieldwork, petrography, experimental petrology, thermodynamic- and numerical modelling to quantify crustal processes. I explore quantitative methods such as thermal- and chemical diffusion to quantify process rates, directions, and extents. My focus lies on comprehending their impact on multiscale phenomena such as melt/fluid-rock interaction and transport including densification & porosity formation related to subduction, exhumation and crustal differentiation. I aim at understanding their interplay across scales and disciplines, for example the link between endo- and exothermic reactions influencing thermally-activated processes applied to thermochronology and the record of mineral zoning patterns.

Academic appointments

Apr 2024–present	Alexander-von-Humboldt Fellow at the Institute of Geosciences, Johannes Gutenberg-Universität Mainz, Germany " Metamorphic fluid-pressure gradients controlling the preservation of low-density mineral assemblages and the stability of mountain roots "
Oct 2020–Mar 2024	Post-doctoral Research Fellow at the NAWI Graz Geocenter, University of Graz, Austria FWF Stand-alone project " On the hydration of high-grade metamorphic terranes " (P 33002-N)
Oct 2019–Oct 2020	Post-doctoral Research Fellow at the School of Earth Sciences, University of Melbourne, Australia Development of a new compositional-dependent equation of state (x-eos) for clinopyroxene . Supervisor: <i>Eleanor C.R. Green</i>

Educational background

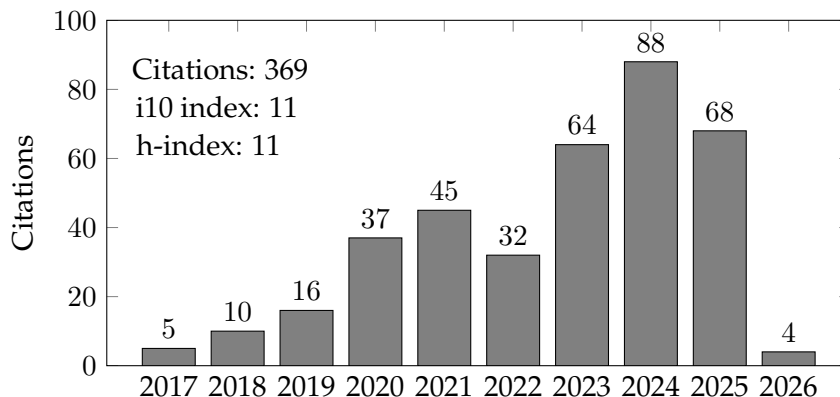
Jan 2016–Jul 2019	Ph.D. in Earth Sciences, University of Cape Town, South Africa Thesis: " High-temperature metamorphism in the western Namaqua–Natal Metamorphic Province (southern Africa): implications for low-pressure granulite terranes ". Supervisor: <i>Johann F.A. Diener</i> – graduation: 12.07.2019
Oct 2012–Oct 2015	M.Sc. in Earth Sciences (120 ECTS), Karl-Franzens Universität Graz, Austria Thesis: " The polymetamorphic Saualpe Complex (Austria): Petrological insights from the Permian- & Eoalpine metamorphic events ". Supervisor: <i>Kurt Stiawe</i> . Graduated with distinction
2013, fall semester	ERASMUS-exchange , University of Århus, Denmark
Sep 2009–Sep 2012	B.Sc. in Earth Sciences (180 ECTS), Università degli studi di Padova, Italy Thesis: " Cataclastic flow and dissolution precipitation creep in garnet: a hint for high strain rate deformation? " Supervisor: <i>Richard Spiess</i> . Grade: 110/110 cum laude

Grants & Awards

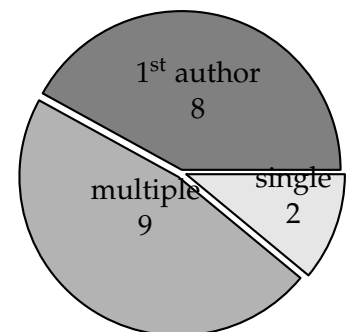
April 2024–April 2026	A. von Humboldt fellowship; "Metamorphic fluid-pressure gradients controlling the preservation of low-density mineral assemblages and the stability of mountain roots" , JGU Mainz
Otto-Ampferer Award 2024	awarded by the <i>Austrian Geological Society</i> to geoscientists under 35 years of age in recognition of outstanding contributions to the field of Earth sciences. Awarded amount: €1.500,00
NAWI Visiting Award 2023	mobility stipend for 2-month research exchange at JGU Mainz funded by the science faculty of the KFU Graz. Awarded amount: €7.080,00
Felix-Machatschki Prize 2023	awarded by the <i>Austrian Mineralogical Society</i> in recognition of scientific publications in the field of mineralogy in international journals by researchers living in Austria under the age of 35. Awarded amount: €610,00
W.E. Petrascheck Award 2022	funded by the <i>Austrian Academy of Sciences</i> for scientists under 35 years of age who can demonstrate outstanding scientific works in the field of Earth sciences. Awarded amount: €4.000,00
Mike Brown ECR Award 2022	Annual Early Career Research Paper Prize of the <i>Journal of Metamorphic Geology</i> for the paper "Self-induced incipient 'eclogitization' of metagranitoids at closed-system conditions"
Oct 2020–Mar 2024	Stand-alone project "On the hydration of high-grade metamorphic terranes" (P-33002-N) funded by the <i>Austrian Science Fund (FWF)</i> . PI: Simon Schorn. Awarded amount: €241.416,84
Jan 2016–Jul 2019	Science Faculty PhD Fellowship bursary, University of Cape Town, South Africa

Scholarly metrics

[Google Scholar](#) as per January 12, 2026



Authorship Distribution



Teaching & mentoring experience

- GEO.MF25UB – "Workshop in Geochemistry and Petrology: Practical aspects of thermodynamic modelling using THERMOCALC" – *University of Graz*, winter semester 21/22
- 3-day workshop using THERMOCALC for MSc-students – *University of Graz*, winter semester 20/21
- teaching assistant at BSc-level in metamorphic petrology, petrography, microscopy and phase diagram modelling – *University of Cape Town*, 2016–2018
- supervision during mapping field trips in South Africa – *University of Cape Town*, 2017–2018

- Supervised students:

1. **Ben Odin Kubinek** | Petrological and Thermodynamic Modeling Investigation of Eclogite. *BSc-Thesis, JGU Mainz, 2025*

- Co-supervised students:

1. **Fabrizio Tursi** | [Analisi strutturale, microstrutturale e petrologica del basamento di Mammola e Stilo \(Serre Meridionali – Calabria\): nuovi vincoli per il metamorfismo Varisico regionale e di contatto](#). *MSc-Thesis, University of Padova, 2016–2017*
2. **Sebastian Stumpf** | [From Sedimentation to Multiple Tectono-Thermal Events: U/Pb Detrital Zircon and Allanite Age Dating in the Eastern Alps](#). *MSc-Thesis, University of Graz, 2021–2023*
3. **Kevin Karner-Rühl** | [P–T–t evolution of Variscan remnants in the Eastern Alps: the Kain-taleck Metamorphic Complex](#). *MSc-Thesis, University of Graz, 2021–2023*
4. **Daniel Brunner** | [Pressure–Temperature structure of the Makbal UHP complex \(NW Kyrgyzstan\)](#). *MSc-Thesis, University of Graz, 2021–2024*

National & international

- associate editor of the [Geological Magazine](#)
- member of the editorial advisory board of the [Austrian Journal of Earth Sciences](#) (Term 2020–2023)
- regular reviewer for international journals such as the *Journal of Metamorphic Geology*, *Lithos*, *Gondwana Research & Geology* | [>30 verified reviews](#)
- member of the scientific and organizing committee; [fO₂ – Understanding Oxygen fugacity in Geoscience](#) | [International School](#), September 2022, Trieste, Italy
- convener at the Goldschmidt 2023 (Lyon): [Session 4d – Crust formation, differentiation and stabilization on the early Earth: a metamorphic perspective](#)
- convener at the MinWien 2023 (Vienna): [Interplay of Chemical and Mechanical Processes across scales](#)
- designing [tutorials](#) for phase diagram calculations
- outreach & local news (in German):
 - Südstern: Interview regarding metamorphism and Südtirol (Alto Adige) – [Faszination Metamorphose & Südtirol](#)
 - Die Presse: Interview regarding water triggering metamorphic processes – [Wie Wasser die Welt formt](#)
 - Kleine Zeitung: Interview for local newspaper on geological processes – [Abtauchen ins Erdinnere](#)

References

[Kurt Stüwe](#) (Graz, Austria)

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[Johann Diener](#) (Cape Town, South Africa)

johann.diener@uct.ac.za

[Eleanor Green](#) (Melbourne, Australia)

eleanor.green@unimelb.edu.au

[Evangelos Moulas](#) (Mainz, Germany)

evmoulas@uni-mainz.de

Publication list

Monographs

3. High-temperature metamorphism in the western Namaqua–Natal Metamorphic Province (southern Africa): implications for low-pressure granulite terranes – Doctoral Thesis
2. The polymetamorphic Saualpe Complex (Austria): Petrological insights from the Permian- & Eoalpine metamorphic events – Master's Thesis
1. Cataclastic flow and dissolution precipitation creep in garnet: a hint for high strain rate deformation? – Bachelor's Thesis

Publications in peer-reviewed journals

★ ... applicant as lead author

19. Hartnady, M.I.H., **Schorn, S.**, Johnson, T.E., Zametzer, A., Schmitt, A.K., Ribeiro, B.V., Smithies, R.H., Barham, M. and Kirkland, C.L. (2025). Incipient continent formation by shallow melting of an altered mafic protocrust. *Nature Communications*, 16: 4557; doi: [s41467-025-59075-9](https://doi.org/10.1038/s41467-025-59075-9)
18. Rogowitz, A., **Schorn, S.**, Huet, B., Grasemann, B. and Menegon, L. (2025). Melt-supported strain localization at eclogite-facies conditions triggered by syn-metamorphic strength inversion. *Geochemistry, Geophysics, Geosystems*, 26: e2024GC012110; doi: [2024GC012110](https://doi.org/10.1029/2024GC012110)
17. Zhong, Y., Stüwe, K., Kusky, T., Hauzenberger, C.H., **Schorn, S.** and Wang, L. (2025). Inverted metamorphic gradient in the Zhanhuang nappe/thrust system, north China indicates large-scale thrust stacking in an Archean Orogen. *Earth and Planetary Science Letters*, 651: 119121; doi: [j.epsl.2024.119121](https://doi.org/10.1016/j.epsl.2024.119121)
16. ★ **Schorn, S.**, Moulas, E. and Stüwe, K. (2024). Exothermic reactions and ^{39}Ar – ^{40}Ar thermochronology: Hydration leads to younger apparent ages. *Geology*, 52(6): 458–462; doi: [10.1130/G51776.1](https://doi.org/10.1130/G51776.1)
15. Rogowitz, A., **Schorn, S.**, and Huet, B. (2024). Eclogite dehydration and melt-induced embrittlement at high-pressure conditions. *Terra Nova*, 36(4): 266–274; doi: [10.1111/ter.12707](https://doi.org/10.1111/ter.12707)
14. ★ **Schorn, S.**, Rogowitz, A. and Hauzenberger, C.A. (2023). Partial melting of amphibole–clinozoisite eclogite at the pressure maximum. *European Journal of Mineralogy*, 35(5): 715–735; doi: [10.5194/ejm-35-715-2023](https://doi.org/10.5194/ejm-35-715-2023)
13. Sorger, D., Hauzenberger, C.A., Finger, F., Linner, M., Skrzypek, E. and **Schorn, S.** (2023). Formation of low-pressure reaction textures during near-isothermal exhumation of hot orogenic crust (Bohemian Massif, Austria). *Journal of Metamorphic Geology*, 42(1): 3–34; doi: [10.1111/jmg.12744](https://doi.org/10.1111/jmg.12744)
12. Gilotti, J.A., McClelland, W.C., **Schorn, S.**, Compagnoni, R. and Coble, M.A. (2023). Provenance, protolith and metamorphic ages of jadeite-bearing orthogneiss and host paragneiss at Tavagnasco, the Sesia Zone, Lower Aosta Valley, Italy. *European Journal of Mineralogy*, 35(4): 645–658; doi: [10.5194/ejm-35-645-2023](https://doi.org/10.5194/ejm-35-645-2023)
11. Hartnady, M.I.H., Johnson, T.E., **Schorn, S.**, Smithies, R.H., Kirkland, C.L. and Richardson, S.H. (2022). Fluid processes in the early Earth and the growth of continents. *Earth and Planetary Science Letters*, 594: 117695; doi: [10.1016/j.epsl.2022.117695](https://doi.org/10.1016/j.epsl.2022.117695)
10. Li, L.S., Wang, X.L., Yakymchuk, C., **Schorn, S.**, Yu, J.H., Wang, D., Li, J.Y., Du, D.H. and Huang, Y. (2022). A refined study of Paleoproterozoic high-pressure granulite-facies metamorphism in the Kongling complex of northern Yangtze block. *Precambrian Research*, 378: 106741; doi: [10.1016/j.precamres.2022.106741](https://doi.org/10.1016/j.precamres.2022.106741)

9. ★ **Schorn, S.** (2022). Self-induced incipient 'eclogitization' of metagranitoids at closed-system conditions. *Journal of Metamorphic Geology*, 40(7): 1271–1290, 1–19; doi: [10.1111/jmg.12665](https://doi.org/10.1111/jmg.12665)
8. ★ **Schorn, S.**, Hartnady, M.I.H., Diener, J.F.A., Clark, C. and Harris, C. (2021). H₂O-fluxed melting of eclogite during exhumation: an example from the eclogite type-locality, Eastern Alps (Austria). *Lithos*, 390–391(4), 106118; doi: [10.1016/j.lithos.2021.106118](https://doi.org/10.1016/j.lithos.2021.106118)
7. ★ **Schorn, S.**, Diener, J.F.A., Sorger, D. and Clark, C. (2020). The contribution of charnockite magmatism to achieve near-ultrahigh temperatures in the Namaqua–Natal Metamorphic Province, South Africa. *Lithos*, 368–369, 105585; doi: [10.1016/lithos.2020](https://doi.org/10.1016/lithos.2020)
6. ★ **Schorn, S.** and Diener, J.F.A. (2019). Seemingly disparate temperatures recorded by coexisting granulite facies lithologies. *Journal of Metamorphic Geology*, 37(8): 1049–1078; doi: [10.1111/jmg.12500](https://doi.org/10.1111/jmg.12500)
5. ★ **Schorn, S.**, Diener J.F.A., Powell, R. and Stüwe, K. (2018). Thermal buffering in the orogenic crust. *Geology*, 46(7): 643–646; doi: [10.1130/G40246.1](https://doi.org/10.1130/G40246.1)
4. Pourteau, A., Scherer, E., **Schorn, S.**, Bast, R., Schmidt, A. and Ebert, L. (2018). Thermal evolution of an ancient subduction interface revealed by Lu–Hf garnet geochronology, Halilbaği Complex (Anatolia). *Geoscience Frontiers*, 10(1), 127–148; doi: [10.1016/j.gsf.2018.03.004](https://doi.org/10.1016/j.gsf.2018.03.004)
3. ★ **Schorn, S.** (2017). Dehydration of metapelites during high-pressure metamorphism: The coupling between fluid sources and fluid sinks. *Journal of Metamorphic Geology*; 36(3): 369–391; doi: [10.1111/jmg.12296](https://doi.org/10.1111/jmg.12296)
2. ★ **Schorn, S.** and Diener, J.F.A. (2017). Details of the gabbro-to-eclogite transition determined from microtextures and calculated chemical potential relationships. *Journal of Metamorphic Geology*, 35(1): 55–75; doi: [10.1111/jmg.12220](https://doi.org/10.1111/jmg.12220)
1. ★ **Schorn, S.** and Stüwe, K. (2016). The Plankogel detachment of the Eastern Alps: petrological evidence for an orogeny-scale extraction fault. *Journal of Metamorphic Geology*, 34(2): 147–166; doi: [10.1111/jmg.12176](https://doi.org/10.1111/jmg.12176)

Selected oral conference contributions

★ ... invited presentation

★★ ... keynote presentation

19. ★ **Schorn, S.** (2025). Coupling latent heat release with reaction kinetics in metamorphic systems. Kolloquium, Department of Earth Sciences, University of Bern, Switzerland
18. **Schorn, S.**, Yang, Z., Buhre, S., Botcharnikov, R. and Moulas, E. (2025). Experimental constraints on the kinetics of the albite = jadeite + quartz reaction depending on grain size and reaction overstepping. SGI SIMP 2025, Padova, Italy
17. **Schorn, S.** Moulas, E. and Riel, N. (2025). Petrologic preconditioning revisited: insights from thermodynamic and numerical modelling. Goldschmidt 2025, Prague, Czech Republic
16. ★ **Schorn, S.** and Moulas, E. (2024). Latent heat of metamorphic reactions: boosting diffusion–hampering cooling. AGU 2024, Washington DC, USA
15. ★★ **Schorn, S.** (2024). Partial melting in the continental crust: thermal & chemical consequences of melting reactions and melt–rock interaction. EMC 2024, Dublin, Ireland
14. Rogowitz, A., **Schorn, S.**, Huet, B., Grasemann, B. and Menegon, L. (2024). Metamorphism induced strength inversion at high-pressure conditions–Implications for strain localization in eclogite. EGU24-3884; EGU 2024, Vienna, Austria

13. **Schorn, S.**, Moulas, E. and Stüwe, K (2024). Constraining latent heat of hydration using combined thermal-and garnet diffusion modelling. *EGU24-5164*; EGU 2024, Vienna, Austria
12. ★ **Schorn, S.**, Moulas, E. and Stüwe, K. (01.11.2023). Exothermic hydration reactions and thermally-activated processes in metamorphic systems; Institut für Geowissenschaften, Goethe Universität Frankfurt
11. ★ **Schorn, S.**, Moulas, E. and Stüwe, K. Hot when wet: the consequences of exothermic hydration on geochronology; Goldschmidt 2023, Lyon, France
10. **Schorn, S.**, Moulas, E. and Stüwe, K. (2022). Hot when wet: the consequences of exothermic hydration on geochronology. *EGU23-5769*; EGU 2023, Vienna, Austria
9. ★ **Schorn, S.** (12.2022). Quantifying metamorphic processes – links between reactions and length- & time scales of metamorphism. Faculté des géosciences et de l'environnement – University of Lausanne, Switzerland
8. ★ **Schorn, S.** (12.2022). Eclogitization of mafic and felsic protoliths – externally- vs. internally-sourced H₂O. Lithosphere dynamics seminar, Department of Earth Sciences – ETH Zürich, Switzerland
7. ★★ **Schorn, S.** (2022). Using the “other” variables in phase equilibrium modelling – enthalpy, activity and chemical potentials as controlling agents in metamorphism. SGI SIMP 2022, Torino, Italy
6. ★★ **Schorn, S.** (2022). Externally- vs. internally-derived H₂O as control on reaction progress during high-pressure metamorphism. GeoMinKöln 2022, Cologne, Germany
5. **Schorn, S.** (2022). Self-induced incipient ‘eclogitization’ of metagranitoids at closed-system conditions. *EGU22-3832*; EGU 2022, Vienna, Austria
4. ★★ **Schorn, S.**, Hartnady, M.I.H., Diener, J.F.A., Clark, C. and Harris, C. (2021). H₂O-fluxed melting of eclogite during exhumation: an example from the eclogite type-locality, Eastern Alps (Austria). *Mitteilungen der Österreichischen Mineralogischen Gesellschaft, Vol. 167*; MinPet 2021, Vienna, Austria
3. ★ **Schorn, S.** (2019). Seemingly disparate temperatures recorded in coexisting granulite facies lithologies. Department of Geosciences, Università di Padova, Italy
2. ★ **Schorn, S.** (2019). Seemingly disparate temperatures recorded in coexisting granulite facies lithologies: a manifestation of thermal buffering? Géopolis, University of Lausanne, Switzerland
1. ★ **Schorn, S.** (2018). Heat and Temperature – two sides of the same coin? Research symposium “Recent advances in metamorphic processes”, Institut für Geowissenschaften, J. Gutenberg University of Mainz, Germany

Code repositories (not peer reviewed)

2. **Schorn S.** and Moulas, E. (2024). ZirTiDiS: an implicit finite difference code for the calculation of apparent Zr-in-Titanite (ZiT) temperatures. DOI [10.5281/zenodo.11184086](https://doi.org/10.5281/zenodo.11184086)
1. Moulas, E. and **Schorn S.** (2024). T1dH: A 1-d code for the calculation of Heat conduction with Earth Science Applications. DOI [10.5281/zenodo.11046565](https://doi.org/10.5281/zenodo.11046565)