Bernd Siebert

Curriculum Vitae

Department of Mathematics
University of Texas at Austin
Austin, TX 78712, USA
+1 (512) 471-7711
siebert@math.utexas.edu

Sid W. Richardson Chair of Mathematics #4, UT Austin

Education

1984–1989 **Study of Mathematics**, *Universities of Erlangen, Bonn, Göttingen*

Nov 1989 **Diploma in Mathematics**, *University of Göttingen*, *Mit Auszeichnung (with distinction)*, Supervisor: H. Grauert

1989–1992 **Doctoral Student and Scientific Assistant**, *University of Göttingen (SFB 177)*

Feb 1992 **Dr. rer. nat. (PhD in Mathematics)**, *University of Göttingen*, *summa cum laude*, Supervisor: H. Grauert

Academic Appointments

2018– **Professor and Chair**, *University of Texas at Austin*

2008–2018 **Professor**, *University of Hamburg*

2002–2008 **Associate Professor**, *University of Freiburg*

2000–2002 **DFG-Heisenberg Fellow**, *University of Paris VI/VII*

1997–1998 **Visiting Assistant Professor and Scholar**, *MIT*

1995–2000 **Scientific Assistant**, *University of Bochum*

1993–1994 **DFG-Research Fellow**, *Courant Institute, NYU*

1992–1995 **Scientific Assistant**, *University of Göttingen*

Grants and Honors

1993–1994 Research Fellowship of the DFG

2000–2002 Heisenberg Fellowship

2003–2007 DFG Priority Programs (Global Differential Geometry, Complex Geometry)

2006–2007 Research Stay at UC San Diego (funded by the DFG)

2010–2014 Subproject Leader, SFB 676 "Particles, Strings, and the Early Universe"

2011–2020 Spokesperson, RTG 1670 "Mathematics Inspired by String Theory and QFT"

2014 Invited Speaker, ICM (Algebraic and Complex Geometry, with Mark Gross)

2015 Plenary Speaker, StringMath

2016 Clay Research Award

2019– Sid W. Richardson Chair of Mathematics #4, UT Austin

2019–2024 NSF Grant: "Logarithmic Donaldson-Thomas Theory"

2024–2027 NSF Grant: "Homological and Enumerative Intrinsic Mirror Symmetry"

2025–2026 Simons Fellowship in Mathematics

Publications

1. (with M. van Garrel, H. Ruddat) *Intrinsic enumerative mirror symmetry: Takahashi's log mirror symmetry for $(\mathbb{P}^2, E)$ revisited*, to appear in J. Math. Study.
2. (with M. Carl, M. Pumperla) *A tropical view on Landau-Genzburg models*, Acta Math. Sin. (Engl. Ser.) **40** (2024), 329–382.
3. (with M. Gross) *The canonical wall structure*, Invent. Math **229** (2022), 1101–1202.
4. (with D. Abramovich, Q. Chen, M. Gross) *Punctured logarithmic maps*, Mem. Eur. Math. Soc., 15, EMS Press, Berlin, 2025, viii+156pp.
5. (with M. Gross, P. Hacking, S. Keel) *The mirror of the cubic surface*, in: Recent Developments in Algebraic Geometry, London Mathematical Society Lecture Note Series, 478, 150–182.
6. (with M. Gross) *Intrinsic mirror symmetry*, to appear in J. Amer. Math. Soc., `arXiv:1909.07649 [math.AG]`, 153pp.
7. (with H. Ruddat) *Period integrals from wall structures via tropical cycles, canonical coordinates in mirror symmetry and analyticity of toric degenerations*, Publ. Math. Inst. Hautes Études Sci. **132** (2020), 1–82.
8. (with D. Abramovich, Q. Chen, M. Gross) *Decomposition of degenerate Gromov-Witten invariants*, Compos. Math. **156** (2020), 2020–2075.
9. (with H. Argüz) *On the real locus in the Kato-Nakayama space of logarithmic spaces with a view toward toric degenerations*, preprint `arXiv:1610.07195 [math.AG]`, 44pp.
10. (with M. Gross) *Intrinsic mirror symmetry and punctured Gromov-Witten invariants*, in: *Algebraic geometry: Salt Lake City 2015*, 199–230, Proc. Sympos. Pure Math. **97**, AMS 2018.
11. (with M. Gross, P. Hacking) *Theta functions on varieties with effective anti-canonical class*, Mem. Amer. Math. Soc. **278** (2022), no. 1367.
12. (with H. Ruddat) *Canonical coordinates in toric degenerations*, preprint `arXiv:1409.4750 [math.AG]`.
13. (with M. Gross) *Theta functions and mirror symmetry*, Surveys in Differential Geometry 2016, Surv. Differ. Geom. **21**, Int. Press, Boston, MA, 2016. `arXiv:1204.1911 [math.AG]`.
14. (with M. Gross) *Logarithmic Gromov-Witten invariants*, J. Amer. Math. Soc. **26** (2013), 451–510.
15. (with M. Gross, R. Pandharipande) *The tropical vertex*, Duke Math. J. **153** (2010), 297–362.
16. (with M. Gross) *An invitation to toric degenerations*, in: *Geometry of special holonomy and related topics*, Surveys in differential geometry, Vol. XVI, 43–78, Int. Press 2011.
17. (with M. Gross) *Mirror symmetry via logarithmic degeneration data II*, J. Algebraic Geom. **19** (2010), 679–780.
18. (with M. Gross) *From real affine geometry to complex geometry*, Ann. of Math. **174** (2011), 1301–1428.
19. (with G. Tian) *Lectures on pseudo-holomorphic curves and the symplectic isotopy problem*, in: *Symplectic 4-Manifolds and Algebraic Surfaces* (CIME-Summer School Cosenza 2003), 269–340, Springer 2008.
20. (with T. Nishinou) *Toric degenerations of toric varieties and tropical curves*, Duke Math. J. **135** (2006), 1–51.
21. (with M. Gross) *Mirror symmetry via logarithmic degeneration data I*, J. Differential Geom. **72** (2006), 169–338.
22. (with M. Gross) *Affine manifolds, log structures, and mirror symmetry*, Turkish J. Math. **27** (2003), 33–60, (Proc. 7th Gökova Geometry-Topology conference).
23. (with S. Schröer) *Toroidal crossings and logarithmic structures*, Adv. Math. **202** (2006), 189–231.
24. (with G. Tian) *On the holomorphicity of genus two Lefschetz fibrations*, Annals of Math. **161** (2005), 955–1016.
25. (with S. Schröer) *Irreducible degenerations of primary Kodaira surfaces*, in: *Complex Geometry – Collection of Papers dedicated to Hans Grauert*, 193–222, Springer 2002.
26. *Weierstraß polynomials and plane pseudo-holomorphic curves*, Chinese Ann. Math. **B 23** (2002), 1–10.
27. (with G. Tian) *On hyperelliptic C^∞-Lefschetz fibrations of four manifolds*, Comm. Cont. Math. **1** (1999), 255–280.

28. *Algebraic and symplectic Gromov-Witten invariants coincide*, Ann. Inst. Fourier **49** (1999), 1743–1795.
29. *Symplectic Gromov-Witten invariants*, in: *New trends in Algebraic Geometry*, Warwick 1996, 375–424, Cambridge University Press 1998.
30. *An update on (small) quantum cohomology*, in: *Mirror symmetry, III*, 279–312, AMS/IP Stud. Adv. Math. **10**, Amer. Math. Soc. 1999.
31. *Virtual fundamental classes, global normal cones and Fulton's canonical classes*, in: *Frobenius manifolds*, Aspects Math. **E36**, 341–358, Vieweg 2004.
32. *Gromov-Witten invariants of general symplectic manifolds*, preprint `dg-ga/9608005`, Revision 12/97 (74pp.), Habilitation Thesis, Bochum 1998.
33. (with G. Tian) *Recursive relations for the cohomology ring of moduli spaces of stable bundles*, Turkish J. Math. **19** (1995), 131–144.
34. (with G. Tian) *On quantum cohomology rings of Fano manifolds and a formula of Vafa and Intriligrator*, Asian J. Math. **1** (1997), 679–695.
35. *Fibre cycles of holomorphic maps: II. Fibre cycle space and canonical flattening*, Math. Ann. **300** (1994), 243–271.
36. *Fibre cycles of holomorphic maps: I. Local Flattening*, Math. Ann. **296** (1993), 269–283.
37. *Faserzykelräume, geometrische Plattifikation und meromorphe Äquivalenzrelationen*, Dissertation, Göttingen 1992.
38. *Die Existenz einer Hermite-Einstein-Metrik auf einem stabilen Vektorraumbündel*, Diploma thesis, Göttingen 1989.

Doctoral Students Supervised

Harald Hengelbrock, Bochum 2003.
Helge Ruddat, Freiburg 2008.
Christian Thier, Freiburg 2008.
Max Pumperla, Hamburg 2012.
Hung-Ming Tsoi, Hamburg 2013.
Carsten Liese, Hamburg 2016.
Hülya Argüz, Hamburg 2016.
Lisa Bauer, Hamburg 2017.
Raffaele Caputo, Hamburg 2020.
Tim Gräfnitz, Hamburg 2021.
Yixian Wu, UT Austin 2022.
Suraj Dash, UT Austin (expected 2026).
Wang Yao, UT Austin (expected 2027).
Isaac Martin, UT Austin (expected 2027).
Jacob Gaiter, UT Austin (expected 2027).
Daniel Koizumi, UT Austin (expected 2029).
Zimao Tian, UT Austin (expected 2029).

Service to the Profession (Selection)

2004–2006 Dean of Studies (Mathematics), University of Freiburg.
2008–2020 Compositio Mathematicae, Editorial Board.
2009–2014 Advances in Mathematics, Editorial Board.
2009–2018 Abh. Math. Semin. Univ. Hambg., Editorial Board.
2011–2015 Spokesperson, RTG 1670 "Mathematics inspired by string theory and QFT".
2012–2018 Mathematisches Forschungsinstitut Oberwolfach, Member of the Scientific Committee.
2016–2018 Department Head, Department of Mathematics, University of Hamburg.
2024 ICM Panel Member for Section 4, Algebraic and Complex Geometry.

Conferences Organized

2000 DMV-Seminar "Quantum Cohomology", Oberwolfach (with G. Tian).
2009 Summer School "BPS State Counting, Stability Structures and Derived Algebraic Geometry", Hamburg.
2011 "Complex Algebraic Geometry", Oberwolfach (with F. Catanese, Y. Kawamata, G. Tian).
2013 "Complex Algebraic Geometry", Oberwolfach (with F. Catanese, C. Hacon, Y. Kawamata).
2013 Summer School "Moduli Spaces in Algebraic Geometry and Physics", Hamburg.
2015 "Complex Algebraic Geometry", Oberwolfach (with C. Hacon, D. Huybrechts, Y. Kawamata).
2017 "Algebraic Geometry", Oberwolfach (with C. Hacon, D. Huybrechts, C. Xu).
2024 "Logarithmic Moduli Theory: Curves, Sheaves, and Beyond", Cambridge/UK (with M. Gross, D. Ranganathan).