

Publications

John Lott

1. “Vacuum Charge and the Eta-Function”, *Comm. Math. Phys.* 93, p. 533-558 (1984)
2. “The Yang-Mills Collective-Coordinate Potential”, *Comm. Math. Phys.* 95, p. 289-300 (1984)
3. “The Eta-Function and Some New Anomalies”, *Phys. Lett. B* 145, p. 179-180 (1984)
4. “Effective Actions and Large-N Limits”, *Comm. Math. Phys.* 100, p. 133-140 (1985)
5. “Degrees of Freedom and Quantization of Anomalous Gauge Theories”, with R. Rajaraman, *Phys. Lett. B* 165, p. 321-326 (1985)
6. “A Proof of the Axial Anomaly”, *Comm. Math. Phys.* 97, p. 371-379 (1985)
7. “Eigenvalue Bounds for the Dirac Operator”, *Pac. J. Math.* 125, p. 117-126 (1986)
8. “Bosonization in Curved Spacetime”, *Phys. Lett. B* 173, p. 319-320 (1986)
9. “Renormalization Group Flow for General σ -Models”, *Comm. Math. Phys.* 107, p. 165-176 (1986)
10. “Supersymmetric Path Integrals”, *Comm. Math. Phys.* 108, p. 605-629 (1986)
11. “Real Anomalies”, *J. Math. Phys.* 29, p. 1455-1464 (1988)
12. “Analytic Torsion for Group Actions”, in *Recent Developments in Geometry (Los Angeles, 1987)*, *Cont. Math.* 101, AMS, Prov, RI, p. 179-189 (1989)
13. “Torsion Constraints in Supergeometry”, *Comm. Math. Phys.* 133, p. 563-615 (1990)
14. “Particle Models and Noncommutative Geometry”, with A. Connes, in *Recent Advances in Field Theory (Annecy-le-Vieux, 1990)*, *Nucl. Phys. B Proc. Suppl.* 18B (1990)

15. “Analytic Torsion for Group Actions”, with M. Rothenberg, *J. of Diff. Geom.* 34, p. 431-481 (1991)
16. “The Metric Aspect of Noncommutative Geometry”, with A. Connes, in *New Symmetry Principles in Quantum Field Theory (Cargèse, 1991)*, NATO Adv. Sci. Inst. Ser. B Phys. 295, Plenum, NY, p. 53-93 (1992)
17. “Superconnections and Higher Index Theory”, *Geom. Funct. Anal.* 2, p. 421-454 (1992)
18. “Heat Kernels on Covering Spaces and Topological Invariants”, *J. Diff. Geom.* 35, p. 471-510 (1992)
19. “Higher Eta-Invariants”, *K-Theory* 6, p. 191-233 (1992)
20. “Heat Kernels on Covering Spaces and Topological Invariants”, in *Proceedings of 1990 Summer Institute on Differential Geometry*, Proc. Symp. Pure Math. 54, Vol. 2, eds. R. Greene and S.T. Yau, Amer. Math. Soc., p. 391-400 (1993)
21. “Fibrés Plats, Images Directes et Formes de Torsion Analytique”, with J.-M. Bismut, *C. R. Acad. Sci. Paris*, t. 316, Série I, p. 477-482 (1993)
22. “Equivariant Analytic Torsion for Compact Lie Group Actions”, *J. of Funct. Anal.* 125, p. 438-451 (1994)
23. “ \mathbb{R}/\mathbb{Z} Index Theory”, *Comm. in Anal. and Geom.* 2, p. 279-311 (1994)
24. “ L^2 -Topological Invariants of 3-Manifolds”, with W. Lück, *Inventiones Math.* 120, p. 15-60 (1995)
25. “Flat Vector Bundles, Direct Images and Higher Real Analytic Torsion”, with J.-M. Bismut, *J. Amer. Math. Soc.* 8, p. 291-363 (1995)
26. “The Zero-in-the-Spectrum Question”, *L’Enseignement Mathématique* 42, p. 341-376 (1996)
27. “ L^2 -Cohomology of Geometrically Infinite Hyperbolic 3-Manifolds”, *Geom. Anal. and*

Funct. Anal. 7, p. 81-119 (1997)

28. “Torus Bundles and the Group Cohomology of $SL(N, Z)$ ”, with J.-M. Bismut, J. of Diff. Geom. 47, p. 196-236 (1997)

29. “Eta and Torsion”, in Symétries Quantiques, Proceedings of the 1995 Les Houches Summer School in Theoretical Physics, North Holland, Amsterdam, p. 947-955 (1998)

30. “Remark about Heat Flow on Periodic Spaces”, Proc. of the Amer. Math. Soc. 127, p. 1243-1249 (1999)

31. “Deficiencies of Lattice Subgroups of Lie Groups”, Bull. London Math. Soc. 31, p. 191-195 (1999)

32. “Diffeomorphisms and Noncommutative Analytic Torsion”, Mem. of the Amer. Math. Soc. 141, no. 673, viii + 56 pp. (1999)

33. “Secondary Analytic Indices”, in Regulators in Analysis, Geometry and Number Theory, Birkhäuser Progress in Mathematics Series vol. 171, eds. A. Reznikov and N. Schappacher, Birkhäuser, Boston, p. 231-293 (2000)

34. “Delocalized L^2 -Invariants”, J. of Funct. Anal. 169, p. 1-31 (2000)

35. “Signatures and Higher Signatures of S^1 -Quotients”, Math. Annalen 316, p. 617-657 (2000)

36. “Manifolds with Quadratic Curvature Decay and Slow Volume Growth”, with Z. Shen, Annales Scientifiques de l’École Normale Supérieure (4) 33, p. 275-290 (2000)

37. “Invariant Currents on Limit Sets”, Comm. Math. Helv. 75, p. 319-350 (2000)

38. “ \hat{A} -Genus and Collapsing”, J. of Geom. Anal. 10, p. 529-543 (2000)

39. “On the Homotopy Invariance of Higher Signatures for Manifolds with Boundary”, with E. Leichtnam and P. Piazza, J. of Diff. Geom. 54, p. 561-633 (2000)

40. “The Dirac Operator and Conformal Compactification”, Internat. Math. Res. Notices 2001, No. 4, p. 171-178 (2001)

41. "On the Spectrum of a Finite-Volume Negatively-Curved Manifold", *Amer. J. of Math.* 123, p. 185-205 (2001)
42. "Collapsing and Dirac-Type Operators", *Geom. Ded.* 91, p. 175-196 (2002) (special issue on Partial Differential Equations and their Applications to Geometry and Physics)
43. "Collapsing and the Differential Form Laplacian : The Case of a Smooth Limit Space", *Duke Math. Journal* 114, p. 267-306 (2002)
44. "Higher-Degree Analogs of the Determinant Line Bundle", *Comm. Math. Phys.* 230, p. 41-69 (2002)
45. "Manifolds with Quadratic Curvature Decay and Fast Volume Growth", *Math. Ann.* 325, p. 525-541 (2003)
46. "Local Index Theory over Étale Groupoids", with A. Gorokhovsky, *J. Reine Angew. Math. (Crelle's Journal)* 560, p. 151-198 (2003)
47. "Remark about the Spectrum of the p -Form Laplacian Under a Collapse with Curvature Bounded Below", *Proc. of the AMS* 132, p. 911-918 (2003)
48. "Some Geometric Properties of the Bakry-Émery-Ricci Tensor", *Comm. Math. Helv.* 78, p. 865-883 (2003)
49. "Limit Sets as Examples in Noncommutative Geometry", *K-Theory* 34, p. 283-326 (2005)
50. "Local Index Theory over Foliation Groupoids", with A. Gorokhovsky, *Advances in Mathematics* 204, p. 413-447 (2006)
51. "Weak Curvature Conditions and Functional Inequalities", with C. Villani, *J. of Funct. Analysis* 245, p. 311-333 (2007)
52. "Remark about Scalar Curvature and Riemannian Submersions", *Proc. of the AMS* 135, p. 3375-3381 (2007)
53. "The Work of Grigory Perelman", *Proc. of the 2006 ICM, European Math. Soc.*

Publishing House, Vol. I, p. 66-77 (2007)

54. “On the Long-Time Behavior of Type-III Ricci Flow Solutions”, *Math. Annalen* 339, p. 627-666 (2007)

55. “Hamilton-Jacobi Semigroup on Length Spaces and Applications”, with Cédric Villani, *Journal de Maths. Pures et Appliquées* 88, p. 219-229 (2007)

56. “Optimal Transport and Ricci Curvature for Metric-Measure Spaces”, in *Surveys in Differential Geometry*, vol. XI, *Metric and Comparison Geometry*, eds. J. Cheeger and K. Grove, International Press, Somerville, MA, p. 229-257 (2007)

57. “Some Geometric Calculations on Wasserstein Space”, *Comm. Math. Phys.* 277, p. 423-437 (2008)

58. “Notes on Perelman’s Papers”, with Bruce Kleiner, *Geometry and Topology* 12, p. 2587-2855 (2008)

59. “Ricci Curvature for Metric-Measure Spaces via Optimal Transport”, with C. Villani, *Ann. Math.* 169, p. 903-991 (2009)

60. “Optimal Transport and Perelman’s Reduced Volume”, *Calc. Var. and Partial Differential Equations* 36, p. 49-84 (2009)

61. “An Index Theorem in Differential K-Theory”, with Dan Freed, *Geom. and Topology* 14, p. 903-966 (2010)

62. “Dimensional Reduction and the Long-Time Behavior of Ricci Flow”, *Comm. Math. Helv.* 85, p. 485-534

63. “Ricci Flow on Quasiprojective Manifolds”, with Zhou Zhang, *Duke Math. Journal* 156, p. 87-123 (2011)

64. “Mean Curvature Flow in a Ricci Flow Background”, *Comm. Math. Phys.* 313, p. 517-533 (2012)

65. “The Index of a Transverse Dirac-type Operator: The Case of Abelian Molino sheaf”, with Alexander Gorokhovsky, *J. Reine Angew. Math. (Crelle’s Journal)* 678, p. 125-162

(2013)

66. “Ricci Flow on Three-Dimensional Manifolds with Symmetry”, with Natasa Sesum, *Comm. Math. Helv.* 89, p. 1-32 (2014)

67. “Collapsing With a Lower Bound on the Curvature Operator”, *Adv. Math.* 256, p. 291-317 (2014)

68. “Locally Collapsed 3-manifolds”, with Bruce Kleiner, *Astérisque* 365, p. 7-99 (2014)

69. “Geometrization of Three-Dimensional Orbifolds via Ricci Flow”, with Bruce Kleiner, *Astérisque* 365, p. 101-177 (2014)

70. “Ricci measure for some singular Riemannian metrics”, *Math. Annalen* 365, p. 449-471 (2016)

71. “Ricci flow on Quasiprojective Manifolds II”, with Zhou Zhang, *J. of the Eur. Math. Soc.* 18, p. 1813-1854 (2016)

72. “On Tangent Cones in Wasserstein Space”, *Proc. of the AMS* 145, p. 3127-3136 (2017)

73. “Note on Asymptotically Conical Expanding Ricci Solitons”, with Patrick Wilson, *Proc. of the AMS* 145, p. 3525-3529 (2017)

74. “An Intrinsic Parallel Transport in Wasserstein Space”, *Proc. of the AMS* 145, p. 5329-5340 (2017)

75. “Singular Ricci Flows I”, with Bruce Kleiner, *Acta Math.* 219, p. 65-134 (2017)

76. “Backreaction in the Future Behavior of an Expanding Vacuum Spacetime”, *Class. and Quantum Gravity* 35, 035010 (2018)

77. “A Hilbert Bundle Description of Differential K-Theory”, with Alexander Gorokhovsky, *Adv. in Math.* 328, p. 661-712 (2018)

78. “Collapsing in the Einstein Flow”, *Annales Henri Poincaré* 19, p. 2245-2296 (2018)

79. "Eigenvalue Estimates and Differential Form Laplacians on Alexandrov Spaces", *Math. Annalen* 371, p. 1737-1767 (2018)
80. "On Noncollapsed Almost Ricci-flat 4-Manifolds", with Vitali Kapovitch, *Amer. J. Math.* 141, p. 737-755 (2019)
81. "The Collapsing Geometry of Almost Ricci-Flat 4-Manifolds", *Comm. Math. Helv.* 95, p. 79-98 (2020)
82. "Singular Ricci Flows II", with Bruce Kleiner, in *Geometric Analysis*, Birkhauser Prog. in Math. Series, vol. 333, eds. J. Chen, P. Lu, Z. Lu and Z. Zhang, Birkhauser, Boston, p. 137-155 (2020)
83. "A Dolbeault-Hilbert Complex for a Variety with Isolated Singular Points", *Annals of K-Theory* 4, p. 707-720 (2020)
84. "On the Initial Geometry of a Vacuum Cosmological Spacetime", *Class. and Quantum Gravity* 37, 085017 (2020)
85. "Kasner-Like Regions near Crushing Singularities", *Class. and Quantum Gravity* 38, 055005 (2021)
86. "Index Theory for Scalar Curvature on Manifolds with Boundary", *Proc. of the AMS* 149, p. 4451-4459 (2021)
87. "Comparison Geometry of Holomorphic Bisectional curvature for Kähler Manifolds and Limit Spaces", *Duke Math. J.* 170, p. 3039-3071 (2021)
88. "On Scalar Curvature Lower Bounds and Scalar Curvature Measure", *Adv. Math.* 408, 108612 (2022)
89. "On 3-Manifolds with Pointwise Pinched Nonnegative Ricci Curvature", preprint
90. "A Spinorial Quasilocal Mass", preprint

Other

91. "The Geometry of Supergravity Torsion Constraints", prepared for the 2001 Park City

Mathematics Institute