

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. “ \widehat{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. “On 3-Manifolds with Pointwise Pinched Nonnegative Ricci Curvature”, preprint
86. “Comparison geometry of holomorphic bisectional curvature for Kähler manifolds and limit spaces”, preprint

Other

87. “The Geometry of Supergravity Torsion Constraints”, prepared for the 2001 Park City Mathematics Institute