

References

1. A. Abrams and R. Ghrist. Finding topology in a factory: configuration spaces. *Amer. Math. Monthly*, 109(2):140–150, 2002.
2. R.J. Adler. *The Geometry of Random Fields*. John Wiley & Sons Ltd., Chichester, 1981. Reprinted in 2010 by SIAM, Classics of Applied Mathematics Series.
3. R.J. Adler. *An Introduction to Continuity, Extrema, and Related Topics for General Gaussian Processes*. Institute of Mathematical Statistics Lecture Notes—Monograph Series, 12. Institute of Mathematical Statistics, Hayward, CA, 1990.
4. R.J. Adler. On excursion sets, tube formulae, and maxima of random fields. *Annals of Applied Prob.*, 10:1–74, 2000.
5. R.J. Adler, K. Bartz, and S. Kou. Estimating metric curvatures for random fields. 2010. In preparation.
6. R.J. Adler, J.H. Blanchet, and J. Liu. Efficient Monte Carlo for high excursions of Gaussian random fields. 2010.
7. R.J. Adler, O. Bobrowski, M.S. Borman, E Subag, , and S. Weinberger. Persistent homology for random fields and complexes. In *Borrowing Strength: Theory Powering Applications, A Festschrift for Lawrence D. Brown*, pages 124–143. IMS Collections, 2010.
8. R.J. Adler and J.E. Taylor. *Random Fields and Geometry*. Springer, 2007.
9. R.J. Adler, J.E. Taylor, and K.J. Worsley. *Applications of Random Fields and Geometry: Foundations and Case Studies*. Springer-Verlag, 2011? In preparation, early chapters available at <http://ie.technion.ac.il/~radler/publications.html>.
10. D. Aldous. *Probability Approximations via the Poisson Clumping Heuristic*. Springer, New York, 1989.
11. J-M. Azaïs and M. Wschebor. *Level sets and extrema of random processes and fields*. John Wiley & Sons Inc., Hoboken, NJ, 2009.
12. R. Benjamini, Y. Heller. False discovery rates for spatial signals. *J. Amer. Statist. Assoc.*, 102(480):1272–1281, 2007.
13. A. Bernig and L. Bröcker. Lipschitz-Killing invariants. *Math. Nachr.*, 245:5–25, 2002.
14. O. Bobrowski and M.S. Borman. Euler integration of Gaussian random fields and persistent homology. 2010. In preparation.
15. V.I. Bogachev. *Gaussian Measures*, volume 62 of *Mathematical Surveys and Monographs*. American Mathematical Society, Providence, RI, 1998.
16. L. Bröcker and M. Kuppe. Integral geometry of tame sets. *Geom. Dedicata*, 82(1-3):285–323, 2000.
17. P. Bubenik and P.T. Kim. A statistical approach to persistent homology. *Homology, Homotopy and Applications*, 9(2):337–362, 2007.
18. G. Carlsson. Topology and data. *Bull. Amer. Math. Soc. (N.S.)*, 46(2):255–308, 2009.
19. G. Carlsson. Topological methods in scientific computing, statistics and computer science. 2010. comptop.stanford.edu/.

20. G. Carlsson and V. de Silva. Plex: MATLAB software for computing persistent homology of finite simplicial complexes. comptop.stanford.edu/programs/plex.
21. G. Carlsson and A. Zomorodian. The theory of multidimensional persistence. *Discrete Comput. Geom.*, 42(1):71–93, 2009.
22. S.S. Chern. On the kinematic formula in integral geometry. *J. Math. Mech.*, 16:101–118, 1966.
23. J. Chumbley, K. Worsley, G. Flandin, and K. Friston. Topological fdr for neuroimaging. *NeuroImage*, 49(4):3057–3064, 2010.
24. Justin R. Chumbley and Karl J. Friston. False discovery rate revisited: Fdr and topological inference using gaussian random fields. *NeuroImage*, 44(1):62–70, 2009.
25. DARPA. Topological data analysis. 2010. www.darpa.mil/dso/thrusts/math/funmath/tda/index.htm.
26. V. de Silva and R. Ghrist. Coverage in sensor networks via persistent homology. *Algebr. Geom. Topol.*, 7:339–358, 2007.
27. V. de Silva and R. Ghrist. Homological sensor networks. *Notices Amer. Math. Soc.*, 54(1):10–17, 2007.
28. M.R. Dennis. Nodal densities of planar Gaussian random waves. *Eur. Phys. J.*, 145:191–210, 2007.
29. P. Diaconis and D. Freedman. A dozen de Finetti-style results in search of a theory. *Ann. Inst. H. Poincaré Probab. Statist.*, 23(2, suppl.):397–423, 1987.
30. P.W. Diaconis, M.L. Eaton, and S.L. Lauritzen. Finite de Finetti theorems in linear models and multivariate analysis. *Scand. J. Statist.*, 19(4):289–315, 1992.
31. R.M. Dudley. The sizes of compact subsets of hilbert space and continuity of Gaussian processes. *J. Funct. Anal.*, 1:290–330, 1967.
32. R.M. Dudley. Sample functions of the Gaussian process. *Ann. Probab.*, 1:66–103, 1973.
33. R.M. Dudley. *Uniform Central Limit Theorems*. Cambridge University Press, Cambridge, 1999.
34. H. Edelsbrunner and J. Harer. Persistent homology—a survey. In *Surveys on discrete and computational geometry*, volume 453 of *Contemp. Math.*, pages 257–282. Amer. Math. Soc., Providence, RI, 2008.
35. A. C. Evans, S. Marret, P. Neelin, L. Collins, K.J. Worsley, W. Dai, S. Milot, E. Meyer, and D. Bub. Anatomical mapping of functional activation in stereotactic coordinate space. *NeuroImage*, 1:43–53, 1992.
36. F. Fedele, G. Gallego, A. Benetazzo, A. Yezzi, and M.A. Tayfun. Euler characteristics and maxima of oceanic sea states. *IDRA08 31 Convegno Nazionale di Idraulica e Costruzioni Idrauliche Perugia*, pages 9–12, 2008.
37. H. Federer. Curvature measures. *Trans. Amer. Math. Soc.*, 93:418–491, 1959.
38. H. Federer. *Geometric Measure Theory*. Springer-Verlag, New York, 1969.
39. X. Fernique. *Fonctions Aléatoires Gaussiennes, Vecteurs Aléatoires Gaussiens*. Université de Montréal Centre de Recherches Mathématiques, Montreal, QC, 1997.
40. R. Ghrist. Barcodes: the persistent topology of data. *Bull. Amer. Math. Soc. (N.S.)*, 45(1):61–75 (electronic), 2008.
41. R. Ghrist. Topological methods in electrical and systems engineering, 2008. www.math.uiuc.edu/~ghrist/notes/appltop/.
42. R. Ghrist. Sensor Topology for Minimal Planning. 2009. www.darpa.mil/dso/thrusts/math/funmath/stomp/index.htm.
43. M. Goresky and R. MacPherson. *Stratified Morse Theory*, volume 14 of *Ergebnisse der Mathematik und ihrer Grenzgebiete (3) [Results in Mathematics and Related Areas (3)]*. Springer-Verlag, Berlin, 1988.
44. J.R. Gott III, W.N. Colley, C.G. Park, C. Park, and C. Mugnolo. Genus topology of the cosmic microwave background from the WMAP 3-year data. *Monthly Notices of the Royal Astronomical Society*, 377(4):1668–1678, 2007.
45. J.R. Gott III, M. Dickinson, and AL Melott. The sponge-like topology of large-scale structure in the universe. *The Astrophysical Journal*, 306:341–357, 1986.

46. J.R. Gott III, D.C. Hambrick, M.S. Vogeley, J. Kim, C. Park, Y-Y. Choi, R. Cen, and K. Ostriker, J.P. Nagamine. Genus topology of structure in the sloan digital sky survey: Model testing. *The Astrophysical Journal*, 675:16–28, 2008.
47. H. Hadwiger. *Vorlesungen Über Inhalt, Oberfläche und Isoperimetrie*. Springer-Verlag, Berlin, 1957.
48. A. Hatcher. *Algebraic Topology*. Cambridge University Press, 2002.
49. T. Hida and M. Hitsuda. *Gaussian Processes*. AMS, Providence, 1993.
50. H. Hotelling. Tubes and spheres in n -spaces and a class of statistical problems. *Amer. J. Math.*, 61:440–460, 1939.
51. D. Hug and R. Schneider. Kinematic and Crofton formulae of integral geometry: recent variants and extensions. In C. Barceló i Vidal, editor, *Homenatge al Professor Lus Santaló i Sors*, pages 51–80. Universitat de Girona, 2002.
52. S. Janson. *Gaussian Hilbert Spaces*. Cambridge University Press, Cambridge, 1997.
53. Søren Johansen and Iain M. Johnstone. Hotelling’s theorem on the volume of tubes: some illustrations in simultaneous inference and data analysis. *Ann. Statist.*, 18(2):652–684, 1990.
54. M. Kac. On the average number of real roots of a random algebraic equation. *Bull. Amer. Math. Soc.*, 43:314–320, 1943.
55. M. Kac and D. Slepian. Large excursions of Gaussian processes. *Ann. Math. Statist.*, 30:1215–1228, 1959.
56. J.M Kilner and K.J. Friston. Topological inference for EEG and MEG data. *Ann. Appl. Stat.*, 4(3):1272–1290, 2010.
57. D.A. Klain and G-C. Rota. *Introduction to Geometric Probability*. Cambridge University Press, Cambridge, 1997.
58. M. Knowles and D Siegmund. On Hotelling’s approach to testing for a nonlinear parameter in a regression. *Int. Statist. Rev.*, 57:205–220, 1989.
59. R. Leblanc, E. Meyer, D. Bub, R. J. Zatorre, and A. C. Evans. Language localization with activation positron emission tomography scanning. *Neurosurgery*, 31(2):369–372, 1992.
60. M. Ledoux and M. Talagrand. *Probability in Banach Spaces. Isoperimetry and Processes*. Springer-Verlag, Berlin, 1991.
61. M.A. Lifshits. *Gaussian Random Functions*. Kluwer, Dordrecht, 1995.
62. G. Lindgren. Local maxima of Gaussian fields. *Ark. Mat.*, 10:195–218, 1972.
63. M.S. Longuet-Higgins. On the statistical distribution of the heights of sea waves. *J. Marine Res.*, 11:245–266, 1952.
64. M.S. Longuet-Higgins. The statistical analysis of a random moving surface. *Phil. Trans. Roy. Soc.*, A249:321–387, 1957.
65. P. Natoli, G. De Troia, C. Hikage, E. Komatsu, M. Migliaccio, PAR Ade, JJ Bock, JR Bond, J. Borrill, A. Boscaleri, et al. BOOMERanG constraints on primordial non-Gaussianity from analytical Minkowski functionals. *Monthly Notices of the Royal Astronomical Society*.
66. M. Perone-Pacifico, C. Genovese, I. Verdinelli, and L. Wasserman. False discovery control for random fields. *J. Amer. Statist. Assoc.*, 99(468):1002–1014, 2004.
67. M.J. Pflaum. *Analytic and Geometric Study of Stratified Spaces*, volume 1768 of *Lecture Notes in Mathematics*. Springer-Verlag, Berlin, 2001.
68. V.I. Piterbarg. *Asymptotic methods in the theory of Gaussian processes and fields*. American Mathematical Society, Providence, RI, 1996. Translated from the Russian by V. V. Piterbarg, Revised by the author.
69. S. O. Rice. The Distribution of the Maxima of a Random Curve. *Amer. J. Math.*, 61(2):409–416, 1939.
70. S.O. Rice. Mathematical analysis of random noise. *Bell System Tech. J.*, 24:46–156, 1945. Also in Wax, N. (Ed.) (1954), *Selected Papers on Noise and Stochastic Processes*, Dover, New York.
71. L.A. Santalo. *Integral Geometry and Geometric Probability*. Encyclopedia of Mathematics and its Applications. Addison-Wesley, Reading, 1976.

72. J. Schmalzing and K.M. Gorski. Minkowski functionals used in the morphological analysis of cosmic microwave background anisotropy maps. *Monthly Notices of the Royal Astronomical Society*, 297(2):355–365, 1998.
73. R. Schneider. *Convex Bodies: the Brunn-Minkowski Theory*, volume 44 of *Encyclopedia of Mathematics and its Applications*. Cambridge University Press, Cambridge, 1993.
74. D.O. Siegmund and K.J. Worsley. Testing for a signal with unknown location and scale in a stationary Gaussian random field. *Ann. Statist.*, 23:608–639, 1995.
75. D. Slepian. On the zeros of Gaussian noise. In *Proc. Sympos. Time Series Analysis (Brown Univ., 1962)*, pages 104–115. Wiley, New York, 1963.
76. V. Springel, S.D.M. White, A. Jenkins, C.S. Frenk, N. Yoshida, L. Gao, J. Navarro, R. Thacker, D. Croton, J. Helly, et al. Simulations of the formation, evolution and clustering of galaxies and quasars. *Nature*, 435(7042):629–636, 2005.
77. Jiayang Sun. Tail probabilities of the maxima of Gaussian random fields. *Ann. Probab.*, 21(1):34–71, 1993.
78. A. Takemura and S. Kuriki. On the equivalence of the tube and Euler characteristic methods for the distribution of the maximum of Gaussian fields over piecewise smooth domains. *Ann. of Appl. Probab.*, 12(2):768–796, 2002.
79. J.E. Taylor. *Euler Characteristics for Gaussian Fields on Manifolds*. PhD thesis, McGill University, 2001.
80. J.E. Taylor. A Gaussian kinematic formula. *Ann. Probab.*, 34(1):122–158, 2006.
81. J.E. Taylor, A. Takemura, and R.J. Adler. Validity of the expected Euler characteristic heuristic. *Ann. Probab.*, 33(4):1362–1396, 2005.
82. J.E. Taylor and S. Vadamani. Random fields and the geometry of Wiener space. 2010. In preparation.
83. J.E. Taylor and K.J. Worsley. Detecting sparse signals in random fields, with an application to brain mapping. *J. Amer. Statist. Assoc.*, 102(479):913–928, 2007.
84. J.W. Vick. *Homology Theory*. Academic Press New York, 1973.
85. M.S. Vogeley, C. Park, M.J. Geller, J.P. Huchin, and J.R. Gott. Topological analysis of the CfA redshift survey. *Astrophysical Journal*, 420:525–544, 1994.
86. H. Weyl. On the volume of tubes. *Amer. J. Math.*, 61:461–472, 1939.
87. K. J. Worsley. Local maxima and the expected Euler characteristic of excursion sets of χ^2 , F and t fields. *Adv. in Appl. Probab.*, 26(1):13–42, 1994.
88. K. J. Worsley. The geometry of random images. *Chance*, 9(1):27–40, 1997.
89. K.J. Worsley. Boundary corrections for the expected Euler characteristic of excursion sets of random fields, with an application to astrophysics. *Adv. Appl. Probab.*, 27:943–959, 1995.
90. K.J. Worsley. Estimating the number of peaks in a random field using the hadwiger characteristic of excursion sets, with applications to medical images. *Ann. Statist.*, 23:640–669, 1995.
91. K.J. Worsley. Testing for signals with unknown location and scale in a χ^2 random field, with an application to fMRI. *Adv. in Appl. Probab.*, 33(4):773–793, 2001.
92. K.J. Worsley and K.J. Friston. A test for a conjunction. *Statist. Probab. Lett.*, 47(2):135–140, 2000.
93. M. Wschebor. *Surfaces aléatoires*, volume 1147 of *Lecture Notes in Mathematics*. Springer-Verlag, Berlin, 1985. Mesure géométrique des ensembles de niveau. [The geometric measure of level sets].

Notation Index

(M, g)	Riemannian manifold, 38
\mathcal{H}_N	Hausdorff measure, 39
$\mathcal{N}_t M$	Normal cone, 43
$\mathcal{S}_t M$	Support cone, 44
Curv	Curvature matrix, 48
detr_j	Sum over principle minors, 48
γ_k	Gauss measure in \mathbb{R}^k , 51
$\text{Graff}(N, k)$	Affine Grassmanian, 55
$\iota_{f, \partial_j M}$	Morse index, 56
Λ	Second order spectral matrix, 71
λ_2	Second spectral moment, 33
Λ_J	Matrix of spectral moments, 73
λ_N	Lebesgue measure in \mathbb{R}^N , 5
$\lambda_{i_1 \dots i_N}$	Spectral moments, 32
λ_{ij}	Second order spectral moments, 71
\mathcal{L}_j^κ	One parameter family of Lipschitz-Killing curvatures , 48
$\mathcal{L}_j(M)$	Lipschitz-Killing curvature, 48
\mathcal{M}_j	Minkowski functional, 5
$\mathcal{M}_j^{\gamma_k}$	Gaussian Minkowski functionals, 52
∇^2	Covariant Hessian, 38
$\nabla_X Y$	Covariant derivative, 38
$\nu_{n, \lambda}$	Haar measure on $G_{n, \lambda \cdot}$, 54
ω_n	Volume of unit ball in \mathbb{R}^n , 5
φ	Euler–Poincaré characteristic, 3
Φ	Gaussian distribution function, 15
ϕ	Normal density, 13
Ψ	Gaussian tail function, 15
ρ_c	Critical radius, 44
$\begin{bmatrix} n \\ m \end{bmatrix}$	Flag coefficients, 8
$\text{Tube}(M, \rho)$	Tube around M of radius ρ , 5
Vol_g	Volume form, 39
$A(f, M, D)$	Excursion set, 8

- $A(f, M, u)$ Excursion set, 8
- $B(\mathbb{R}^N)$ Unit ball in \mathbb{R}^N , 2
- $B_\lambda(\mathbb{R}^N)$ Ball of radius λ in \mathbb{R}^N , 2
- $B_d(t, \varepsilon)$ Ball in the canonical metric, 26
- $C(m, i)$ Constants, 47
- $C(s, t)$ Covariance function, 26
- $d(s, t)$ Canonical metric, 26
- g, g_t Induced (Riemannian) metric, 74
- $G_{n, \lambda}$ Isometry group on $S_\lambda(\mathbb{R}^n)$., 54
- $H(M, d, \varepsilon)$ Log entropy function, 26
- $H_n(x)$ Hermite polynomial, 17
- I_N Unit cube in \mathbb{R}^N , 1
- $N(M, d, \varepsilon)$ Metric entropy function, 26
- $N_d(m, C), N_d(m, \Sigma)$ Normal distribution, 13
- N_u Upcrossings of the level u , 14
- $R(X, Y)$ Riemannian curvature, 38
- $R(X, Y, Z, W)$ Curvature tensor, 38
- $S(\mathbb{R}^N)$ Unit sphere in \mathbb{R}^N , 1
- $S(X, Y)$ Second fundamental form, 39
- $S_\lambda(\mathbb{R}^N)$ Sphere of radius λ in \mathbb{R}^N , 1
- $S_\nu(X, Y)$ Scalar second fundamental form, 39
- s_n Area of sphere, 79
- $T_t M$ Tangent space to M at t , 37

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