

Work address: University of Groningen, Faculty of Philosophy, Oude Boteringestraat 52, NL-9712 GL Groningen and University College Groningen, Hoendiepskade 23/24, NL-9718 BG Groningen, The Netherlands

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## **Dr. Dr. Simon Friederich**

born 30/08/1981 in Heidelberg, Germany

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### **AREAS OF RESEARCH**

General philosophy of science, philosophy of physics

Philosophy of mathematics

Epistemology

Deflationary and therapeutic approaches to philosophy. Wittgenstein

### **AREAS OF COMPETENCE**

Philosophy of mind, metaphysics, philosophy of biology

### **CURRENT POSITION**

Since October 2014 (since July 2016 tenured)

Assistant professor of philosophy of science, University of Groningen,  
Faculty of Philosophy and University College Groningen, The Netherlands

### **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**

June 2019 (planned)

visiting scholar at the University of Western Ontario (Canada),  
Host: Dr. Chris Smeenk

March 2012 – August 2012

visiting scholar at the Faculty of Philosophy, Cambridge University (UK),  
Host: Dr. Jeremy Butterfield

## **EDUCATION**

- 2019            Habilitation (German qualification for full professorship) in philosophy, LMU Munich, 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”

## **SCHOLARSHIPS**

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

## **ACADEMY/HONORARY MEMBERSHIPS**

- Since April 2017     Member of the Young Academy Groningen (YAG), since October 2018 YAG chair
- Since August 2015     External member of the Munich Center for Mathematical Philosophy (MCMP)

## **TEACHING EXPERIENCE AND TRAINING**

- 2015            Dutch UTQ Certificate (University Teaching Qualification, BKO)  
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 in scientific methodology, statistics, philosophy of science,  
Academic Coordinator of Research and Methodology 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**

- 22-23/06/2019 Workshop “Probabilities in Cosmology”, 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

## **REFEREEING**

Oxford University Press, Cambridge University Press, Palgrave Macmillan, Springer

Philosophical Transactions of the Royal Society A, British Journal for the Philosophy of Science, Philosophy of Science, European Journal for Philosophy of Science, Analysis, Ergo, 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, Theoria, Physical Review D, Modern Physics Letters, Physics and Philosophy, New Developments in Logic and Philosophy of Science

Reviewer for the National Science Fund, USA, and the National Science Center, Poland

Reviewer and panel member for the German National Scholarship Foundation

## **MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

Dutch Research School of Philosophy, 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**

- Since October 2018 Board of the Young Academy Groningen  
 Since 2019 University of Groningen scientific council of sustainable society  
 Since 2019 University College Groningen: board of admissions  
 2014-2016 University College Groningen: board of education

## **GRANTS/AWARDS**

- 2018 Interdisciplinary PhD project awarded by the Young Academy Groningen, jointly with Prof. Diederik Roest (particle physics), ~122 000€.  
 2018 Fellowship for Innovation in Teaching by the University of Groningen (together with Chris May and Rink Hoekstra), 3500€.  
 2017 Fellowship for Innovation in Teaching by the University of Groningen (together with Benjamin Bewersdorf), 3500€.  
 2016-2019 Veni grant by the Netherlands Organization for Scientific Research (NWO) for the project “Epistemology of the Multiverse”, 250 000€.  
 2015 Grant by the Evert Willem Beth foundation for the 13<sup>th</sup> Formal Epistemology Workshop (co-applicant), 1500€.  
 2008 PhD scholarship by the German National Scholarship Foundation, 34 990 €.  
 2008 Prize for an outstanding Magister thesis, University of Göttingen, Philosophisches Seminar, 250€.

## CAREER BREAKS AND BACK POSITIONS

August – December 2010

parental time 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 – June 2016

employed part time (first 60%, from September 2015 80%) to care for children (including third daughter Lydia, born in March 2014, and fourth daughter Magdalena, born in February 2016)

## PUBLICATIONS

### Monographs

*Multiverse Theories – A Philosophical Perspective*, under contract with Cambridge University Press, to appear in late 2019 or early 2020.

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

### Refereed Articles

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

*S. Friederich*, Reconsidering the inverse gambler's fallacy charge against the fine-tuning argument for the multiverse, *Journal for General Philosophy of Science* (published online, awaits assignment to an issue).

*S. Friederich*, Fine-tuning as old evidence, double-counting, and the multiverse, *International Studies in the Philosophy of Science* (published online, awaits assignment to an issue).

*S. Friederich*, The asymptotic safety scenario in quantum gravity: an appraisal, *Studies in History and Philosophy of Modern Physics* (published online, awaits assignment to an issue).

*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*, 93:232-258 (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 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 articles**

- Dr Simon Friederich – A rare universe? The multiverse debate through the lens of philosophy, *Scientia*, 120 (2018).
- Multiverse theories in physics from the vantage point of philosophy, Open Access Government, July 2018, 196-197.
- Einsatz von Kernenergie – ein Gebot der Ethik?, Deutscher Arbeitgeberverband, die Energiefrage, Kolumne 55, 19 May 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) .

## EDITORSHIP

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).

## THESES

Dissertation in philosophy: “Quantum Theory: A Therapeutic Approach”, University of Bonn (submitted 2013), revised and improved version published as a monograph, see above.

Dissertation in physics: “Functional renormalization for antiferromagnetism and superconductivity in the Hubbard model”, University of Heidelberg (2010), revised and improved version published as *Functional Renormalization for Spontaneous Symmetry Breaking*, Südwestdeutscher Verlag für Hochschulschriften (2011).

Magister thesis (philosophy): “Mathematische Sätze als Regeln und die Metamathematik – Eine Untersuchung zur Philosophie der Mathematik des späten Wittgenstein”, University of Göttingen (2008)

Diploma thesis (physics): “Transport through rings of correlated electrons”, University of Göttingen (2007)

## SELECTED TALKS (only conferences and workshops)

### Invited

Causal exclusion turned downward, workshop on George Ellis' “How can Physics Underlie the Mind?”, Bonn 04/06/2018

Are beable-free accounts of quantum theory coherent?, workshop on Richard Healey's “The Quantum Revolution in Philosophy”, Bonn, 01/06/2018

The problem of researcher degrees of freedom in multiverse theory testing, workshop “Observers in the Cosmos”, Bristol, 23/05/2018

Anthropic reasoning, origin-oriented reasoning and typicality in cosmology, workshop “Reasoning in Physics”, CAS Munich, 13/12/2016

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**

Ethics of nuclear energy in the age of climate change, Malmö, Conference “Energy Justice and the Capability Approach”, 12/09/2018, Cologne, GWP meeting, 27/02/2019.

The problem of researcher degrees of freedom in multiverse theory testing, Foundations of Physics conference, Utrecht, 11/07/2018

The fine-tuning argument for the multiverse versus anthropic accounts of large number coincidences, workshop “The Consolidation of Fine-tuning”, Crete, May 2017, and conference “Reasoning in Science”, CAS Munich, May 2017.

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.

### **Popular**

Twistgesprek kernenergie, Studium generale Groningen, 23/01/2019.

Nuclear energy advocacy from the perspective of effective altruism, Groningen Center for PPE,

16/01/2019.

The fine-tuning argument for the multiverse and the reality of the constants, DESY Hamburg student seminar, 11/2015.

## **COURSES TAUGHT**

In Groningen, 2014 – now:

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)

Winter 2016 – summer 2019: seminars “Logic and Argumentation” and “Introduction to Statistics”

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 13<sup>th</sup> 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 20<sup>th</sup> 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”

Date: 27 May 2019