

References

1. I. D. Ado, 'The representation of Lie algebras by matrices', *Amer. Math. Soc. Translation* **1949** (1949), no. 2, 21.
2. R. C. Baker, 'Dirichlet's theorem on Diophantine approximation', *Math. Proc. Cambridge Philos. Soc.* **83** (1978), no. 1, 37–59.
3. R. A. Beaumont and H. S. Zuckerman, 'A characterization of the subgroups of the additive rationals', *Pacific J. Math.* **1** (1951), 169–177.
4. D. Berend, 'Multi-invariant sets on tori', *Trans. Amer. Math. Soc.* **280** (1983), no. 2, 509–532.
5. A. S. Besicovitch, 'A general form of the covering principle and relative differentiation of additive functions', *Proc. Cambridge Philos. Soc.* **41** (1945), 103–110.
6. G. Birkhoff, 'A note on topological groups', *Compositio Math.* **3** (1936), 427–430.
7. A. Borel, 'Density properties for certain subgroups of semi-simple groups without compact components', *Ann. of Math. (2)* **72** (1960), 179–188.
8. A. Borel, *Linear algebraic groups*, in *Graduate Texts in Mathematics* **126** (Springer-Verlag, New York, second ed., 1991).
9. A. Borel and Harish-Chandra, 'Arithmetic subgroups of algebraic groups', *Ann. of Math. (2)* **75** (1962), 485–535.
10. A. Borel and G. Prasad, 'Values of isotropic quadratic forms at S -integral points', *Compositio Math.* **83** (1992), no. 3, 347–372.
11. Y. Bugeaud, 'Approximation by algebraic integers and Hausdorff dimension', *J. London Math. Soc. (2)* **65** (2002), no. 3, 547–559.
12. N. D. Burke and I. F. Putnam, 'Markov partitions and homology for n/m -solenoids', *Ergodic Theory Dynam. Systems* **37** (2017), no. 3, 716–738. <https://doi.org/10.1017/etds.2015.71>.
13. J. W. S. Cassels, *An introduction to the geometry of numbers*, in *Classics in Mathematics* (Springer-Verlag, Berlin, 1997). Corrected reprint of the 1971 edition.
14. C. Chevalley, 'Une démonstration d'un théorème sur les groupes algébriques', *J. Math. Pures Appl. (9)* **39** (1960), 307–317.
15. V. Chothi, G. Everest, and T. Ward, ' S -integer dynamical systems: periodic points', *J. Reine Angew. Math.* **489** (1997), 99–132.
16. A. Connes and B. Weiss, 'Property T and asymptotically invariant sequences', *Israel J. Math.* **37** (1980), no. 3, 209–210.
17. B. Conrad, 'A modern proof of Chevalley's theorem on algebraic groups', *J. Ramanujan Math. Soc.* **17** (2002), no. 1, 1–18.
18. S. G. Dani, 'Invariant measures of horospherical flows on noncompact homogeneous spaces', *Invent. Math.* **47** (1978), no. 2, 101–138.
19. S. G. Dani, 'A simple proof of Borel's density theorem', *Math. Z.* **174** (1980), no. 1, 81–94.

20. S. G. Dani, 'Invariant measures and minimal sets of horospherical flows', *Invent. Math.* **64** (1981), no. 2, 357–385.
21. S. G. Dani, 'On orbits of unipotent flows on homogeneous spaces', *Ergodic Theory Dynam. Systems* **4** (1984), no. 1, 25–34.
22. S. G. Dani, 'Correction to the paper: "Divergent trajectories of flows on homogeneous spaces and Diophantine approximation"', *J. Reine Angew. Math.* **360** (1985), 214.
23. S. G. Dani, 'Divergent trajectories of flows on homogeneous spaces and Diophantine approximation', *J. Reine Angew. Math.* **359** (1985), 55–89.
24. S. G. Dani, 'Corrections to the paper: "On orbits of unipotent flows on homogeneous spaces" [Ergodic Theory Dynamical Systems **4** (1984), no. 1, 25–34; MR0758891 (86b:58068)]', *Ergodic Theory Dynam. Systems* **6** (1986), no. 2, 321.
25. S. G. Dani, 'On orbits of unipotent flows on homogeneous spaces. II', *Ergodic Theory Dynam. Systems* **6** (1986), no. 2, 167–182.
26. S. G. Dani, 'Orbits of horospherical flows', *Duke Math. J.* **53** (1986), no. 1, 177–188.
27. S. G. Dani, 'Flows on homogeneous spaces and Diophantine approximation', in *Proceedings of the International Congress of Mathematicians, Vol. 1, 2 (Zürich, 1994)* (Birkhäuser, Basel, 1995), 780–789.
28. S. G. Dani and G. A. Margulis, 'Values of quadratic forms at primitive integral points', *Invent. Math.* **98** (1989), no. 2, 405–424.
29. S. G. Dani and J. Smillie, 'Uniform distribution of horocycle orbits for Fuchsian groups', *Duke Math. J.* **51** (1984), no. 1, 185–194.
30. D. v. Dantzig, 'Topologisch-algebraische Verknüpfung', in *Sieben Vorträge über Topologie. Herausgegeben von H. Freudenthal und W. Peremans.*, Eds. H. Freudenthal and W. Peremans, pp. 56–79 (Centrumsreihe, herausgeg. f. d. Math. Centrum in Amsterdam. 1. Gorinchem: J. Noorduijn en Zoon N. V. 133 S. , 1950).
31. H. Davenport and W. M. Schmidt, 'Dirichlet's theorem on diophantine approximation. II', *Acta Arith.* **16** (1969/1970), 413–424.
32. H. Davenport and W. M. Schmidt, 'Dirichlet's theorem on diophantine approximation', in *Symposia Mathematica, Vol. IV (INDAM, Rome, 1968/69)*, pp. 113–132 (Academic Press, London, 1970).
33. C. Delaroche and A. Kirillov, 'Sur les relations entre l'espace dual d'un groupe et la structure de ses sous-groupes fermés (d'après D. A. Kajdan)', in *Séminaire Bourbaki, Vol. 10*, pp. Exp. No. 343, 507–528 (Soc. Math. France, Paris, 1995).
34. P. G. L. Dirichlet, 'Verallgemeinerung eines Satzes aus der Lehre von den Kettenbrüchen nebst einigen Anwendungen auf die Theorie der Zahlen', *S. B. Preuss. Akad. Wiss.* (1842), 93–95.
35. P. G. L. Dirichlet, 'Zur Theorie der complexen Einheiten', *Bericht über die Verhandlungen der Königl. Preuss. Akademie der Wissenschaften* **103-107** (1846), 639–644.
36. P. G. L. Dirichlet, *Lectures on number theory. Supplements by R. Dedekind. Transl. from the German by John Stillwell.* (American Mathematical Society, 1999).
37. M. M. Dodson, B. P. Rynne, and J. A. G. Vickers, 'Dirichlet's theorem and Diophantine approximation on manifolds', *J. Number Theory* **36** (1990), no. 1, 85–88.
38. W. Duke, 'Hyperbolic distribution problems and half-integral weight Maass forms', *Invent. Math.* **92** (1988), no. 1, 73–90.
39. W. Duke, Z. Rudnick, and P. Sarnak, 'Density of integer points on affine homogeneous varieties', *Duke Math. J.* **71** (1993), no. 1, 143–179.
40. M. Einsiedler and A. Katok, 'Invariant measures on G/Γ for split simple Lie groups G ', *Comm. Pure Appl. Math.* **56** (2003), no. 8, 1184–1221. Dedicated to the memory of Jürgen K. Moser.
41. M. Einsiedler and A. Katok, 'Rigidity of measures—the high entropy case and non-commuting foliations', *Israel J. Math.* **148** (2005), 169–238. Probability in mathematics.
42. M. Einsiedler, A. Katok, and E. Lindenstrauss, 'Invariant measures and the set of exceptions to Littlewood's conjecture', *Ann. of Math. (2)* **164** (2006), no. 2, 513–560.

43. M. Einsiedler and E. Lindenstrauss, ‘Rigidity properties of \mathbb{Z}^d -actions on tori and solenoids’, *Electron. Res. Announc. Amer. Math. Soc.* **9** (2003), 99–110.
44. M. Einsiedler and E. Lindenstrauss, ‘On measures invariant under diagonalizable actions: the rank-one case and the general low-entropy method’, *J. Mod. Dyn.* **2** (2008), no. 1, 83–128.
45. M. Einsiedler and E. Lindenstrauss, ‘Diagonal actions on locally homogeneous spaces’, in *Homogeneous flows, moduli spaces and arithmetic*, in *Clay Math. Proc.* **10**, pp. 155–241 (Amer. Math. Soc., Providence, RI, 2010).
46. M. Einsiedler, E. Lindenstrauss, P. Michel, and A. Venkatesh, ‘Distribution of periodic torus orbits on homogeneous spaces’, *Duke Math. J.* **148** (2009), no. 1, 119–174.
47. M. Einsiedler, E. Lindenstrauss, and T. Ward, *Entropy in ergodic theory and homogeneous dynamics*.
48. M. Einsiedler, ‘Ratner’s theorem on $\mathrm{SL}(2, \mathbb{R})$ -invariant measures’, *Jahresber. Deutsch. Math.-Verein.* **108** (2006), no. 3, 143–164.
49. M. Einsiedler and D. Lind, ‘Algebraic \mathbb{Z}^d -actions of entropy rank one’, *Trans. Amer. Math. Soc.* **356** (2004), no. 5, 1799–1831.
50. M. Einsiedler and E. Lindenstrauss, ‘On measures invariant under tori on quotients of semisimple groups’, *Ann. of Math. (2)* **181** (2015), no. 3, 993–1031.
51. M. Einsiedler, E. Lindenstrauss, P. Michel, and A. Venkatesh, ‘Distribution of periodic torus orbits and Duke’s theorem for cubic fields’, *Ann. of Math. (2)* **173** (2011), no. 2, 815–885.
52. M. Einsiedler, E. Lindenstrauss, P. Michel, and A. Venkatesh, ‘The distribution of closed geodesics on the modular surface, and Duke’s theorem’, *Enseign. Math. (2)* **58** (2012), no. 3-4, 249–313.
53. M. Einsiedler and T. Ward, *Ergodic theory with a view towards number theory*, in *Graduate Texts in Mathematics* **259** (Springer-Verlag London Ltd., London, 2011).
54. M. Einsiedler and T. Ward, *Functional analysis, spectral theory, and applications*, in *Graduate Texts in Mathematics* **276** (Springer-Verlag London Ltd., London, 2017).
55. M. Einsiedler and T. Ward, ‘Diophantine problems and homogeneous dynamics’, in *Dynamics and analytic number theory*, in *London Math. Soc. Lecture Note Ser.* **437**, pp. 258–288 (Cambridge Univ. Press, Cambridge, 2016).
56. D. Eisenbud, *Commutative algebra*, in *Graduate Texts in Mathematics* **150** (Springer-Verlag, New York, 1995). With a view toward algebraic geometry.
57. R. Elman, N. Karpenko, and A. Merkurjev, *The algebraic and geometric theory of quadratic forms*, in *American Mathematical Society Colloquium Publications* **56** (American Mathematical Society, Providence, RI, 2008).
58. J. Elstrodt, ‘The life and work of Gustav Lejeune Dirichlet (1805–1859)’, in *Analytic number theory*, in *Clay Math. Proc.* **7**, pp. 1–37 (Amer. Math. Soc., Providence, RI, 2007).
59. A. Eskin and C. McMullen, ‘Mixing, counting, and equidistribution in Lie groups’, *Duke Math. J.* **71** (1993), no. 1, 181–209.
60. G. Everest, R. Miles, S. Stevens, and T. Ward, ‘Orbit-counting in non-hyperbolic dynamical systems’, *J. Reine Angew. Math.* **608** (2007), 155–182.
61. G. Everest, R. Miles, S. Stevens, and T. Ward, ‘Dirichlet series for finite combinatorial rank dynamics’, *Trans. Amer. Math. Soc.* **362** (2010), no. 1, 199–227.
62. G. R. Everest and T. Ward, *Heights of polynomials and entropy in algebraic dynamics* (Springer-Verlag London Ltd., London, 1999).
63. G. Faber, ‘Über stetige Funktionen. (Zweite Abhandlung)’, *Math. Ann.* **69** (1910), 372–443.
64. G. B. Folland, *A course in abstract harmonic analysis*, in *Studies in Advanced Mathematics* (CRC Press, Boca Raton, FL, 1995).
65. H. Furstenberg, ‘Strict ergodicity and transformation of the torus’, *Amer. J. Math.* **83** (1961), 573–601.
66. H. Furstenberg, ‘Disjointness in ergodic theory, minimal sets, and a problem in Diophantine approximation’, *Math. Systems Theory* **1** (1967), 1–49.

67. H. Furstenberg, 'The unique ergodicity of the horocycle flow', in *Recent advances in topological dynamics (Proc. Conf., Yale Univ., New Haven, Conn., 1972; in honor of Gustav Arnold Hedlund)*, pp. 95–115. Lecture Notes in Math., Vol. 318 (Springer, Berlin, 1973).
68. H. Furstenberg, 'A note on Borel's density theorem', *Proc. Amer. Math. Soc.* **55** (1976), no. 1, 209–212.
69. L. J. Gerstein, *Basic quadratic forms*, in *Graduate Studies in Mathematics* **90** (American Mathematical Society, Providence, RI, 2008).
70. E. Glasner, *Ergodic theory via joinings*, in *Mathematical Surveys and Monographs* **101** (American Mathematical Society, Providence, RI, 2003).
71. E. Glasner and B. Weiss, 'Kazhdan's property T and the geometry of the collection of invariant measures', *Geom. Funct. Anal.* **7** (1997), no. 5, 917–935.
72. J. P. Gram, 'Über die Entwicklung reeller Functionen in Reihen mittelst der Methode der kleinsten Quadrate', *Kronecker J.* **XCIV** (1883), 41–73.
73. P. M. Gruber and C. G. Lekkerkerker, *Geometry of numbers*, in *North-Holland Mathematical Library* **37** (North-Holland Publishing Co., Amsterdam, second ed., 1987).
74. G. H. Hardy, 'On the expression of a number as the sum of two squares.', *Quart. J. Math.* **46** (1915), 263–283.
75. R. Hartshorne, *Algebraic geometry* (Springer-Verlag, New York, 1977). Graduate Texts in Mathematics, No. 52.
76. G. A. Hedlund, 'Fuchsian groups and transitive horocycles', *Duke Math. J.* **2** (1936), no. 3, 530–542.
77. E. Hewitt and K. Stromberg, *Real and abstract analysis. A modern treatment of the theory of functions of a real variable* (Springer-Verlag, New York, 1965).
78. D. Hilbert, 'Ueber die vollen Invariantensysteme', *Math. Ann.* **42** (1893), no. 3, 313–373.
79. E. Hopf, 'Statistik der geodätischen Linien in Mannigfaltigkeiten negativer Krümmung', *Ber. Verh. Sächs. Akad. Wiss. Leipzig* **91** (1939), 261–304.
80. J. E. Humphreys, *Arithmetic groups* (Springer, Berlin, 1980).
81. T. W. Hungerford, *Algebra*, in *Graduate Texts in Mathematics* **73** (Springer-Verlag, New York, 1980). Reprint of the 1974 original.
82. M. N. Huxley, 'Integer points in plane regions and exponential sums', in *Number theory*, in *Trends Math.*, pp. 157–166 (Birkhäuser, Basel, 2000).
83. A. Ivić, E. Krätzel, M. Kühleitner, and W. G. Nowak, 'Lattice points in large regions and related arithmetic functions: recent developments in a very classic topic', in *Elementare und analytische Zahlentheorie*, in *Schr. Wiss. Ges. Johann Wolfgang Goethe Univ. Frankfurt am Main*, 20, pp. 89–128 (Franz Steiner Verlag Stuttgart, Stuttgart, 2006).
84. H. Iwaniec, 'Fourier coefficients of modular forms of half-integral weight', *Invent. Math.* **87** (1987), no. 2, 385–401.
85. K. Iwasawa, 'On some types of topological groups', *Ann. of Math. (2)* **50** (1949), 507–558.
86. N. Jacobson, 'Completely reducible Lie algebras of linear transformations', *Proc. Amer. Math. Soc.* **2** (1951), 105–113.
87. A. S. A. Johnson, 'Measures on the circle invariant under multiplication by a nonlacunary subsemigroup of the integers', *Israel J. Math.* **77** (1992), no. 1-2, 211–240.
88. S. Kakutani, 'Über die Metrisation der topologischen Gruppen', *Proc. Imp. Acad.* **12** (1936), no. 4, 82–84.
89. B. Kalinin and A. Katok, 'Measurable rigidity and disjointness for \mathbb{Z}^k actions by toral automorphisms', *Ergodic Theory Dynam. Systems* **22** (2002), no. 2, 507–523.
90. A. Katok and R. J. Spatzier, 'Invariant measures for higher-rank hyperbolic abelian actions', *Ergodic Theory Dynam. Systems* **16** (1996), no. 4, 751–778.
91. A. Katok, J.-M. Strelcyn, F. Ledrappier, and F. Przytycki, *Invariant manifolds, entropy and billiards; smooth maps with singularities*, in *Lecture Notes in Mathematics* **1222** (Springer-Verlag, Berlin, 1986).

92. D. A. Každan, ‘On the connection of the dual space of a group with the structure of its closed subgroups’, *Funkcional. Anal. i Priložen.* **1** (1967), 71–74.
93. D. A. Každan and G. A. Margulis, ‘A proof of Selberg’s hypothesis’, *Mat. Sb. (N.S.)* **75 (117)** (1968), 163–168.
94. A. S. Kechris, *Classical descriptive set theory*, in *Graduate Texts in Mathematics* **156** (Springer-Verlag, New York, 1995).
95. A. S. Kechris, ‘On the classification problem for rank 2 torsion-free abelian groups’, *J. London Math. Soc. (2)* **62** (2000), no. 2, 437–450.
96. J. L. Kelley, *General topology* (D. Van Nostrand Company, Inc., Toronto-New York-London, 1955).
97. D. Kleinbock, ‘An extension of quantitative nondivergence and applications to Diophantine exponents’, *Trans. Amer. Math. Soc.* **360** (2008), no. 12, 6497–6523.
98. D. Kleinbock, N. Shah, and A. Starkov, ‘Dynamics of subgroup actions on homogeneous spaces of Lie groups and applications to number theory’, in *Handbook of dynamical systems, Vol. 1A*, pp. 813–930 (North-Holland, Amsterdam, 2002).
99. D. Kleinbock and B. Weiss, ‘Dirichlet’s theorem on Diophantine approximation and homogeneous flows’, *J. Mod. Dyn.* **2** (2008), no. 1, 43–62.
100. D. Kleinbock and B. Weiss, ‘Modified Schmidt games and Diophantine approximation with weights’, *Adv. Math.* **223** (2010), no. 4, 1276–1298.
101. D. Y. Kleinbock and G. A. Margulis, ‘Flows on homogeneous spaces and Diophantine approximation on manifolds’, *Ann. of Math. (2)* **148** (1998), no. 1, 339–360.
102. A. W. Knap, ‘Structure theory of semisimple Lie groups’, in *Representation theory and automorphic forms (Edinburgh, 1996)*, in *Proc. Sympos. Pure Math.* **61**, pp. 1–27 (Amer. Math. Soc., Providence, RI, 1997).
103. A. W. Knap, *Lie groups beyond an introduction*, in *Progress in Mathematics* **140** (Birkhäuser Boston Inc., Boston, MA, second ed., 2002).
104. N. Koblitz, *p -adic numbers, p -adic analysis, and zeta-functions*, in *Graduate Texts in Mathematics* **58** (Springer-Verlag, New York, second ed., 1984).
105. A. Korkine and G. Zolotareff, ‘Sur les formes quadratiques positives quaternaires’, *Math. Ann.* **5** (1872), no. 4, 581–583.
106. A. Korkine and G. Zolotareff, ‘Sur les formes quadratiques’, *Math. Ann.* **6** (1873), no. 3, 366–389.
107. A. Korkine and G. Zolotareff, ‘Sur les formes quadratiques positives’, *Math. Ann.* **11** (1877), no. 2, 242–292.
108. S. G. Krantz and H. R. Parks, *The implicit function theorem* (Birkhäuser Boston Inc., Boston, MA, 2002). History, theory, and applications.
109. T. Y. Lam, *Introduction to quadratic forms over fields*, in *Graduate Studies in Mathematics* **67** (American Mathematical Society, Providence, RI, 2005).
110. E. Landau, ‘Über die Gitterpunkte in einem Kreise. II.’, *Göttingen Nachrichten* (1915), 161–171.
111. S. Lang, *Algebra*, in *Graduate Texts in Mathematics* **211** (Springer-Verlag, New York, third ed., 2002).
112. P.-S. d. Laplace, *Théorie Analytique des Probabilités* (Paris, 1816).
113. H. Lebesgue, *Leçons sur l’intégration et la recherche de fonctions primitives*. (Paris: Gauthier-Villars. VII u. 136 S. 8°, 1904).
114. F. Ledrappier and L.-S. Young, ‘The metric entropy of diffeomorphisms. I. Characterization of measures satisfying Pesin’s entropy formula’, *Ann. of Math. (2)* **122** (1985), no. 3, 509–539.
115. F. Ledrappier and L.-S. Young, ‘The metric entropy of diffeomorphisms. II. Relations between entropy, exponents and dimension’, *Ann. of Math. (2)* **122** (1985), no. 3, 540–574.
116. F. Ledrappier and J.-M. Strelcyn, ‘A proof of the estimation from below in Pesin’s entropy formula’, *Ergodic Theory Dynam. Systems* **2** (1982), no. 2, 203–219 (1983).
117. A. K. Lenstra, H. W. Lenstra, Jr., and L. Lovász, ‘Factoring polynomials with rational coefficients’, *Math. Ann.* **261** (1982), no. 4, 515–534.

118. E. E. Levi, ‘Sulla struttura dei gruppi finiti e continui’, *Atti della Reale Accademia delle Scienze di Torino* **XL** (1905), 551565.
119. D. Lind, ‘Ergodic automorphisms of the infinite torus are Bernoulli’, *Israel J. Math.* **17** (1974), 162–168.
120. D. A. Lind and T. Ward, ‘Automorphisms of solenoids and p -adic entropy’, *Ergodic Theory Dynam. Systems* **8** (1988), no. 3, 411–419.
121. E. Lindenstrauss, ‘Pointwise theorems for amenable groups’, *Invent. Math.* **146** (2001), no. 2, 259–295.
122. E. Lindenstrauss, ‘Invariant measures and arithmetic quantum unique ergodicity’, *Ann. of Math. (2)* **163** (2006), no. 1, 165–219.
123. A. Malcev, ‘On the representation of an algebra as a direct sum of the radical and a semi-simple subalgebra’, *C. R. (Doklady) Acad. Sci. URSS (N.S.)* **36** (1942), 42–45.
124. G. A. Margulis, ‘The action of unipotent groups in a lattice space’, *Mat. Sb. (N.S.)* **86(128)** (1971), 552–556.
125. G. A. Margulis, ‘On the action of unipotent groups in the space of lattices’, in *Lie groups and their representations (Proc. Summer School, Bolyai, János Math. Soc., Budapest, 1971)*, pp. 365–370 (Halsted, New York, 1975).
126. G. A. Margulis, *Discrete subgroups of semisimple Lie groups*, in *Ergebnisse der Mathematik und ihrer Grenzgebiete (3) [Results in Mathematics and Related Areas (3)]* **17** (Springer-Verlag, Berlin, 1991).
127. G. A. Margulis, ‘Dynamical and ergodic properties of subgroup actions on homogeneous spaces with applications to number theory’, in *Proceedings of the International Congress of Mathematicians, Vol. I, II (Kyoto, 1990)* (Math. Soc. Japan, Tokyo, 1991), 193–215.
128. G. A. Margulis and G. M. Tomanov, ‘Invariant measures for actions of unipotent groups over local fields on homogeneous spaces’, *Invent. Math.* **116** (1994), no. 1-3, 347–392.
129. H. Matsumura, *Commutative ring theory* (Cambridge University Press, Cambridge, second ed., 1989).
130. F. I. Mautner, ‘Geodesic flows on symmetric Riemann spaces’, *Ann. of Math. (2)* **65** (1957), 416–431.
131. C. T. McMullen, ‘Uniformly Diophantine numbers in a fixed real quadratic field’, *Compos. Math.* **145** (2009), no. 4, 827–844.
132. C. T. McMullen, ‘Winning sets, quasiconformal maps and Diophantine approximation’, *Geom. Funct. Anal.* **20** (2010), no. 3, 726–740.
133. R. Miles, ‘Periodic points of endomorphisms on solenoids and related groups’, *Bull. Lond. Math. Soc.* **40** (2008), no. 4, 696–704.
134. J. Milnor, ‘Curvatures of left invariant metrics on Lie groups’, *Advances in Math.* **21** (1976), no. 3, 293–329.
135. H. Minkowski, *Geometrie der Zahlen*, in *Bibliotheca Mathematica Teubneriana, Band 40* (Johnson Reprint Corp., New York, 1968).
136. D. Montgomery and L. Zippin, *Topological transformation groups* (Interscience Publishers, New York-London, 1955).
137. C. C. Moore, ‘The Mautner phenomenon for general unitary representations’, *Pacific J. Math.* **86** (1980), no. 1, 155–169.
138. V. V. Morozov, ‘On a nilpotent element in a semi-simple Lie algebra’, *C. R. (Doklady) Acad. Sci. URSS (N.S.)* **36** (1942), 83–86.
139. M. Moskowitz, ‘On the density theorems of Borel and Furstenberg’, *Ark. Mat.* **16** (1978), no. 1, 11–27.
140. S. Mozes and N. Shah, ‘On the space of ergodic invariant measures of unipotent flows’, *Ergodic Theory Dynam. Systems* **15** (1995), no. 1, 149–159.
141. A. Nevo, ‘Pointwise ergodic theorems for actions of groups’, in *Handbook of dynamical systems. Vol. 1B*, pp. 871–982 (Elsevier B. V., Amsterdam, 2006).
142. T. Ono, ‘Sur une propriété arithmétique des groupes algébriques commutatifs’, *Bull. Soc. Math. France* **85** (1957), 307–323.

143. K. R. Parthasarathy, *Probability measures on metric spaces*, in *Probability and Mathematical Statistics, No. 3* (Academic Press Inc., New York, 1967).
144. J. B. Pesin, 'Characteristic Ljapunov exponents, and smooth ergodic theory', *Uspehi Mat. Nauk* **32** (1977), no. 4 (196), 55–112, 287.
145. R. Phillips and Z. Rudnick, 'The circle problem in the hyperbolic plane', *J. Funct. Anal.* **121** (1994), no. 1, 78–116.
146. C. Pugh and M. Shub, 'Ergodic elements of ergodic actions', *Compositio Math.* **23** (1971), 115–122.
147. J. Radon, 'Theorie und Anwendungen der absolut additiven Mengenfunktionen', *Wien. Ber.* **122** (1913), 1295–1438.
148. M. S. Raghunathan, *Discrete subgroups of Lie groups* (Springer-Verlag, New York, 1972).
149. D. Ramakrishnan and R. J. Valenza, *Fourier analysis on number fields*, in *Graduate Texts in Mathematics* **186** (Springer-Verlag, New York, 1999).
150. M. Ratner, 'Factors of horocycle flows', *Ergodic Theory Dynam. Systems* **2** (1982), no. 3-4, 465–489 (1983).
151. M. Ratner, 'Rigidity of horocycle flows', *Ann. of Math. (2)* **115** (1982), no. 3, 597–614.
152. M. Ratner, 'Horocycle flows, joinings and rigidity of products', *Ann. of Math. (2)* **118** (1983), no. 2, 277–313.
153. M. Ratner, 'On measure rigidity of unipotent subgroups of semisimple groups', *Acta Math.* **165** (1990), no. 3-4, 229–309.
154. M. Ratner, 'Strict measure rigidity for unipotent subgroups of solvable groups', *Invent. Math.* **101** (1990), no. 2, 449–482.
155. M. Ratner, 'On Raghunathan's measure conjecture', *Ann. of Math. (2)* **134** (1991), no. 3, 545–607.
156. M. Ratner, 'Raghunathan's topological conjecture and distributions of unipotent flows', *Duke Math. J.* **63** (1991), no. 1, 235–280.
157. M. Ratner, 'Interactions between ergodic theory, Lie groups, and number theory', in *Proceedings of the International Congress of Mathematicians, Vol. 1, 2 (Zürich, 1994)* (Birkhäuser, Basel, 1995), 157–182.
158. M. Ratner, 'Raghunathan's conjectures for $SL(2, \mathbf{R})$ ', *Israel J. Math.* **80** (1992), no. 1-2, 1–31.
159. M. Reid, *Undergraduate algebraic geometry*, in *London Mathematical Society Student Texts* **12** (Cambridge University Press, Cambridge, 1988).
160. D. J. Rudolph, ' $\times 2$ and $\times 3$ invariant measures and entropy', *Ergodic Theory Dynam. Systems* **10** (1990), no. 2, 395–406.
161. P. Sarnak, 'Asymptotic behavior of periodic orbits of the horocycle flow and Eisenstein series', *Comm. Pure Appl. Math.* **34** (1981), no. 6, 719–739.
162. E. Schmidt, 'Zur Theorie der linearen und nichtlinearen Integralgleichungen. I. Teil: Entwicklung willkürlicher Funktionen nach Systemen vorgeschriebener', *Math. Ann.* **63** (1907), 433–476.
163. K. Schmidt, 'Asymptotically invariant sequences and an action of $SL(2, \mathbb{Z})$ on the 2-sphere', *Israel J. Math.* **37** (1980), no. 3, 193–208.
164. W. M. Schmidt, *Diophantine approximation*, in *Lecture Notes in Mathematics* **785** (Springer, Berlin, 1980).
165. L. Schwartz, *Radon measures on arbitrary topological spaces and cylindrical measures* (Published for the Tata Institute of Fundamental Research, Bombay by Oxford University Press, London, 1973). Tata Institute of Fundamental Research Studies in Mathematics, No. 6.
166. A. Selberg, 'Recent developments in the theory of discontinuous groups of motions of symmetric spaces', in *Proceedings of the Fifteenth Scandinavian Congress (Oslo, 1968) Lecture Notes in Mathematics, Vol. 118* (Springer, Berlin, 1970), 99–120.

167. J.-P. Serre, *Lie algebras and Lie groups*, in *Lecture Notes in Mathematics* **1500** (Springer-Verlag, Berlin, 2006). 1964 lectures given at Harvard University, Corrected fifth printing of the second (1992) edition.
168. I. R. Shafarevich, *Basic algebraic geometry* (Springer-Verlag, Berlin, study ed., 1977). Translated from the Russian by K. A. Hirsch, Revised printing of Grundlehren der mathematischen Wissenschaften, Vol. 213, 1974.
169. I. R. Shafarevich, *Basic algebraic geometry. 1* (Springer-Verlag, Berlin, second ed., 1994). Varieties in projective space, Translated from the 1988 Russian edition and with notes by Miles Reid.
170. I. R. Shafarevich, *Basic algebraic geometry. 2* (Springer-Verlag, Berlin, second ed., 1994). Schemes and complex manifolds, Translated from the 1988 Russian edition by Miles Reid.
171. N. A. Shah, ‘Equidistribution of expanding translates of curves and Dirichlet’s theorem on Diophantine approximation’, *Invent. Math.* **177** (2009), no. 3, 509–532.
172. N. A. Shah, ‘Expanding translates of curves and Dirichlet–Minkowski theorem on linear forms’, *J. Amer. Math. Soc.* **23** (2010), no. 2, 563–589.
173. U. Shapira and B. Weiss, ‘On the Mordell–Gruber Spectrum’, *Int. Math. Res. Not. IMRN* (2015), no. 14, 5518–5559.
174. C. L. Siegel, *Lectures on the geometry of numbers* (Springer-Verlag, Berlin, 1989). Notes by B. Friedman, Rewritten by Komaravolu Chandrasekharan with the assistance of Rudolf Suter, With a preface by Chandrasekharan.
175. R. H. Sorgenfrey, ‘On the topological product of paracompact spaces’, *Bull. Amer. Math. Soc.* **53** (1947), 631–632.
176. T. A. Springer, *Linear algebraic groups*, in *Modern Birkhäuser Classics* (Birkhäuser Boston Inc., Boston, MA, second ed., 2009).
177. J. J. Sylvester, ‘A demonstration of the theorem that every homogeneous quadratic polynomial is reducible by real orthogonal substitutions to the form of a sum of positive and negative squares’, *Philosophical Magazine (Ser. 4)* **4** (1852), no. 23, 138–142.
178. T. Tao, *The Birkhoff–Kakutani theorem* (<http://terrytao.wordpress.com/>). Accessed: 28 April 2013.
179. J. T. Tate, ‘Fourier analysis in number fields, and Hecke’s zeta-functions’, in *Algebraic Number Theory (Proc. Instructional Conf., Brighton, 1965)*, pp. 305–347 (Thompson, Washington, D.C., 1967).
180. G. Tomanov, ‘Orbits on homogeneous spaces of arithmetic origin and approximations’, in *Analysis on homogeneous spaces and representation theory of Lie groups, Okayama–Kyoto (1997)*, in *Adv. Stud. Pure Math.* **26**, pp. 265–297 (Math. Soc. Japan, Tokyo, 2000).
181. V. S. Varadarajan, *Lie groups, Lie algebras, and their representations*, in *Graduate Texts in Mathematics* **102** (Springer-Verlag, New York, 1984). Reprint of the 1974 edition.
182. W. A. Veech, ‘Unique ergodicity of horospherical flows’, *Amer. J. Math.* **99** (1977), no. 4, 827–859.
183. T. Ward and Y. Yayama, ‘Markov partitions reflecting the geometry of $\times 2, \times 3$ ’, *Discrete Contin. Dyn. Syst.* **24** (2009), no. 2, 613–624.
184. A. Weil, *Basic number theory*, in *Die Grundlehren der mathematischen Wissenschaften, Band 144* (Springer-Verlag New York, Inc., New York, 1967).
185. A. Weil, *Adèles and algebraic groups*, in *Progress in Mathematics* **23** (Birkhäuser Boston, Mass., 1982). With appendices by M. Demazure and Takashi Ono.
186. H. Weyl, ‘Über die Gleichverteilung von Zahlen mod Eins’, *Math. Ann.* **77** (1916), 313–352.
187. E. Witt, ‘Theorie der quadratischen Formen in beliebigen Körpern.’, *J. Reine Angew. Math.* **176** (1936), 31–44.
188. R. J. Zimmer, *Ergodic theory and semisimple groups*, in *Monographs in Mathematics* **81** (Birkhäuser Verlag, Basel, 1984).