

Federico Manzoni

Curriculum vitae

Bio

Date of birth: 13/04/1997

Nationality: Italian

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Education

- 2011–2016 **High School Scientific Diploma (EQF4)**, *Maria Montessori institute, Rome*, 84/100
- 2016–2019 **Bachelor's Degree in Physics (EQF6)**, *University of Rome "La Sapienza"*, 107/110, Thesis: Classical relativistic string theory and its application in de Sitter space-time, supervisor: Prof. Guido Martinelli
- 2019–2021 **Master's Degree in Theoretical Physics (EQF7)**, *University of Rome "La Sapienza"*, 110/110 cum laude, Thesis: AdS/CFT extensions: oriented and unoriented quiver gauge theories, supervisors: Prof. Fabio Riccioni and Prof. Massimo Bianchi
(see attached 1 for an exam list with scores)
- 2021–present **PhD in Theoretical and Mathematical Physics (EQF8)**, *University of Rome "Roma3", INFN-Roma3 fellowship*, Thesis: Duality and asymptotic symmetries in exotic gauge theories and gravisolitons, supervisor: Prof. Dario Francia

Language skills

- Italian Mother tongue
- English Independent user (CEFR level B2)
- Spanish Basic user

Computer Skills

- Operative systems iOS Mac, Windows, Linux, Ubuntu
- Programming Languages LATEX, Matlab (base), Python (base), R (base), C, Wolfram Mathematica (algebra and calculus Wolfram certification)

Digital packages Google package, Microsoft office package, iOS package

Publications

- 2021, "Solitonic solutions and gravitational solitons: an overview", arXiv:2102.11259
- 2022, "2-simplexes and superconformal central charges", arXiv:2203.11301, Physics Letters B
- 2022, "Algebro-geometrical orientifolds and IR dualities", arXiv:2211.10113

Selected courses

- September-January AA 2021/22, Group theory for physicist, Tor Vergata, Prof. Raffaele Savelli
- September-January AA 2021/22, Theoretical cosmology, La Sapienza, Prof. Roberto Maoli
- October-January AA 2021/2022, Supersymmetry, Tor Vergata, Prof. Francesco Fucito
- January 2022, GUT PhD course, Roma3, Prof. Davide Meloni
- February 2022, Compact object PhD course, Roma3, Prof. Giorgio Matt
- February-May AA 2021/2022, String theory, Tor Vergata, Prof. Francisco Morales
- April 2022, Advanced standard model PhD course, Roma3, Prof. Marco Bonvini (QCD) & Giuseppe Degrossi (EW and Higgs) & Vittorio Lubicz (lattice QFT)
- May-June 2022, BSM in the early universe PhD course, SISSA, Prof. Takeshi Kobayashi
- May-June 2022, AdS/CFT PhD course, SISSA, Prof. Francesco Benini
- May-June 2022, Inflation and dark energy PhD course, SISSA, Prof. Mehrdad Mirbabayi (inflation) & Paolo Creminelli (dark energy)
- July 2022, Primordial cosmology PhD course, La Sapienza, Prof. Giovanni Montani

Schools and workshops

- August 2020, SLAC Summer Institute 2020: "The almost invisibles: exploring the weakly coupled universe" Stanford University;
- July 2021, "Strings" 2021 workshop;
- August 2021, SLAC Summer Institute 2021: "The Higgs State Fair" Stanford University;

- September 2021, "Black Holes, PBS and Quantum Information" workshop;
- October 2021, ICTP "Superstring and related topics" school;
- 2021, Physics colloquia series Roma3;
- November-December 2021, Galileo Galilei Institute LACES school;
- December 2021, XXIII Topical Seminar on Subnuclear Physics "Where we stand and where we go with neutrino physics";
- February 2022, Princeton celestial holography school and workshop
- February 2022, Galileo Galilei Institute SFT school;
- November-December 2022, Galileo Galilei Institute LACES school;
- December 2022, XVIII Avogadro meeting on strings, supergravity and gauge theories;
- April 2023, ICTP "Superstring and related topics" school.
- August 2023, "Advanced school on asymptotically flat space-time and celestial holography", University of Warsaw.

Teaching experiences

- Mathematical methods for physics AA 22/23 (30 hours), Roma3;
- General Physics II AA 22/23 (20 hours), Roma3;
- Analytical mechanics AA 22/23 (25 hours), Roma3.

Talks and posters experiences

- February 2022, seminar on "Asymptotic symmetries in Maxwell and Einstein theories", Roma3 physics and mathematics department;
- September 2022, talk on "Symplectic central charges", III Siembra-HoLAGrav YFM;
- December 2022, talk on "Algebro-geometrical orientifolds and IR dualities", XVIII Avogadro meeting on strings, supergravity and gauge theories;
- April 2023, poster on "Algebro-geometrical orientifolds and IR duality", Superstring and related topics;
- May 2023, seminar on "Higher groups and higher categories: a survival journey in the realm of generalized symmetries", Roma3 physics and mathematics department;
- June 2023, seminar on "The geometry of general relativity: a mathematician friendly introduction to gravity", La Sapienza mathematics department;
- July 2023, on-line poster on "2-symplexes and superconformal central charges", Strings

- September 2023, talk on "p-form gauge theories: duality and asymptotic symmetries", New Frontiers in Theoretical Physics - XXXVII National Conference on Theoretical Physics;

■ Visiting experiences

- May-June 2022, Visiting PhD SISSA.

■ Other experiences

- March-November 2020, Mechanical losses analysis and characterization of the NE Virgo mirror, University of Rome "La Sapienza" (Laboratory G23).

■ Memberships

- 2020–present SIF
- 2021–present INFN

Attached 1

- Relativistic Quantum Mechanics (FIS/02)– 29/30
- Condensed Matter Physics (FIS/03)– 30/30
- Physics Laboratory I (FIS/01)– 28/30
- General Relativity (FIS/02)– 30/30
- Physics Laboratory II (FIS/01)– 30/30 cum laude
- Fluid Mechanics (MAT/07)– 30/30 cum laude
- Electroweak Interactions (FIS/02)– 30/30
- Non-linear Waves and Solitons (FIS/02)– 30/30 cum laude
- Quantum Electrodynamics (FIS/02)– 30/30
- Mathematical Physics (MAT/07)– 30/30
- Quantum Field Theory (FIS/02)– 29/30
- Introduction to Quantum Gravity (FIS/02)– 30/30