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Dr. Dr. Simon Friederich

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AREAS OF RESEARCH

General philosophy of science, philosophy of physics

Philosophy of technology

Philosophy of mathematics

AREAS OF COMPETENCE

Epistemology, philosophy of mind, effective altruism

EDUCATION

- | | |
|------|--|
| 2019 | Habilitation (German qualification for full professorship) in philosophy,
Ludwig-Maximilians-Universität München, Germany |
| 2014 | PhD in philosophy, Institute for Philosophy, University of Bonn, Germany;
grade: "summa cum laude" |
| 2010 | PhD in physics, Institute for Theoretical Physics, University of Heidelberg, Germany;
grade: "magna cum laude" |
| 2008 | Magister in philosophy
Philosophisches Seminar, University of Göttingen, Germany; grade: "with distinction" |
| 2007 | Diploma in physics
Institute for Theoretical Physics, University of Göttingen, Germany; grade: "very good" |

CURRENT POSITION

Since September 2019

Associate professor of philosophy of science, University of Groningen,
University College Groningen (UCG) and Faculty of Philosophy, The Netherlands,
Academic Director of Humanities at UCG

October 2014 – August 2018,

Assistant professor of philosophy of science, University of Groningen,

University College Groningen and Faculty of Philosophy, The Netherlands

In addition, since August 2015,
external member of the Munich Center for Mathematical Philosophy (MCMP)

PREVIOUS POSITIONS

2012 – 2014 substituting for a full professorship in theoretical philosophy, University of Göttingen
2011 – 2012 PostDoc at University of Wuppertal University, research collaboration “Epistemology of the Large Hadron Collider”, funded by the German Academic Foundation (DFG)

RESEARCH VISITS

July 2019 visiting scholar at the Rotman Institute of Philosophy, University of Western Ontario (Canada)
Host: Prof. Dr. Chris Smeenk
March 2012 – August 2012
visiting scholar at the Faculty of Philosophy, Cambridge University (UK),
Host: Dr. Jeremy Butterfield

SCHOLARSHIPS

2008-2010 PhD scholarship by the German National Academic Foundation (worth 34 990 €)
2002-2007 Scholarship by the German National Academic Foundation
2005/2006 Supplementary scholarship by the German National Academic Foundation for studying abroad (EPF Lausanne)

TEACHING EXPERIENCE AND TRAINING

2015 Dutch BKO Certificate (University Teaching Qualification)
Advanced training in “Testing through open questions”
Individual support in implementing the “Flipped classroom”

Since October 2014
University of Groningen, Faculty of Philosophy and University College Groningen (UCG),
teaching logic, philosophy of science, existential risks, and methodology courses,
development and coordination of the Research Methods learning line at UCG

2012 – 2014 University of Göttingen, Philosophisches Seminar,
teaching in logic, philosophy of science, epistemology, metaphysics,
philosophy of mathematics, philosophy of mind

2011/12 University of Wuppertal, Fachbereich A,
teaching in history of philosophy and philosophy of mind

(CO-) ORGANISATION OF SCIENTIFIC MEETINGS

21-23/06/2021 Probabilities in Cosmology Workshop, Groningen
20-22/06/2016 Formal Epistemology Workshop (FEW), Groningen
13/05/2014 Workshop on the philosophy of time, Göttingen
26-28/01/2012 Workshop “Modeling and LHC”, Wuppertal

EDITORSHIP

Since December 2022: Associate Editor of Foundations of Physics

2015 with Dennis Lehmkuhl: guest editor of a special section “Particle Physics after the Higgs Discovery: Philosophical Perspectives”, *Studies in History and Philosophy of Modern Physics*, 51:69-103 (2015).

REFEREEING

Oxford University Press, Cambridge University Press, Routledge, Springer, Philosophical Transactions of the Royal Society A, Mind, Australasian Journal of Philosophy, Analysis, Ergo, British Journal for the Philosophy of Science, Philosophy of Science, Synthese, Erkenntnis, Studies in History and Philosophy of Science, Studies in History and Philosophy of Modern Physics, International Studies in Philosophy of Science, Foundations of Physics, Journal for General Philosophy of Science, International Journal of Astrobiology, Entropy, Modern Physics Letters, Physics and Philosophy, New Developments in Logic and Philosophy of Science

Reviewer for the National Science Fund, USA, National Science Center, Poland, John Templeton Foundation

Reviewer and panel member for the German National Academic Foundation

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

British Society for the Philosophy of Science, German Society for Analytic Philosophy, European Society for the Philosophy of Science, German Society for Philosophy of Science, German Physical Society

COMITTEE/BOARD MEMBERSHIPS

Young Academy Groningen (YAG) 2017-22, board member 2018-20, chair 2018/19

Formal Epistemology Workshop 2016: Scientific Committee

University College Groningen: Board of Education

GRANTS/AWARDS

2022 Vidi grant by the Netherlands Organization of Scientific Research (NWO), 800 000 €

2018 PhD scholarship grant via the Young Academy Groningen, 122 000 €

2016 Veni grant by the Netherlands Organization of Scientific Research (NWO), 250 000 €

2015 Grant by the Evert Willem Beth foundation for the 13th Formal Epistemology Workshop (1500 €, co-applicant)

2008 Prize for an outstanding Magister thesis, University of Göttingen, Philosophisches Seminar.

CAREER BREAKS AND BACK POSITIONS

August – December 2010

parental time (covered by scholarship) to care for first daughter Sibylla (born in April 2010)

September 2012 and February/March 2013

parental time for second daughter Alma (born in April 2012)

October 2014 – August 2016

employed part time (first 60%, from September 2015 80%) to care for children (including third daughter Lydia born in March 2014)

PUBLICATIONS

Monographs

S. Friederich, *Multiverse Theories – A Philosophical Perspective*, Cambridge: Cambridge University Press (2021).

Interpreting Quantum Theory – A Therapeutic Approach, Houndmills, Basingstoke: Palgrave Macmillan (2014).

Refereed academic articles

S. Friederich and S. Wenmackers, The future of intelligence in the universe: a call for humility, *International Journal of Astrobiology*, forthcoming.

S. Friederich, Symbiosis, not alignment, as the goal for liberal democracies in the transition to artificial general intelligence, *AI and Ethics*, <https://doi.org/10.1007/s43681-023-00268-7> (2023).

S. Friederich and J. Symons, Operationalising sustainability? Why sustainability fails as an investment criterion for safeguarding the future, *Global Policy*, 14:61-71 (2023).

J. Symons and S. Friederich, Tensions within energy justice: when global energy governance amplifies inequality, *Historical Social Research*, 74(4) (2022).

S. Friederich and M. Boudry, Ethics of nuclear energy in times of climate change: escaping the collective action problem, *Philosophy and Technology*, 35:30 (2022).

S. Friederich, Introducing the Q-based interpretation of quantum theory, *British Journal for the Philosophy of Science*, <https://doi.org/10.1086/716196>, awaiting assignment to an issue (2021).

R. Dawid and S. Friederich, Epistemic separability and Everettian branching, *British Journal for the Philosophy of Science*, 73:711-721(2022).

S. Friederich and S. Mukherjee, Causation as a high-level affair, in: *Top-Down Causation and Emergence*, ed. by J. Voosholz and M. Gabriel, Springer, pp. 297-304 (2021).

S. Friederich and P. Evans, Retrocausation in quantum mechanics, *Stanford Encyclopedia of Philosophy*, Summer 2019 issue, ed. by E. Zalta (2019).

S. Friederich, A new fine-tuning argument for the multiverse, *Foundations of Physics*, 94, 1011-1021 (2019).

S. Friederich, Reconsidering the inverse gambler's fallacy charge against the fine-tuning argument for the multiverse, *Journal for General Philosophy of Science*, 50:29-41 (2019).

S. Friederich, Fine-tuning as old evidence, double-counting, and the multiverse, *International Studies in the Philosophy of Science*, 31:363-377 (2019).

S. Friederich, The asymptotic safety scenario in quantum gravity: an appraisal, *Studies in History and Philosophy of Modern Physics*, 63:65-73 (2019).

S. Friederich, Fine-tuning, *Stanford Encyclopedia of Philosophy*, Fall 2018 edition, ed. by E. Zalta (2018).

S. Friederich, Resolving the observer reference class problem in cosmology, *Physical Review D*, 95:123520 (2017).

S. Friederich, Choosing Beauty, *Logique et Analyse*, 60:449-463 (2017).

S. Friederich, Symmetries and the identity of physical states, in: *Proceedings of the 5th EPSA Meeting*, M. Massimi, J.-W. Romeijn and G. Schurz (editors), Springer (2017).

S. Friederich, Self-location and causal context, *Grazer Philosophische Studien*, 93:319-345 (2016).

S. Friederich, Symmetry, empirical equivalence, and identity, *British Journal for the Philosophy of Science*, 66: 537-559 (2015).

- S. Friederich*, Re-thinking local causality, *Synthese*, 192:221-240 (2015).
- S. Friederich, R. Harlander, K. Karaca*, Philosophical perspectives on ad hoc-hypotheses and the Higgs mechanism, *Synthese*, 191, 3897-3917 (2014).
- S. Friederich*, A philosophical look at the Higgs mechanism, *Journal for General Philosophy of Science*, 45:335-350 (2014).
- S. Friederich*, Warum die Mathematik keine ontologische Grundlegung braucht – Wittgenstein und die axiomatische Methode, *Wittgenstein-Studien*, 5:163-178 (2014).
- S. Friederich*, Interpreting Heisenberg interpreting quantum states, *Philosophia Naturalis*, 50:85-114 (2013).
- S. Friederich*, Gauge symmetry breaking in gauge theories – in search of clarification, *European Journal for Philosophy of Science*, 3:157-182 (2013).
- S. Friederich*, In defence of non-ontic accounts of quantum states, *Studies in History and Philosophy of Modern Physics*, 44:77-92 (2013).
- S. Friederich*, How to spell out the epistemic conception of quantum states, *Studies in History and Philosophy of Modern Physics*, 42:149-157 (2011).
- S. Friederich*, Motivating Wittgenstein's perspective on mathematical sentences as norms, *Philosophia Mathematica*, 19:1-19 (2011).
- S. Friederich, H. C. Krahl, C. Wetterich*, Functional renormalization for spontaneous symmetry breaking in the Hubbard model, *Physical Review B*, 83:155125 (2011).
- S. Friederich*, Structuralism and meta-mathematics, *Erkenntnis*, 73:67-81 (2010).
- S. Friederich, H. C. Krahl, C. Wetterich*, Four-point vertex in the Hubbard model and partial bosonization, *Physical Review B*, 81:235108 (2010).
- H. C. Krahl, S. Friederich, C. Wetterich*, Incommensurate antiferromagnetic fluctuations in the two-dimensional Hubbard model, *Physical Review B*, 80:014436 (2009),
- S. Friederich and V. Meden*, Spin-charge separation in transport through Luttinger liquid rings, *Physical Review B*, 77:195122 (2008).

Non-refereed academic articles

- S. Friederich*, Quantum theory as a method: The Rule Perspective, in: T. Sauer and A. Wüthrich (eds.), *New Vistas on Old Problems: Recent Approaches to the Foundations of Quantum Mechanics*, Edition Open Access, 121-138 (2013).
- S. Friederich and G. Tuzet*, Inflating truthmakers: A critique of the primitive notion of truthmaking in Heil's ontological picture, in M. Esfeld (ed.), *John Heil: Symposium on his ontological point of view*, Ontos (2006).

Popular Science Video

- S. Friederich*, [Why does nobody understand quantum physics?](#), Universiteit van Nederland (2022).

Non-academic articles

- S. Friederich and R. Dawid*, [Self-locating beliefs won't move Everett's mountain](#), BJPS Short Reads

(2021).

S. Friederich, [Are we living in a multiverse? We we might – and why we might never know](#), *fifteeneightyfour* blog of CUP (2020).

S. Friederich, [Is Michael Shellenberger’s “Apocalypse Never” an Ecomodernist Work?](#), *Areo Magazine* (2020).

S. Friederich and M. Boudry, [The Covid wake-up call: protecting humanity against global disasters](#), *Areo Magazine* (2020).

[A rare universe? The multiverse debate through the lens of philosophy](#), *Scientia* (2018)

S. Friederich, [Multiverse theories in physics from the vantage point of philosophy](#), *Open Access Government* (2018).

Editorial

S. Friederich and D. Lehmkuhl, Particle physics after the Higgs discovery: Philosophical perspectives, *Studies in History and Philosophy of Modern Physics*, 51:69-70 (2015).

Reviews

S. Friederich, Pristinism under pressure – Ruetsche on the interpretation of quantum theories, *Erkenntnis*, 78:1205-1212 (2013).

S. Friederich, Review of “Hans-Johann Glock und John Hyman (ed.), Wittgenstein and Analytic Philosophy, Essays for P.M.S. Hacker”, *Philosophischer Literaturanzeiger*, 62 (2009) .

SELECTED TALKS (only conferences and workshops)

Invited

Symmetries and the notion of physical identity for physical systems and states, workshop “Conceptual and Phenomenological Reflections on Gauge Symmetries, the Brout-Englert-Higgs Mechanism, Particles, and Observables”, Graz, 05/11/2020.

The observer reference class problem and researcher degrees of freedom in multiverse cosmology, “Observers in the Cosmos” workshop, Bristol, 23/05/2018.

Fine-tuning for life and the multiverse – a panoramic view, “Consolidation of Fine-tuning” workshop, Oxford, 06/10/2017.

The fine-tuning argument for the multiverse and the reality of the constants, workshop “Material Metaphysics”, Osnabrück, 18/09/2015

Interpreting Quantum Theory: A Therapeutic Approach, workshop “Scientific Realism about the Quantum State”, Leeds, 09/09/2015

The Higgs mechanism as a challenge for philosophy, annual meeting of the German Physical Society (DPG), Dresden, 06/03/2013

Warum die Mathematik keine ontologische Grundlegung braucht – Wittgenstein und die axiomatische Methode, 2nd Forum of the International Ludwig Wittgenstein Society, Göttingen, 22/06/2012.

Quantum theory as a method: The epistemic conception of quantum states, workshop “Decoherence and No-Signalling”, Bern, 24/06/2011.

After selection procedure

Introducing the Q-based interpretation of quantum theory, Foundations of Physics conference, Paris, October 2021.

Testing multiverse theories and the problem of researcher degrees of freedom, Foundations of Physics conference, Utrecht, July 2018.

Merits and limits of the fine-tuning argument for the multiverse, BSPS conference, Cardiff, July 2016.

Symmetries and the identity of physical states, OZSW 2015 conference, Amsterdam, 12/12/2015.

Symmetries and the identity of physical states, EPSA 2015 conference, Düsseldorf, 26/09/2015.

Symmetries and the identity of physical states, GAP 9 conference, Osnabrück, 17/09/2015.

Feminism and evolutionary psychology: whither sex differences and the workplace, conference “The Use and Abuse of Darwinism in the Humanities and the Social Sciences”, Ghent, 27/11/2014.

Re-thinking local causality, Foundations of Physics Conference, Munich, 31/07/2013.

Local causality in the light of the Principal Principle, GWP meeting 2013, Hanover, 13/03/2013.

Gauge symmetry breaking and the Higgs mechanism – a fresh look, BSPS conference, Stirling, 07/06/2012.

Symmetry breaking in gauge theories – an attempt to clarify, EPSA 2011 Conference, Athens, 07/10/2011.

Motivating Wittgenstein's perspective on mathematical sentences as norms, 14th Congress of Logic, Methodology and Philosophy of Science, Nancy, 29/07/2011.

Structuralism and meta-mathematics, “Trends in the Philosophy of Mathematics” conference, Frankfurt a. M., 03/09/2009.

COURSES TAUGHT

In Groningen, 2014 – now:

Since 2020/21: seminar “Logic”

Since 2019/20: seminar “Existential Risks”

Since 2019/20: course “Philosophy of Science”

Since 2016/17: methodology courses e.g. “Introduction to Academic Research”, “Academic Skills”

Winter 2015/16: tutorial on paper and essay writing “Philosophy of a Scientific Discipline”

Since Summer 2015: lectures and practicals “Research and Methodology 1 and 2”, covering philosophy of science, critical thinking, and statistics (University College)

Summer 2015 and 2016: lecture “Philosophy of Science” (Honours College)

Summer 2015 and 2016: lecture and seminar “Epistemology and Philosophy of Science 2” (Faculty of Philosophy)

In Göttingen, 2012 – 2014:

Lectures:

Winter 2012/13: “Philosophy of Science” (“Wissenschaftsphilosophie”)

Summer 2013: “Introduction to Theoretical Philosophy” (“Einführung in die theoretische Philosophie”)

Winter 2013/14: “Time and Causality” (“Zeit und Kausalität”)

Summer 2014: “Introduction to Logic” (“Einführung in die Logik”)

Seminars:

Winter 2012/13: Research seminar “Anthropic Principle” (“Anthropisches Prinzip”)

Winter 2012/13: Seminar “Ludwig Wittgenstein: Philosophische Untersuchungen”

Winter 2012/13: Proseminar “Philosophy of Mathematics – The Big Three” (“Philosophie der Mathematik I – Die großen drei”)

Summer 2013: Seminar “Philosophy of Mathematics II – Ontology and Mathematical Practice” (“Philosophie der Mathematik II – Ontologie und mathematische Praxis”)

Summer 2013: Proseminar “The Philosophy of David Lewis” (“Die Philosophie von David Lewis”)

Summer 2013 – Summer 14: Research seminar “Recent Problems in Theoretical Philosophy” (“Aktuelle Probleme der theoretischen Philosophie”)

Winter 2013/14: Proseminar “How Am I, Where Am I, When Am I?” (“Wer bin ich, wo bin ich, wann bin ich?”)

Winter 2013/14: Advanced seminar in preparation for the 13th Göttingen Philosophical Colloquium” (with David Chalmers)

Summer 2014: Proseminar “Philosophy of Physics” (“Philosophie der Physik”)

Summer 2014: Seminar “Feminist Perspectives on Theoretical Philosophy” (“Feministische Perspektiven auf die theoretische Philosophie”)

In Wuppertal, 2011 – 2012:

Summer 2011: Proseminar “Ludwig Wittgenstein: Philosophische Untersuchungen”

Winter 2011/12: Proseminar “The Vienne Circle and the Philosophy of the 20th Century” (“Der Wiener Kreis und die Philosophie des 20. Jahrhunderts”)

Winter 2011/12: Proseminar “Consciousness – a Profound Mystery?” (“Bewusstsein – ein tiefes Rätsel?”)

Other:

March 2011: Tutorial “The ontological status of hidden symmetries”, First Wuppertal Spring School of Particle Physics and Philosophy

2008-2010: Tutorials “Introduction to statistical physics“ and “Introduction to quantum mechanics”