1. Record Nr. UNINA9910828574703321

| | |
|---|---|
| Autore | Forrester Peter (Peter John) |
| Titolo | Log-gases and random matrices / / P.J. Forrester |
| Pubbl/distr/stampa | Princeton, : Princeton University Press, c2010 |
| ISBN | 1-282-64174-3<br>9786612641749<br>1-4008-3541-0 |
| Edizione | [Course Book] |
| Descrizione fisica | 1 online resource (806 p.) |
| Collana | London Mathematical Society monographs |
| Disciplina | 519.2 |
| Soggetti | Random matrices<br>Jacobi polynomials<br>Integral theorems |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | Frontmatter -- Preface -- Contents -- Chapter One. Gaussian Matrix Ensembles -- Chapter Two. Circular Ensembles -- Chapter Three. Laguerre And Jacobi Ensembles -- Chapter Four. The Selberg Integral -- Chapter Five. Correlation functions at  = 2 -- Chapter Six. Correlation Functions At = 1 And 4 -- Chapter Seven. Scaled limits at  = 1, 2 and 4 -- Chapter Eight. Eigenvalue probabilities - Painlevé systems approach -- Chapter Nine. Eigenvalue probabilities- Fredholm determinant approach -- Chapter Ten. Lattice paths and growth models -- Chapter Eleven. The Calogero-Sutherland model -- Chapter Twelve. Jack polynomials -- Chapter Thirteen. Correlations for general  -- Chapter Fourteen. Fluctuation formulas and universal behavior of correlations -- Chapter Fifteen. The two-dimensional one-component plasma -- Bibliography -- Index |
| Sommario/riassunto | Random matrix theory, both as an application and as a theory, has evolved rapidly over the past fifteen years. Log-Gases and Random Matrices gives a comprehensive account of these developments, emphasizing log-gases as a physical picture and heuristic, as well as covering topics such as beta ensembles and Jack polynomials. Peter Forrester presents an encyclopedic development of log-gases and random matrices viewed as examples of integrable or exactly solvable |

systems. Forrester develops not only the application and theory of Gaussian and circular ensembles of classical random matrix theory, but also of the Laguerre and Jacobi ensembles, and their beta extensions. Prominence is given to the computation of a multitude of Jacobians; determinantal point processes and orthogonal polynomials of one variable; the Selberg integral, Jack polynomials, and generalized hypergeometric functions; Painlevé transcendents; macroscopic electrostatistics and asymptotic formulas; nonintersecting paths and models in statistical mechanics; and applications of random matrix theory. This is the first textbook development of both nonsymmetric and symmetric Jack polynomial theory, as well as the connection between Selberg integral theory and beta ensembles. The author provides hundreds of guided exercises and linked topics, making Log-Gases and Random Matrices an indispensable reference work, as well as a learning resource for all students and researchers in the field.