

# A BIBLIOGRAPHY FOR ANALYTIC NUMBER THEORY

PARTICIPANTS OF THE ICTP SCHOOL  
AND CONFERENCE ON ANALYTIC NUMBER THEORY

This bibliography is non-exhaustive and subjective; it mostly indicates titles of books (with some web addresses and references to surveys available on [arXiv](#)) which the participants in the ICTP School and Conference on Analytic Number Theory believe to be particularly useful, especially for beginners and non-experts in analytic number theory. We also include a similar list of references concerning topics and other fields of mathematics which do not belong to analytic number theory (at least, not entirely) but which seem to us to have great relevance (as tools, as areas of applications, etc).

## — Books on analytic number theory

### (General books)

[1] H. IWANIEC AND E. KOWALSKI: *Analytic Number Theory*, A.M.S Colloquium Publications, vol 53 (2004).

[2] H.L. MONTGOMERY AND R.C. VAUGHAN: *Multiplicative number theory I. Classical theory*, Cambridge Studies in Advanced Math. 97, Cambridge Univ. Press 2006.

[3] G. TENENBAUM: *Introduction to analytic and probabilistic number theory*, Translated from the second French edition (1995) by C. B. Thomas, Cambridge Studies in Advanced Math., 46, Cambridge University Press, Cambridge, 1995.

### (Multiplicative number theory)

[4] H. DAVENPORT: *Multiplicative number theory*, with a preface by Hugh L. Montgomery, GTM 74, Springer-Verlag 2000.

### (Zeta function, modular forms, $L$ -functions)

[5] D. GOLDFELD: *Automorphic forms and  $L$ -functions for the group  $GL(n, \mathbf{R})$* , Cambridge Studies in Advanced Math. 99, Cambridge University Press, Cambridge, 2006.

[6] H. IWANIEC: *Spectral methods of automorphic forms*, Graduate Studies in Mathematics, 53, American Mathematical Society 2002.

[7] H. IWANIEC: *Topics in classical automorphic forms*, Graduate Studies in Mathematics, 17, American Mathematical Society 1997.

[8] N. KATZ AND P. SARNAK: *Random matrices, Frobenius eigenvalues, and monodromy*, A.M.S Colloquium Publications, vol. 45 (1999).

[9] P. SARNAK: *Some applications of modular forms*, Cambridge Tracts in Math. 99, Cambridge Univ. Press 1990.

[10] E.C. TITCHMARSH: *The theory of the Riemann zeta-function*, edited by D. R. Heath-Brown, Oxford University Press, 1986.

### (Probabilistic number theory)

[11] P.D.T.A. ELLIOTT: *Probabilistic number theory*, volumes I and II, Grundlehren der Mathematischen Wissenschaften, 239 and 240, Springer-Verlag, 1979 and 1980.

### (Additive number theory, additive combinatorics)

[12] H. HALBERSTAM AND K-F. ROTH: *Sequences*, Springer-Verlag, 1983.

[13] T. TAO AND V. VU: *Additive combinatorics*, Cambridge Studies in Advanced Math. 105, Cambridge University Press, Cambridge, 2006.

(Sieve methods)

[14] A.C. COJOCARU AND M. RAM MURTY: *An introduction to sieve methods and their applications*, London Mathematical Society Student Texts, 66, Cambridge University Press, Cambridge, 2006.

[15] G. GREAVES: *Sieves in number theory*, Ergebnisse der Mathematik und ihrer Grenzgebiete (3), 43, Springer-Verlag, Berlin, 2001.

[16] H. HALBERSTAM AND H-E. RICHERT: *Sieve methods*, Academic Press 1974.

[17] D.R. HEATH-BROWN: *Lectures on sieves*, available online, <http://arxiv.org/abs/math/0209360>

(Exponential sums of Weyl-van der Corput type)

[18] S.W. GRAHAM AND G. KOLESNIK: *Van der Corput's Method of Exponential Sums*, L.M.S. Lecture Note 126, Cambridge Univ. Press, 1991.

(The circle method and applications)

[19] H. DAVENPORT: *Analytic methods for Diophantine equations and Diophantine inequalities*, edited by T. D. Browning, Cambridge University Press, Cambridge, 2005.

[20] R.C. VAUGHAN: *The Hardy-Littlewood method*, Cambridge Tracts in Mathematics, 125. Cambridge University Press, Cambridge, 1997.

(Counting points and exponential sums over finite fields)

[21] W.M. SCHMIDT: *Equations over finite fields, An elementary approach*, Lecture Notes in Math. 536, Springer Verlag, 1976.

(Exercise books)

[22] M. RAM MURTY: *Problems in analytic number theory*, GTM 206, Springer-Verlag, 2001.

[23] G. TENENBAUM: *Exercices corrigés de théorie analytique et probabiliste des nombres* [Answers to exercises in analytic and probabilistic number theory], with the collaboration of Jie Wu. Cours Spécialisés, 2, SMF 1996.

— Books on topics of interest to analytic number theorists

(Algebraic geometry)

[1] D. EISENBUD AND J. HARRIS: *The geometry of schemes*, GTM 197, Springer-Verlag, 2000.

[2] J. HARRIS: *Algebraic geometry, a first course*, GTM 133, Springer-Verlag, 1995.

[3] R. HARTSHORNE: *Algebraic Geometry*, GTM 52, Springer-Verlag, 1977.

[4] M. REID: *Undergraduate algebraic geometry*, London Mathematical Society Student Texts, 12, Cambridge University Press, Cambridge, 1988.

(Algebraic number theory)

[5] J.W.S CASSELS AND A. FRÖHLICH (EDITORS): *Algebraic Number Theory*, Academic Press 1967.

[6] S. LANG: *Algebraic number theory*, GTM 110, Springer-Verlag, 1994.

[7] J. NEUKIRCH: *Algebraic number theory*, translated from the German by N. Schappacher, Grundlehren der Mathematischen Wissenschaften, 322, Springer-Verlag, 1999.

(Combinatorics)

[8] R.P. STANLEY: *Enumerative combinatorics*, volumes I and II, Cambridge Studies in Advanced Math. 49 and 62, Cambridge University Press, Cambridge, 1997 and 1999.

[9] H.S. WILF: *generatingfunctionology*, A K Peters, Ltd., Wellesley, MA, 2006. Online: <http://www.math.upenn.edu/~wilf/DownldGF.html>

(Diophantine equations and diophantine geometry)

[10] M. HINDRY AND J. SILVERMAN: *Diophantine geometry, An introduction*, GTM 201, Springer-Verlag, 2000.

[11] L.J. MORDELL: *Diophantine equations*, Academic Press, 1969.

[12] J. SILVERMAN: *The Arithmetic of Elliptic Curves*, GTM 106, Springer-Verlag, 1986.

[13] J. SILVERMAN AND J. TATE: *Rational points on elliptic curves*, Undergraduate Texts in Mathematics. Springer-Verlag, 1992.

[14] U. ZANNIER: *Some applications of Diophantine Approximation to Diophantine Equations*, Editrice Forum, Udine, 2003.

(Probability and ergodic theory)

[15] W. FELLER: *An introduction to probability theory and its applications*, volumes I and II, John Wiley and Sons, 1968 and 1971.

[16] D.W. MORRIS: *Ratner's theorems on unipotent flows*, Chicago Lectures in Mathematics. University of Chicago Press, 2005.

[17] A.N. SHIRYAEV: *Probability*, GTM 95, Springer-Verlag, 1996.

(Representation theory)

[18] W. FULTON AND J. HARRIS: *Representation theory, a first course*, GTM 129, Springer-Verlag, 1991.

[19] J-P. SERRE: *Linear representations of finite groups*, GTM 42, Springer Verlag, 1977.

(Other)

[20] H. COHEN: *A Course in Computational Algebraic Number Theory*, GTM 138, Springer-Verlag, 1993. [Algorithmic number theory]

[21] P. DE LA HARPE: *Topics in geometric group theory*, Chicago Lectures in Math., Univ. of Chicago Press 2000. [Combinatorial group theory]

[22] A. ZYGMUND: *Trigonometric series*, volumes I and II, Cambridge Mathematical Library. Cambridge University Press, Cambridge, 2002. [Classical theory of Fourier series]

— Some home pages of interest

[1] T. Tao's home page: <http://www.math.ucla.edu/~tao/>

[2] B. Green's home page: <http://www.dpmms.cam.ac.uk/~bjg23/>

[3] T. Gowers's home page: <http://www.dpmms.cam.ac.uk/~wtg10/>

[4] N. Katz's home page: <http://www.math.princeton.edu/~nmk/>