

1. Record Nr.	UNINA9910250049003321
Autore	Ydri Badis
Titolo	Lectures on Matrix Field Theory // by Badis Ydri
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	3-319-46003-X
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XII, 352 p. 8 illus., 6 illus. in color.)
Collana	Lecture Notes in Physics, , 1616-6361 ; ; 929
Disciplina	530.14
Soggetti	Elementary particles (Physics) Quantum field theory Mathematical physics Computer science—Mathematics Algebraic geometry Quantum physics Elementary Particles, Quantum Field Theory Mathematical Physics Mathematical Applications in Computer Science Algebraic Geometry Quantum Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Preface -- Introductory Remarks -- The Non-Commutative Moyal-Weyl Spaces $R_d$ -- The Fuzzy Sphere -- Quantum Non-Commutative Phi-Four -- The Multitrace Approach -- Non-Commutative Gauge Theory -- Appendix A - The Landau States -- Appendix B - The Traces $\text{Tr}A^tB$ and $\text{Tr}A^tB^tC^tD$ -- Index.
Sommario/riassunto	These lecture notes provide a systematic introduction to matrix models of quantum field theories with non-commutative and fuzzy geometries. The book initially focuses on the matrix formulation of non-commutative and fuzzy spaces, followed by a description of the non-perturbative treatment of the corresponding field theories. As an example, the phase structure of non-commutative phi-four theory is treated in great detail, with a separate chapter on the multitrace

approach. The last chapter offers a general introduction to non-commutative gauge theories, while two appendices round out the text. Primarily written as a self-study guide for postgraduate students – with the aim of pedagogically introducing them to key analytical and numerical tools, as well as useful physical models in applications – these lecture notes will also benefit experienced researchers by providing a reference guide to the fundamentals of non-commutative field theory with an emphasis on matrix models and fuzzy geometries.

---