

Sabine Hossenfelder

Curriculum Vitae

(Oktober 2011)

Surname: Hossenfelder
First Names: Sabine Karin Doris
Place of Birth: Frankfurt am Main / Germany
Date of Birth: September 18, 1976
Nationality: German
Family Status: Married, 2 children (* December 29, 2010)
Languages: German (native), English (fluent), French (if necessary)
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Education:

- Aug 2003: Ph. D., Theoretical Physics,
J. W. Goethe Universität Frankfurt (Germany),
'mit Auszeichnung' (excellent)
Adviser: Prof. Dr. H. Stöcker
Topic: "*Black Holes in Large Extra Dimensions*"
- Aug 2000: Diplom (M.S.), Physics,
J. W. Goethe Universität Frankfurt (Germany),
'mit Auszeichnung' (excellent)
Adviser: Prof. Dr. Dr. hc. mult. W. Greiner
Topic: "*Particle Production in Time Dependent Gravitational Fields*"
- July 1997: Vordiplom (B.S.), Mathematics,
J. W. Goethe Universität Frankfurt (Germany),
'sehr gut' (very good)

Employment:

- 11/2010 - 03/2012: Maternity/Parental leave
- From 09/2009: Assistant Professor at Nordita, Stockholm, Sweden
- 09/2006 - 08/2009: Postdoc at Perimeter Institute, Waterloo, Ontario, Canada
- 09/2005 - 08/2006: Postdoctoral Research Fellow, Department of Physics, University of California, Santa Barbara
- 01/2004-08/2005: Postdoctoral Research Fellow, Department of Physics, University of Arizona
- 2003-2004: Research Fellow of the GSI (Heavy Ion Society), Darmstadt, Germany under project #OF-ST 4
- 1999-2001: Instructor/Teaching Assistant for courses in mechanics, electrodynamics and quantum mechanics at Frankfurt University, shared time with research project #06-OF-940
- 1997-1999: Research Graduate Student at Frankfurt University, Germany.

Honors, Awards, Grants:

- US\$ 10,000 grant from the Foundational Questions Institute¹ for the 2012 workshop on “Nonlocality: Aspects and Consequences”
- SEK 40,500 grant from the Swedish Research Council for the 2010 workshop on “Experimental Search for Quantum Gravity”
- 2nd prize of the 2010 essay contest of the Foundational Questions Institute
- 2009-2012: Research grant by the DFG, Germany
(offered to but declined by applicant due to other offer)
- 2006-2011: Emmy Noether-Fellowship of the DFG, Germany
(offered to but declined by applicant, due to other offer)
About: The Emmy Noether Programme by the DFG (German Research Foundation) supports young researchers in achieving independence at an early

¹www.fqxi.org

stage of their scientific careers. Young postdocs gain the qualifications required for a university teaching career during a DFG-funded period, usually lasting five years, in which they lead their own Independent Junior Research Group.

- 2003-2004: Scholarship of the DAAD, Germany
About: *The “German Academic Exchange Service” (DAAD) provides this scholarship for excellent researchers to support international cooperation.*
- 2000-2003: Scholarship of the “Land Hessen”, Germany
About: *This scholarship was provided by the state of Hessen to support the most talented and outstanding women in science and engineering.*
- 1997-2000: Scholarship of the “Studienstiftung des Deutschen Volkes”, Germany
About: *The “German National Academic Foundation” supports intellectually outstanding students, irrespective of political or religious beliefs. As an incorporated organisation, the Studienstiftung is mainly funded by the Federal Government of Germany.*

Publications:

Research Articles

1. S. Hossenfelder,
“*Testing super-deterministic hidden variables theories,*”
Found. Phys. **41**, 1521 (2011) [arXiv:1105.4326 [quant-ph]].
2. X. Calmet, S. Hossenfelder, R. Percacci,
“*Deformed Special Relativity from Asymptotically Safe Gravity,*”
Phys. Rev. D **82**, 124024 (2010) [arXiv:1008.3345 [gr-qc]].
3. S. Hossenfelder,
“*Bounds on an energy-dependent and observer-independent speed of light from violations of locality,*” Phys. Rev. Lett. **104**, 140402 (2010) [arXiv:1004.0418 [hep-ph]]. Reported in A. Cho, “*Thought Experiment Torpedoes Variable-Speed-of-Light Theories*” Science 2, p 27, April 2010.
4. S. Hossenfelder, L. Modesto and I. Prémont-Schwarz,
“*A model for non-singular black hole collapse and evaporation,*”
Phys. Rev. D **81**, 044036 (2010) [arXiv:0912.1823 [gr-qc]].

5. S. Hossenfelder,
 “*The Box-Problem in Deformed Special Relativity*,”
 arXiv:0912.0090v1 [gr-qc].
6. S. Hossenfelder and L. Smolin,
 “*Phenomenological Quantum Gravity*,”
 Physics in Canada, Vol. 66 No. 2, Apr-June, p 99-102 (2010), arXiv:0911.2761v1
 [physics.pop-ph].
7. S. Hossenfelder and L. Smolin,
 “*Conservative solutions to the black hole information problem*,”
 Phys. Rev. D **81**, 064009 (2010) [arXiv:0901.3156 [gr-qc]].
8. S. Hossenfelder,
 “*A Bi-Metric Theory with Exchange Symmetry*,”
 Phys. Rev. D **78**, 044015 (2008) [arXiv:0807.2838 [gr-qc]].
9. S. Hossenfelder,
 “*A Note on Quantum Field Theories with a Minimal Length Scale*,”
 Class. Quant. Grav. **25**, 038003 (2008) arXiv:0712.2811 [hep-th].
10. S. Hossenfelder,
 “*Multi-particle states in deformed special relativity*,”
 Phys. Rev. D **75**, 105005 (2007) [arXiv:hep-th/0702016].
11. S. Hossenfelder,
 “*Deformed Special Relativity in Position Space*,”
 Phys. Lett. B **649**, 310 (2007) [arXiv:gr-qc/0612167].
12. K. R. Dienes and S. Hossenfelder,
 “*A hybrid model of neutrino masses and oscillations: Bulk neutrinos in the split-fermion
 scenario*,”
 Phys. Rev. D **74**, 065013 (2006) [arXiv:hep-ph/0607112].
13. S. Hossenfelder,
 “*Interpretation of quantum field theories with a minimal length scale*,”
 Phys. Rev. D **73**, 105013 (2006) [arXiv:hep-th/0603032].
14. S. Hossenfelder,
 “*Anti-Gravitation*,”
 Phys. Lett. B **636**, 119 (2006) [arXiv:gr-qc/0508013].
15. S. Hossenfelder,
 “*Self-consistency in theories with a minimal length*,”
 Class. Quantum Grav. **23** (2006) 1815-1821 [arXiv:hep-th/0510245].

16. S. Hossenfelder, B. Koch and M. Bleicher,
“*Trapping black hole remnants,*”
arXiv:hep-ph/0507140.
17. B. Koch, M. Bleicher and S. Hossenfelder,
“*Black hole remnants at the LHC,*”
JHEP 10 (2005) 053 [arXiv:hep-ph/0507138].
18. U. Harbach and S. Hossenfelder,
“*The Casimir effect in the presence of a minimal length,*”
Phys. Lett. B **632**, 379 (2006) [arXiv:hep-th/0502142].
19. S. Hossenfelder,
“*The Minimal Length and Large Extra Dimensions,*”
Mod. Phys. Lett. A 19, 37 (2004) 2727, brief invited review, [arXiv:hep-ph/0410122].
20. S. Hossenfelder,
“*Running Coupling with Minimal Length,*”
Phys. Rev. D 70, 105003 (2004) [arXiv:hep-th/0405127].
21. S. Hossenfelder,
“*Suppressed Black Hole Production from Minimal Length,*”
Phys. Lett. B **598**, 92 (2004) [arXiv:hep-th/0404232].
22. S. Hossenfelder, M. Bleicher and H. Stöcker,
“*Observables from Large Extra Dimensions,*”
Int. J. Mod. Phys. **D 13**, 7 (2004) 1453-1460.
23. K. Poppenhaeger, S. Hossenfelder, S. Hofmann and M. Bleicher,
“*The Casimir effect in the presence of compactified universal extra dimensions,*”
Phys. Lett. B **582** (2004) 1 [arXiv:hep-th/0309066].
24. U. Harbach, S. Hossenfelder, M. Bleicher and H. Stöcker,
“*Probing the minimal length scale by precision tests of the muon $g-2$,*”
Phys. Lett. B **584** (2004) 109 [arXiv:hep-ph/0308138].
25. S. Hossenfelder, M. Bleicher, S. Hofmann, J. Ruppert, S. Scherer and H. Stöcker,
“*Collider signatures in the Planck regime,*”
Phys. Lett. B 575 (2003) 85 [arXiv:hep-th/0305262].
26. S. Hossenfelder, M. Bleicher, S. Hofmann, H. Stöcker and A. V. Kotwal,
“*Black hole relics in large extra dimensions,*”
Phys. Lett. B **566** (2003) 233 [arXiv:hep-ph/0302247].

27. S. Hossenfelder, D. J. Schwarz and W. Greiner,
 “Particle production in time-dependent gravitational fields: The expanding mass shell,”
 Class. Quant. Grav. **20** (2003) 2337 [arXiv:gr-qc/0210110].
28. M. Bleicher, S. Hofmann, S. Hossenfelder and H. Stöcker,
 “Black hole production in large extra dimensions at the Tevatron: A chance to observe a
 first glimpse of TeV scale gravity,”
 Phys. Lett. **548** (2002) 73 [arXiv:hep-ph/0112186].
29. S. Hofmann, M. Bleicher, L. Gerland, S. Hossenfelder, K. Paech and H. Stöcker,
 “Tevatron - Probing Tev-Scale Gravity Today,”
 J. Phys. G **28** (2002) 1657.
30. S. Hossenfelder, S. Hofmann, M. Bleicher and H. Stöcker,
 “Quasi-stable black holes at LHC,”
 Phys. Rev. D **66** (2002) 101502 [arXiv:hep-ph/0109085].

Book Chapters:

1. S. Hossenfelder,
 “Experimental Search for Quantum Gravity,”
 To be published in “Classical and Quantum Gravity: Theory, Analysis and
 Applications,” Nova Science Publishers (2011), arXiv:1010.3420v1 [gr-qc].
2. S. Hossenfelder,
 “Shooting in the Dark,”
 To appear in “Are we there yet? The Search for a Theory of Everything,” Edited by
 M. Emam, Bentham Science Publishers.
3. S. Hossenfelder,
 “Science in the 21st Century,”
 To appear in *Knowledge and Organizations*, Edited by P. Meusburger and E. Wunder,
 Springer.
4. S. Hossenfelder,
 “The Marketplace of Ideas,”
 In “The Open Laboratory: The Best Writing on Science Blogs 2007,” pp. 21-29, Edited by
 R. A. Cartwright.
5. S. Hossenfelder,
 “Micro Black Holes,”
 In “The Open Laboratory: The Best Writing on Science Blogs 2006,” pp. 82-90, Edited by
 B. Zivkovic.

6. S. Hossenfelder,
“*What black holes can teach us,*”
In “*Focus on Black Hole Research,*” pp. 155-192, Nova Science Publishers (2005)
[arXiv:hep-ph/0412265].

Proceedings:

1. S. Hossenfelder,
“*Antigravitation,*”
arXiv:0909.3456, to appear in the proceedings of the 17th International Conference on Supersymmetry and the Unification of Fundamental Interactions in Boston, June 2009
2. S. Hossenfelder,
“*Observables of Quantum Gravity at the LHC,*”
Proceedings of the workshop *From Emergent to Quantum Gravity: Theory and Phenomenology*, 11-15 Jun 2007, PoS(QG-Ph)018.
3. S. Hossenfelder,
“*Phenomenological quantum gravity,*”
AIP Conf. Proc. **903**, 463 (2007) [arXiv:hep-th/0611017].
4. S. Hossenfelder,
“*News about TeV-scale Black Holes,*”
Nucl. Phys. A **774**, 865 (2006) [arXiv:hep-ph/0510236].
5. U. Harbach and S. Hossenfelder,
“*Modification of the Casimir effect due to a minimal length scale,*”
Proceedings of Lake Louise Winter Institute: Fundamental Interactions, Lake Louise, Alberta, Canada, 20-26 Feb 2005, [arXiv:hep-th/0505010].
6. S. Hossenfelder,
“*Large Extra Dimensions and the Minimal Length,*”
Czech. J. Phys. **55**, B809 (2005) [arXiv:hep-ph/0409350].
7. U. Harbach, S. Hossenfelder, M. Bleicher and H. Stöcker,
“*Signatures of a minimal length scale in high precision experiments,*”
Proceedings of 42nd International Winter Meeting on Nuclear Physics, Bormio, Italy, Feb 2004 [arXiv:hep-ph/0404205].
8. S. Hossenfelder, M. Bleicher and H. Stöcker,
“*Signatures of Large Extra Dimensions,*”
Proceedings of the NATO Advanced Study Institute: NATO Science Series, Structure and Dynamics of Elementary Matter II/166 (2004), Kluwer Academic publishers
[arXiv:hep-ph/0405031].

9. S. Hossenfelder,
 “*Large Extra Dimensions and the Minimal Length*,”
 Proceedings of the SUSY 2003, Tucson, Arizona, June 2003, to be published.
10. S. Hofmann, M. Bleicher, L. Gerland, S. Hossenfelder, S. Schwabe and H. Stocker,
 “*Suppression of high- $P(T)$ jets as a signal for large extra dimensions and new estimates of lifetimes for meta stable micro black holes: From the early universe to future colliders*,”
 Proceedings of the International Workshop on the Physics of the Quark Gluon Plasma,
 Palaiseau, France, 4-7 Sep 2001 [arXiv:hep-ph/0111052].

Comments and Replies

1. S. Hossenfelder,
 “*Comment on arXiv:1007.0718 by Lee Smolin*,”
 arXiv:1008.1312 [gr-qc].
2. S. Hossenfelder,
 “*Reply to arXiv:1006.2126 by Giovanni Amelino-Camelia et al*,”
 arXiv:1006.4587 [gr-qc].
3. S. Hossenfelder,
 “*Comments on Nonlocality in Deformed Special Relativity, in reply to arXiv:1004.0664 by Lee Smolin and arXiv:1004.0575 by Jacob et al*,”
 arXiv:1005.0535 [gr-qc].
4. S. Hossenfelder,
 “*Comments on and Comments on Comments on Verlinde’s paper “On the Origin of Gravity and the Laws of Newton”*,”
 arXiv:1003.1015 [gr-qc].
5. S. Hossenfelder,
 “*Comment on “No-go theorem for bimetric gravity with positive and negative mass”*,”
 arXiv:0909.2094 [gr-qc].

Talks and Posters:

1. October 2011, Colloquium, Jyväskylä, Finland
 “*News from Quantum Gravity Phenomenology*”
2. April 2011, DPG conference, Karlsruhe, Germany
 “*News from Quantum Gravity Phenomenology*”

3. June 2010, Workshop “Black Holes in a Violent Universe”, Bonn, Germany
“Black Hole Information – What’s the problem?”
4. March 2010, Group Discussion, Perimeter Institute, Waterloo, Canada
“The Box-problem in Deformed Special Relativity”
5. January 2010, Seminar, Sussex University, UK
“Phenomenological Quantum Gravity”
6. January 2010, Seminar, King’s College London, UK
“Phenomenological Quantum Gravity”
7. December 2009, Seminar, Utrecht University, The Netherlands
“Phenomenological Quantum Gravity”
8. November 2009, Colloquium, Frankfurt University, Germany
“Phenomenological Quantum Gravity”
9. November 2009, Seminar, Albert Einstein Institute, Potsdam, Germany
“Phenomenological Quantum Gravity”
10. October 2009, Atlanta Conference on Science and Innovation Policy, Atlanta
“The Marketplace of Ideas”
11. September 2009, Uppsala University, Seminar
“Phenomenological Quantum Gravity”
12. July 2009, FQXi Conference, Ponta Delgada, Azores
“Antigravitation”
13. June 2009, SUSY 2009, Boston
“Antigravitation”
14. May 2009, Denver, USA, APS Spring Meeting
“Phenomenological Quantum Gravity”
15. March 2009, Nordita, Stockholm, Sweden, Seminar
“Phenomenological Quantum Gravity”
16. February 2009, Santa Fe Institute, Santa Fe, USA, Seminar
“At the Frontiers of our Knowledge”
17. August 2008, MIT, Cambridge, USA, Seminar
“Observables of Quantum Gravity at the LHC”

18. July 2008, Perimeter Institute, International Summer School for Young Physicists
“Large Extra Dimensions”
19. July 2008, CEA Saclay, France, Seminar
“Observables of Quantum Gravity at the LHC”
20. June 2008, Heidelberg University, Germany, Seminar
“Observables of Quantum Gravity at the LHC”
21. May 2008, Duisburg University, Germany, Colloquium
“Observables of Quantum Gravity at the LHC”
22. July 2007, Perimeter Institute, International Summer School for Young Physicists
“The World’s Largest Microscope”
23. July 2007, Morelia, Mexico, Conference: Loops 2007
“Phenomenological Quantum Gravity”
24. June 2007, SISSA, Trieste, Workshop: From Emergent to Quantum Gravity
“Observables of Quantum Gravity at the LHC”
25. June 2007, Warsaw, Poland, Conference: Planck 2007
“Phenomenological Quantum Gravity”
26. June 2007, Frascati, Italy, Conference: String Phenomenology 2007
“The Minimal Length Scale”
27. April 2007, Perimeter Institute, Public Lecture
“Frontiers of our Knowledge”
28. September 2006, Perimeter Institute, Workshop: Natural Ultraviolet Cutoffs in Expanding Spacetimes
“The Minimal Length Scale”
29. August 2006, Santa Barbara, Conference: String Pheno 2006
“Quantum Field Theory with a Minimal Length Scale”
30. June 2006, Paris, Conference: Planck 2006
“Observables of a Minimal Length Scale”
31. May 2006, HEP Seminar, UCSB
“The Minimal Length Scale”
32. January 2006, Duke University, Durham (NC) USA, Seminar
“Observables of Quantum Gravity”

33. December 2005, Perimeter Institute, Waterloo, Canada, Seminar
“*Phenomenological Quantum Gravity*”
34. August 2005, Budapest, Hungary, Conference: Quark Matter 2005
“*TeV-scale Black Holes*”
35. July 2005, Durham, Great Britain, Conference: SUSY 2005
“*Observables of Extra Dimensions*”
36. July 2005, Bern, Switzerland, Conference: EPS 13
“*Lowering the Planck Scale – Raising the Minimal Length*”
37. June 2005, Bielefeld, Germany, Astro Seminar
“*Approaching the Planck Scale*”
38. June 2005, Munich, Germany, Conference: String Pheno 2005
“*Split Neutrinos in Extra Dimensions*”
39. November 2004, Oxford (MS) USA, Seminar
“*Planck Scale Physics*”
40. August 2004, Ann Arbor (MI) USA, Conference: String Phenomenology,
“*Large Extra Dimensions and the Minimal Length*”
41. July 2004, Vienna, Austria, Conference: Physics at LHC,
“*Large Extra Dimensions and the Minimal Length*”
42. June 2004, Stockholm University, Sweden, HEP Seminar,
“*Large Extra Dimensions and the Minimal Length*”
43. May 2004, Bad Honnef, Germany, Conference: Planck 2004,
“*Lowering the Planck Scale – Raising the Minimal Length*”
44. January 2004, Bern, Switzerland, HEP Seminar
“*Signatures of Large Extra Dimensions*”
45. January 2004, Oakland (CA) USA, Conference: Quark Matter 2004,
Poster “*Large Extra Dimensions*” (Award: Best Poster)
46. October 2003, Rio de Janeiro, Brazil, HEP Seminar,
“*Signatures of Large Extra Dimensions*”
47. October 2003, Olinda, Brazil, Workshop IWARA 2003,
“*Signatures of Large Extra Dimensions*”

48. September 2003, Kemer, Turkey, NATO Advances Study Institute,
“*Signatures of Large Extra Dimensions*”
49. June 2003, Duke University, Durham (NC) USA, TNT Colloquium,
“*Probing Trans-Planckian Physics in the Lab*”
50. June 2003, Tuscon (AZ) USA, Conference: SUSY 03,
“*Trans-Planckian Signatures in Large Extra Dimensions*”
51. June 2003, LBNL Berkeley (CA) USA, HEP Seminar,
“*Probing Space-Time Properties in the Lab*”
52. May 2003, Stockholm University, Sweden, HEP Seminar,
“*Trans Planckian Signatures in Large Extra Dimensions*”
53. March 2003, Pacific Beach (NC), USA, Conference: SQM 03,
“*Strangeness Production with Black Holes in Extra Dimensions*”
54. March 2003, Tübingen, Germany, Conference: DPG-Tagung,
“*Collider Signatures of Large Extra Dimensions*”

Misc:

- Local organizing committee of the program *Fundamental aspects of cosmology*,
November 2012, Stockholm, Sweden
- Local organizing committee of the workshop *Nonlocality: Aspects and Consequences*,
June 2012, Stockholm, Sweden
- Local organizing committee of the workshop *Experimental Search for Quantum Gravity*,
July 2010, Stockholm, Sweden, website: nordita.org/esqg10
- Local organizing committee of the conference *Science in the 21st Century*, Sep. 2008,
Waterloo, Canada, website: Science21stCentury.org
- Local organizing committee of the workshop *Experimental Search for Quantum Gravity*
2007, Waterloo, Canada, website: pitp.ca/esqg07
- Local Organizing committee of the conference *Strangeness in Quark Matter (SQM) 2001*,
Frankfurt, Germany
- Member of the German Physical Society
- Member of the American Physical Society

- Member of the Foundational Questions Institute
- Referee for: Physics Letters A, Physics Letters B, Classical and Quantum Gravity, Journal of High Energy Physics, Physical Review Letters, Physical Review D, Journal of Physics A, Journal of Physics G, General Relativity and Gravitation, International Journal of Theoretical Physics, Canadian Journal of Physics, (and probably some other journals I can't recall)
- Homepage: www.prime-spot.de
- Weblog: backreaction.blogspot.com

The post “*Micro Black Holes*” (09/22/06) was printed in *The Open Laboratory: The Best Writing on Science Blogs 2006*.

The post “*Water in Zero Gravity*” (01/22/07) appeared in the March 2007 issue of the APS Newsletter.

A brief article about Backreaction appeared in the June 2007 issue of Physics World.

The post “*The Marketplace of Ideas*” (03/21/07) was printed in *The Open Laboratory: The Best Writing on Science Blogs 2007*.