Some references on random matrices.

Surveys.

Fleermann, Michael; Kirsch, Werner; Proof methods in random matrix theory. *Probab. Surv.* 20 (2023), 291–381.

Forrester, Peter J.; A review of exact results for fluctuation formulas in random matrix theory. *Probab. Surv.* 20 (2023), 170–225

Textbooks.

Marc Potters and Jean-Philippe Bouchaud A First Course in Random Matrix Theory for Physicists, Engineers and Data Scientists, Cambridge University Press, 2020, xx+350 pp.

Livan, Giacomo; **Novaes, Marcel**; **Vivo, Pierpaolo Introduction to random matrices. Theory and practice. SpringerBriefs in Mathematical Physics, 26.** *Springer, Cham,* **2018. ix+124 pp.**

Baik, Jinho; **Deift, Percy**; Suidan, Toufic Combinatorics and random matrix theory. Graduate Studies in Mathematics, 172. *American Mathematical Society, Providence, RI,* 2016. xi+461 pp.

Tao, Terence Topics in random matrix theory. Graduate Studies in Mathematics, 132. *American Mathematical Society, Providence, RI,* 2012. x+282 pp.

Anderson, Greg W.; **Guionnet, Alice**; **Zeitouni, Ofer** An introduction to random matrices. Cambridge Studies in Advanced Mathematics, 118. *Cambridge University Press, Cambridge,* 2010. xiv+492 pp.

Mehta, Madan Lal Random matrices. Third edition. Pure and Applied Mathematics (Amsterdam), 142. *Elsevier/Academic Press, Amsterdam,* 2004. xviii+688 pp.

Mehta, Madan Lal Random matrices. Second edition. *Academic Press, Inc., Boston, MA,* 1991. xviii+562 pp.

Monographs.

Zagidullina, Aygul High-dimensional covariance matrix estimation—an introduction to random matrix theory. With a foreword by Michael Massmann and Ostap Okhrin. *SpringerBriefs in Applied Statistics and Econometrics. Springer, Cham,* 2021, xiv+115 pp.

Bose, Arup; Saha, Koushik Random circulant matrices. *CRC Press,* 2019. xix+192 pp.

Guionnet, Alice Asymptotics of random matrices and related models. The uses of Dyson-Schwinger equations. CBMS Regional Conference Series in Mathematics, 130. *American Mathematical Society, Providence, RI,* 2019. vii+143 pp.

Meckes, Elizabeth S. The random matrix theory of the classical compact groups. Cambridge Tracts in Mathematics, 218. *Cambridge University Press, Cambridge,* 2019. xi+212 pp.

Zinn-Justin, Jean From random walks to random matrices—selected topics in modern theoretical physics. *Oxford University Press, Oxford,* 2019. xiv+529 pp.

Bose, Arup Patterned random matrices. *CRC Press, Boca Raton, FL,* 2018. xxi+267 pp.

Erdős, László; Yau, Horng-Tzer A dynamical approach to random matrix theory. Courant Lecture Notes in Mathematics, 28. *Courant Institute of Mathematical Sciences, New York; American Mathematical Society, Providence, RI,* 2017. ix+226 pp.

Brézin, Edouard; Hikami, Shinobu Random matrix theory with an external source. SpringerBriefs in Mathematical Physics, 19. *Springer, Singapore,* 2016. xii+138 pp.

Mingo, James A.; Speicher, Roland Free probability and random matrices. Fields Institute Monographs, 35. *Springer, New York; Fields Institute for Research in Mathematical Sciences, Toronto, ON,* 2017. xiv+336 pp.

Su, Zhonggen Random matrices and random partitions. Normal convergence. World Scientific Series on Probability Theory and Its Applications, 1. *World Scientific Publishing Co. Pte. Ltd., Hackensack, NJ,* 2015. xii+271 pp.

Bai, Zhidong; Fang, Zhaoben; Liang, Ying-Chang Spectral theory of large dimensional random matrices and its applications to wireless communications and finance statistics. Random matrix theory and its applications. *World Scientific Publishing Co. Pte. Ltd., Hackensack, NJ; University of Science and Technology of China Press, Hefei,* 2014. xii+220 pp

Bleher, Pavel; Liechty, Karl Random matrices and the six-vertex model. CRM Monograph Series, 32. *American Mathematical Society, Providence, RI,* 2014. x+224 pp.

Kota, V. K. B. Embedded random matrix ensembles in quantum physics. Lecture Notes in Physics, 884. *Springer, Cham,* 2014. xvi+402 pp.

Chafaï, Djalil; Guédon, Olivier; Lecué, Guillaume; Pajor, Alain Interactions between compressed sensing random matrices and high dimensional geometry. Panoramas et Synthèses [Panoramas and Syntheses], 37. *Société Mathématique de France, Paris,* 2012. 181 pp.

Touri, Behrouz Product of random stochastic matrices and distributed averaging. Dissertation, University of Illinois at Urbana-Champaign, Urbana, IL, 2011. Springer Theses. *Springer, Heidelberg,* 2012. xiv+142 pp.

Couillet, Romain; Debbah, Mérouane Random matrix methods for wireless communications. *Cambridge University Press, Cambridge,* 2011. xxii+539 pp.

Pastur, Leonid; Shcherbina, Mariya Eigenvalue distribution of large random matrices. Mathematical Surveys and Monographs, 171. *American Mathematical Society, Providence, RI,* 2011. xiv+632 pp

Forrester, P. J. Log-gases and random matrices. London Mathematical Society Monographs Series, 34. *Princeton University Press, Princeton, NJ,* 2010. xiv+791 pp.

Bai, Zhidong; Silverstein, Jack W. Spectral analysis of large dimensional random matrices. Second edition. Springer Series in Statistics. *Springer, New York,* 2010. xvi+551 pp. (Reviewer: **Wenbo V. Li**)

Blower, Gordon Random matrices: high dimensional phenomena. London Mathematical Society Lecture Note Series, 367. *Cambridge University Press, Cambridge,* 2009. x+437 pp.

Ghosh, Saugata Skew-orthogonal polynomials and random matrix theory. CRM Monograph Series, 28. *American Mathematical Society, Providence, RI,* 2009. viii+127 pp.

Guionnet, Alice Large random matrices: lectures on macroscopic asymptotics. Lectures from the 36th Probability Summer School held in Saint-Flour, 2006. Lecture Notes in Mathematics, 1957. *Springer-Verlag, Berlin,* 2009. xii+294 pp.

Deift, Percy; Gioev, Dimitri Random matrix theory: invariant ensembles and universality. Courant Lecture Notes in Mathematics, 18. *Courant Institute of Mathematical Sciences, New York; American Mathematical Society, Providence, RI,* 2009. x+217 pp.

Rempała, Grzegorz A.; Wesołowski, Jacek Symmetric functionals on random matrices and random matchings problems. With a foreword by Douglas N. Arnold and Arnd Scheel. The IMA Volumes in Mathematics and its Applications, 147. *Springer, New York,* 2008. xiv+179 pp.

Mukherjea, Arunava Topics in products of random matrices. Tata Institute of Fundamental Research Lectures on Mathematics, 87. *Published by Narosa Publishing House, New Delhi; for the Tata Institute of Fundamental Research, Mumbai,* 2000. vi+121 pp.

Deift, P. A. Orthogonal polynomials and random matrices: a Riemann-Hilbert approach. Courant Lecture Notes in Mathematics, 3. *New York University, Courant Institute of Mathematical Sciences, New York; American Mathematical Society, Providence, RI,* 1999. viii+273 pp.

Katz, Nicholas M.; **Sarnak, Peter** Random matrices, Frobenius eigenvalues, and monodromy. American Mathematical Society Colloquium Publications, 45. *American Mathematical Society, Providence, RI,* 1999. xii+419 pp.

Kunz, Hervé Matrices aléatoires en physique. (French) [Random matrices in physics] Cahiers de Physique [Physics Texts], 3. *Presses Polytechniques et Universitaires Romandes, Lausanne,* 1998. viii+84 pp.

Crisanti, A.; Paladin, G.; Vulpiani, A. Products of random matrices in statistical physics. With a foreword by Giorgio Parisi. Springer Series in Solid-State Sciences, 104. *Springer-Verlag, Berlin,* 1993. xiv+166 pp.

Girko, V. L. Theory of random determinants. Mathematics and its Applications (Soviet Series), 45. *Kluwer Academic Publishers Group, Dordrecht,* 1990. xxvi+677 pp.

Girko, G. L. Спектральная теория случайных матриц. *"Nauka'', Moscow,* 1988. 376 pp.

Bougerol, Philippe; Lacroix, Jean Products of random matrices with applications to Schrödinger operators. Progress in Probability and Statistics, 8. *Birkhäuser Boston, Inc., Boston, MA,* 1985. xii+283 pp.

Carmeli, Moshe Statistical theory and random matrices. Monographs and Textbooks in Pure and Applied Mathematics, 74. *Marcel Dekker, Inc., New York,* 1983. ix+203 pp.

Gĭrko, V. L. Теория случайных детерминантов. *"Vishcha Shkola'', Kiev,* 1980. 368 pp.

Girko, V. L. Случайные матрицы. *Izdat. Ob"ed. "Višča Škola'' pri Kiev. Gos. Univ., Kiev,* 1975. 448 pp.

Mehta, M. L. Random matrices and the statistical theory of energy levels. *Academic Press, New York-London* 1967 x+259 pp.

Collections.

Recent developments in multivariate and random matrix analysis—Festschrift in honour of Dietrich von Rosen. Edited by Thomas Holgersson and Martin Singull. *Springer, Cham,* 2020,xiii+373 pp.

Random matrices. Edited by **Alexei Borodin, Ivan Corwin and Alice Guionnet**. IAS/Park City Mathematics Series, 26. *American Mathematical Society, Providence, RI,* 2019. xi+498 pp.

Stochastic processes and random matrices. Lecture notes of the Les Houches Summer School: Volume 104, held July 6–31, 2015. Edited by Grégory Schehr, Alexander Altland, **Yan V. Fyodorov**, Neil O'Connell and Leticia F. Cugliandolo. *Oxford University Press, Oxford,* 2017. xxvi+613 pp.

Benaych-Georges, Florent; Bordenave, Charles; Capitaine, Mireille; Donati-Martin, Catherine; Knowles, Antti Advanced topics in random matrices. Lecture notes based on the Conference "États de la Recherche en Matrices Aléatoires held at Institute Henri Poincaré, Paris, December 1–4, 2014. Edited by Benaych-Georges, D. Chafaï, S. Péché and B. de Tilière., 53. *Société Mathématique de France, Paris,* 2017. ix+190 pp.

The Oxford handbook of random matrix theory. Edited by Gernot Akemann, **Jinho Baik** and Philippe Di Francesco. <u>Paperback edition of the 2011 original</u>. *Oxford University Press, Oxford,* 2015. xxxi+919 pp.

Random matrix theory, interacting particle systems, and integrable systems. Edited by **Percy Deift** and Peter Forrester. <u>Mathematical Sciences Research Institute Publications, 65.</u> *Cambridge University Press, New York,* 2014. x+528 pp.

Algebraic and geometric aspects of integrable systems and random matrices. Proceedings of the AMS Special Session held in Boston, MA, January 6–7, 2012. Edited by Anton Dzhamay, Kenichi Muruno and Virgil U. Pierce. <u>Contemporary Mathematics, 593.</u> *American Mathematical Society, Providence, RI,* 2013. xii+345 pp.

Random matrices and iterated random functions. Papers from the workshop held at the University of Münster, Münster, October 4–7, 2011. Edited by Gerold Alsmeyer and Matthias Löwe. <u>Springer Proceedings in Mathematics & Statistics, 53.</u> *Springer, Heidelberg,* 2013. viii+265 pp.

Modern aspects of random matrix theory. Papers from the AMS Short Course on Random Matrices held in San Diego, CA, January 6–7, 2013. Edited by **Van H. Vu**. <u>Proceedings of Symposia in Applied Mathematics, 72.</u> *American Mathematical Society, Providence, RI,* 2014. viii+174 pp.

<u>Biane, Philippe</u>; **<u>Guionnet, Alice</u>**; **<u>Voiculescu, Dan-Virgil</u>** Noncommutative probability and random matrices at Saint-Flour. *Springer, Heidelberg,* 2012. viii+472 pp

Random matrices, random processes and integrable systems. Edited by John Harnad. <u>CRM Series in Mathematical Physics.</u> *Springer, New York,* 2011. xviii+524 pp.

The Oxford handbook of random matrix theory. Edited by Gernot Akemann, **Jinho Baik** and Philippe Di Francesco. *Oxford University Press, Oxford,* 2011. xxxii+919 pp.

Random matrix theory and its applications. Multivariate statistics and wireless communications. Papers from the workshop held at the National University of Singapore, Singapore, 2006. Edited by Zhidong Bai, Yang Chen and Ying-Chang Liang. <u>Lecture Notes Series. Institute for Mathematical Sciences. National University of Singapore, 18.</u> *World Scientific Publishing Co. Pte. Ltd., Hackensack, NJ,* 2009. x+165 pp.

Integrable systems and random matrices. In honor of **Percy Deift**. Proceedings of the Conference "Integrable Systems, Random Matrix Theory, and Applications'' held at New York University, New York, May 22–26, 2006. Edited by **Jinho Baik**, Thomas Kriecherbauer, Luen-Chau Li, Kenneth D. T.-R. McLaughlin and Carlos Tomei. [Contemporary Mathematics, 458.](#) *American Mathematical Society, Providence, RI,* 2008. xiv+430 pp.

Ranks of elliptic curves and random matrix theory. Edited by J. B. Conrey, D. W. Farmer, F. Mezzadri and N. C. Snaith. [London Mathematical Society Lecture Note Series, 341.](#) *Cambridge University Press, Cambridge,* 2007. vi+361 pp.

Applications of random matrices in physics. Proceedings of the NATO Advanced Study Institute held in Les Houches, June 6–25, 2004. Edited by Édouard Brézin, Vladimir Kazakov, Didina Serban, Paul Wiegmann and Anton Zabrodin. [NATO Science Series II: Mathematics, Physics and Chemistry, 221.](#) *Springer, Dordrecht,* 2006. x+513 pp.

Recent perspectives in random matrix theory and number theory. Edited by F. Mezzadri and N. C. Snaith. [London Mathematical Society Lecture Note Series, 322.](#) *Cambridge University Press, Cambridge,* 2005. x+518 pp.

Random matrix theory. Edited by P. J. Forrester, N. C. Snaith and J. J. M. Verbaarschot. J. Phys. A 36 (2003), no. 12. *Institute of Physics Publishing, Bristol,* [2003.](#) pp. R1–R10 and 2859–3645.

Random matrix models and their applications. Edited by Pavel Bleher and Alexander Its. [Mathematical Sciences Research Institute Publications, 40.](#) *Cambridge University Press, Cambridge,* 2001. x+438 pp.

Random matrix models and their applications. Lectures from the workshop held in Berkeley, CA, February 22–26, 1999. [Selections from MSRI's Video Archive, 5.](#) *Mathematical Sciences Research Institute, Berkeley, CA,* 1999. 1 CD-ROM (Windows, Macintosh and UNIX).

Multidimensional statistical analysis and theory of random matrices. Proceedings of the 6th Eugene Lukacs Symposium on Multidimensional Statistical Analysis and Random Matrices held at Bowling Green State University, Bowling Green, OH, March 29–30, 1996. Edited by **A. K. Gupta and V. L. Girko**. *VSP, Utrecht,* 1996. xii+386 pp.

Matrix models, random surfaces and 2-D gravity. Proceedings of the Mini Workshop held in Madras, November 19–23, 1990. IMS Report, 113. *Institute of Mathematical Sciences, Madras,* [1991]. iii+82 pp.

Random matrices and their applications. Proceedings of the AMS-IMS-SIAM joint summer research conference held at Bowdoin College, Brunswick, Maine, June 17–23, 1984. Edited by Joel E. Cohen**, Harry Kesten and Charles M. Newman**. Contemporary Mathematics, 50. *American Mathematical Society, Providence, RI,* 1986. xiv+358 pp.

Historical Records

Gupta, A. K.; Chattopadhyay, A. K.; Krishnaiah, P. R. Asymptotic distributions of the determinants of some random matrices. Report No. ARL TR 74-0032. *Aerospace Research Laboratories, Air Force Systems Command, United States Air Force, Wright-Patterson Air Force Base, Ohio,* 1974. iii+17 pp.

Carmeli, M. Statistical theory of energy levels and random matrices in physics. ARL 73-0044. *Aerospace Research Laboratories, Air Force Systems Command, United States Air Force, Wright-Patterson Air Force Base, Ohio; distributed by National Technical Information Services Clearinghouse, Alexandria, Va.,* 1973. v+47 pp.

Krishnaiah, P. R. On the exact distributions of the test statistics based on the eigenvalues of complex random matrices. Report No. ARL 73-0178. *Aerospace Research Laboratories, Air Force Systems Command, United States Air Force, Wright-Patterson Air Force Base, Ohio,* 1973. v+24 pp.

Waikar, V. B.; Chang, T. C.; Krishnaiah, P. R. Exact distributions of a few arbitrary roots of some complex random matrices. ARL 71–0035. *Aerospace Research Laboratories, Air Force Systems Command, United States Air Force, Wright-Patterson Air Force Base, Ohio,* 1971. iv+10 pp.

Krishnaiah, P. R.; Waikar, V. B. Exact joint distributions of few roots of a class of random matrices. ARL 70-0345 *Aerospace Research Laboratories, Air Force Systems Command, United States Air Force, Wright-Patterson Air Force Base, Ohio* 1970 iv+15 pp.