List of Publications – Prof. Dr. Boris Vertman

5 most important contributions

A. *Signatures of Witt spaces with boundary*
with Piazza, **Advances Math. 405** (2022)

B. *Eta and rho invariants on manifolds with edges*
with Paolo Piazza, **Annales Inst. Fourier 69**, no. 5 (2019)

C. *Stability of Ricci de Turck flow on Singular Spaces*
with Klaus Kröncke, **Calc. Var. PDE 58**, no. 2 (2019)

D. *Regularizing infinite sums of zeta-determinants*
with Matthias Lesch, **Math. Annalen 361** no. 3-4 (2015)

E. *Analytic torsion on manifolds with edges*
with Rafe Mazzeo, **Advances in Math. 231** (2012)

Preprints in preparation

(53). *Microlocal analysis and discrete geometry*
with Nicolai Reshetikhin (2025)

(52). *Positive mass theorem on hyperbolic spaces with boundary*
with Matheus Santos (2025)

Submitted preprints

(51). *L^2 Gamma index theorem for space times*
with Damaschke, arXiv:2410.05848 [math.DG]

Publications (accepted or published)

I. Spectral invariants on singular spaces

50. *Analytic torsion on manifolds with fibered boundary metrics*
with Lye, **IMRN, Vol. 2025**, no. 1 (2025)

49. *Cheeger-Müller theorem for a wedge singularity along an embedded submanifold*, with Hartmann, **Rev. Mat. Complut.** (2024)

48. *Stability of L^2-invariants on stratified spaces*
with Bei and Piazza, **IMRN, Vol. 2024**, no. 21 (2024)

47. *Signatures of Witt spaces with boundary*
with Piazza, **Advances Math. 405** (2022)

46. *Eta and rho invariants on manifolds with edges*
with Piazza, **Ann. Inst. Fourier 69**, no. 5 (2019)

45. *Cheeger-Müller theorem on manifolds with cusps*
Math. Zeitschrift 291, no. 3-4 (2019)

44. *Zeta-determinants of Sturm-Liouville operators with quadratic potentials at infinity*, with Hartmann and Lesch,
Journal of Diff. Equations 262, no. 5 (2017)

43. *Refined analytic torsion as analytic function on the representation variety and applications*, with Braverman,
Annales Math. du Quebec 41, no. 1 (2017)

42. *Regularizing infinite sums of zeta-determinants*
with Lesch, **Math. Annalen 361** 3-4, (2015)

41. *The Metric Anomaly of Analytic Torsion on Manifolds with Conical Singularities,* with Müller,
Communications in PDE. 39, no. 1 (2014)

40. *A new proof of a Bismut-Zhang formula for some class of representations*, with Braverman, **Proc. Contemp. Math. 630** (2014)

39. *Analytic torsion on manifolds with edges*
with Mazzeo, **Advances in Math. 231** (2012)

38. *The metric anomaly of analytic torsion at the boundary of an even dimensional cone*, **Ann. Geom. Anal. Geom. 41** no. 1 (2011)

37. *Regular singular Sturm-Liouville operators and their zeta-determinants*, with Lesch, **J. Funct. Anal. 261** (2) (2011)

36. *Recent Advances on the Analytic Torsion of Singular Spaces*
Oberwolfach Report, "Analysis and Geometric Singularities" (2010)

35. *Refined analytic torsion on manifolds with boundary*
Geometry and Topology 13, no. 4 (2009)

34. *Analytic Torsion of a Bounded Generalized Cone*
Comm. in Mathematical Physics 290, no. 3 (2009)

33. *Zeta determinants for regular-singular Laplace-type operators*
Journal of Mathematical Physics 50, no. 8 (2009)

32. *Exotic Expansions and pathological properties of zeta-functions on conic manifolds*, Kirsten, Loya, Park with an Appendix by Vertman,
Journal of Geometric Analysis 18 (2008)

II. Geometric flows, non-linear PDE on singular spaces

(31). *Generalized Yamabe flows* with Lye and Vitti,
Analysis and Math. Physics 15, no. 119 (2025)

30. *Phase transitions and minimal interfaces on manifolds with conical singularities*, with Grieser, Held and Uecker, **Nonlinearity 38**, no. 2 (2025)

29. *Normalized Yamabe flow on manifolds with bounded geometry*
with Caldeira and Hartmann, **Ann. Global Anal. Geom. 63**, no. 3 (2023)

28. *Convergence of the Yamabe flow on singular spaces with positive Yamabe constant*, with Carron and Lye, **Tohoku J. Math. (2) 75**, no. 4 (2023)

27. *Long-time existence of Yamabe flow on singular spaces with positive Yamabe constant*, with Lye, **Anal. PDE 16**, no. 2 (2023)

26. *Bounded Ricci Curvature and Positive Scalar Curvature under Singular Ricci de Turck Flow*, with Kröncke and Marxen
Pacific J. Math. 324, nr. 2, (2023)

25. *Ricci de Turck flow on incomplete manifolds*
with Marxen, **Documenta Math. 27**, (2022)

24. *A Survey on the Ricci flow on Singular Spaces*
with Kröncke, Diff. geometry in the large, 118–139
London Math. Soc. Lecture Note Ser., 463, (2021)

23. *Perelman's entropies for manifolds with with conical singularities*
with Kröncke, **Trans. Amer. Math. Soc. 374** no. 4 (2021)

22. *Ricci flow on singular manifolds*
J. Geom. Anal. 31, no. 4 (2021)

21. *Stability of Ricci de Turck flow on Singular Spaces*
with Kröncke, **Calc. Var. PDE 58**, no. 2 (2019)

20. *Long-time existence of the edge Yamabe flow*
with Bahuaud, **J. Math. Soc. Japan 71**, no. 2 (2019)

19. *Yamabe flow on manifolds with edges*
with Bahuaud, **Math. Nachrichten 287**, no. 23 (2014)

III. Mathematical Physics

18. *Prescribed mean curvature flow of non-compact space-like Cauchy hypersurfaces*, with Gentile, **Ann. Global Anal. Geom. 64**, no. 2 (2023)

17. *Mean curvature flow in asymptotically flat product spacetimes*
with Kröncke, Petersen, Lubbe, Marxen, Maurer, Meiser, Schnürer, Szabo
J. Geom. Analysis 31 (2021)

16. *Combinatorial Quantum Field Theory and Gluing Formula for Determinants*, with Reshetikhin
Letters in Math. Physics 105, no. 3 (2015)

IV. Discrete geometry and spectral theory

15. *Scattering theory for difference equations with operator coefficients*
with Silva, Sher and Winklmeier, **J. London Math. Soc. 113** no. 3 (2026)

14. *Extremals of determinants of Laplacians on discrete surfaces*
with Hafemann, **Adv. Th. Math. Phys. 28**, no. 5 (2024)

13. *Spectral zeta function on discrete tori and Epstein-Riemann conjecture* with Meiners, **J. Number Theory 244**, (2023)

12. *Regularized limit of determinants for discrete tori* **Monatshefte für Mathematik 186**, no. 3 (2018)

V. Singular PDE, ΨDO and boundary value problems

11. *Spectral geometry on manifolds with fibred boundary metrics II: heat kernel asymptotics*, with Talebi, **Anal. Math. Phys. 12**, no. 2 (2022)

10. *Spectral geometry on manifolds with fibred boundary metrics I: Low energy resolvent*, with Talebi and Grieser **J. l'École Polytechnique - Math. 9**, (2022)

9. *Resolvent trace asymptotics on stratified spaces* with Hartmann and Lesch, **Pure Appl. Anal. 3** no. 1 (2021)

8. *On the domain of Dirac and Laplace type Operators on Stratified Spaces* with Hartmann and Lesch, **Journal of Spectral Theory, 8**, no. 4 (2018)

7. *The biharmonic heat operator on edge manifolds and non-linear fourth order equations*, **Manuscripta Mathematica 149** no. 1 (2016)

6. *Multiparameter resolvent trace expansion for elliptic boundary problems* **Analysis, Geometry and Number theory J. 1** (2016)

5. *Mapping properties of the heat operator on edge manifolds* with Dryden and Bahuaud **Math. Nachr. 288**, no. 2 (2015)

4. *Heat trace asymptotics for edge Laplacians with algebraic boundary conditions*, **Journal d'Analyse Math. 125**, no. 1 (2015)

3. *Elliptic theory of differential edge operators, II: Boundary value problems*, with Mazzeo, **Indiana Math. Journal 63**, no. 6 (2014)

2. *The exotic heat-trace asymptotics of a regular-singular operator revisited* **Journal of Math. Physics** 54, no. 6 (2013)

VI. Doctoral thesis

1. *Analytic Torsion of Manifolds with Boundary and Conical Singularities*, **Bonn University Press** (2008)