CURRICULUM VITÆ

NAME:	Riccardo Fantoni
PRESENT POSITION:	Professor
ADDRESS:	ISIS Nautico Piazza Attilio Hortis, 1 34123 Trieste, Italy
BORN:	August 30, 1970 Livorno, Italy
DEGREES:	Ph.D. - University of Trieste, 2004 M.S. - University of Illinois at Urbana, 1997 M.S. - University of Pisa, 1994 B.S. - Liceo Scientifico Sperimentale Filippo Buonarroti of Pisa, 1989

RESEARCH INTERESTS:

Condensed Matter; Soft Matter; Compact Objects in the Universe;
Equilibrium and Non-Equilibrium Statistical Physics; Monte Carlo;
Path Integrals; Quantum Field Theory; Nonrenormalizable Models.

PROFESSIONAL EXPERIENCE:

Research Assistant at the University of Illinois in Urbana-Champaign, 1996-1997.
Teaching Assistant at the University of Illinois in Urbana-Champaign, 1996-2000.
Ph.D. position BAT-O IIa/2 at the Max-Planck-Institute für Plasmaphysik, Teilinstitut Greifswald, Bereich Stellaratortheorie, 2000 (declined).
Research Assistant at the University of Limerick, Ireland, 2000-2001.
Visiting Scientist (1 month) at the University of Paris-Sud in Orsay, 2003.
Postdoctoral Fellowship at the University "Ca' Foscari" of Venice, 2004-2008.
Teaching Assistant at the University "Ca' Foscari" of Venice, 2004-2006.
Teaching Assistant at the University of Trieste, 2008-2009, 2012-2014, 2016-2017.
Postdoctoral Fellowship at the National Institute of Theoretical Physics (NITheP) in Stellenbosch, South Africa, 2009-2011.
Visiting Scientist (3 months) at the University of Extremadura in Badajoz, Spain, 2010.
Guest at S.I.S.S.A., via Bonomea 265, 34136 Trieste, Italy, 2012-.
Honorary Fellow at the University "Ca' Foscari" of Venice, 2012-.
Visiting Scientist (1 month) at the University of Extremadura in Badajoz, Spain, 2013.
Visiting Scientist (1 week) at the "Laboratoire de Physique ENS de Lyon", France, 2014.
Habilitation to teach Mathematics and Physics in italian high-school, 2015.
Visiting Scientist (2 months) at the University of Extremadura in Badajoz, Spain, 2017.
Visiting Scientist (1 week) at the "Laboratoire de Physique ENS de Lyon", France, 2018.
Habilitation as Associate Professor in the italian University, 2019-2030.

OTHER PROFESSIONAL ACTIVITIES:

Member of the Editorial Board of Mathematics (MDPI).
Member of the Editorial Board of the American Journal of Modern Physics (AJMP).
Member of the Editorial Board of the Journal of Information Analysis.
Reviewer for the American Mathematical Society (AMS).
Reviewer for the American Physical Society (APS).
Reviewer for the American Institute of Physics (AIP).
Reviewer for the Institute of Physics (IOP).

Reviewer for the Royal Society of Chemistry (RSC).
Reviewer for the European Physical Society (EPS).
Member of SAIP.
Member of SIF.
Member of EPS.

SUPERCOMPUTERS ACCESS:

Use of the facilities of NCSA in Urbana-Champaign, Illinois, U.S.A., 1995-2000.
Use of the facilities of CHPC in Cape Town, South Africa, 2009-2012.
Use of the facilities of CINECA in Bologna, Italy, 2011-.

Ph.D. STUDENTS AND DISSERTATION TOPICS:

1. Cosupervision of the Ph.D. thesis of Joris W. O. Salari in the department of polymer chemistry of the University of Technology of Eindhoven in the Netherlands. Supervisor: Prof. Bert Klumperman. Title: "Pickering emulsions, colloidosomes & micro-encapsulation", 2011

2. Cosupervision of the Ph.D. thesis of Miguel A. G. Maestre in the physics department of the University of Extremadura in Spain. Supervisor: Prof. Andrés Santos. Title: "Structural and thermophysical properties of models of Janus particles with fixed orientation.", 2021

PUBLICATIONS

ARTICLES:

1. **Fantoni R.** and Tosi M. P., Nuovo Cimento **17D**, 155 (1995) *Title:* "Decay of correlations and related sum rules in a layered classical plasma"

2. **Fantoni R.** and Tosi M. P., Nuovo Cimento **17D**, 1165 (1995) *Title:* "Coordinate space form of interacting reference response function of d-dimensional jellium"

3. **Fantoni R.** and Tosi M. P., Physica B **217**, 35 (1996) *Title:* "Some properties of short-range correlations for electrons in quantum wires"

4. **Fantoni R.**, Jancovici B., and Téllez G., J. Stat. Phys. **112**, 27 (2003) *Title:* "Pressures for a One-Component Plasma on a Pseudosphere"

5. **Fantoni R.** and Pastore G., J. Chem. Phys. **119**, 3810 (2003) *Title:* "Generating functionals, consistency, and uniqueness in the integral equation theory of liquids"

6. **Fantoni R.** and Pastore G., Phys. Rev. E **68**, 046104 (2003) *Title:* "Stability of the iterative solutions of integral equations as one phase freezing criterion"

7. **Fantoni R.** and Pastore G., Physica A **332**, 349 (2004) *Title:* "Direct correlation functions of the Widom-Rowlinson model"

8. **Fantoni R.** and Pastore G., J. Chem. Phys. **120**, 10681 (2004) *Title:* "Computer simulation study of the closure relations in hard sphere fluids"

9. **Fantoni R.**, Gazzillo D., Giacometti A., J. Chem. Phys. **122**, 034901 (2005) *Title:* "Stability boundaries, percolation threshold, and two phase coexistence for polydisperse fluids of adhesive colloidal particles"

10. **Fantoni R.**, Gazzillo D., Giacometti A., Phys. Rev. E **72**, 011503 (2005) *Title:* "The thermodynamic instabilities of a binary mixture of sticky hard spheres"

11. **Fantoni R.**, Gazzillo D., Giacometti A., and Sollich P. J. Chem. Phys. **125**, 164504 (2006) *Title:*"Phase behavior of weakly polydisperse sticky hard spheres: Perturbation theory for the Percus-Yevick solution"

12. Gazzillo D., Giacometti A., **Fantoni R.**, and Sollich P., Phys. Rev. E. **74**, 051407 (2006) *Title:* "Multicomponent adhesive hard sphere models and short-ranged attractive interactions in colloidal or micellar solutions"

13. Gazzillo D., **Fantoni R.**, and Giacometti A., Mol. Phys. **104**, 3451 (2006) *Title:* "Phase behavior of polydisperse sticky hard spheres: analytical solutions and perturbation theory"

14. **Fantoni R.**, Gazzillo D., Giacometti A., Miller M. A., and Pastore G., J. Chem. Phys. **127**, 234507 (2007) *Title:* "Patchy sticky hard spheres: analytical study and Monte Carlo simulations"

15. Gazzillo D., **Fantoni R.**, and Giacometti A., Phys. Rev. E **78**, 021201 (2008) *Title:* "Fluids of spherical molecules with dipolarlike nonuniform adhesion: an analytically solvable anisotropic model"

16. Santos A., **Fantoni R.**, and Giacometti A., Phys. Rev. E **77**, 051206 (2008) *Title:* "Penetrable square-well fluids: Exact results in one dimension"

Appears in the SklogWiki

17. **Fantoni R.** and Téllez G., J. Stat. Phys. **133**, 449 (2008) *Title:* "Two-dimensional one-component plasma on a Flamm' s paraboloid"

18. **Fantoni R.**, Giacometti A., Malijevský A., and Santos A., J. Chem. Phys. **131**, 124106 (2009) *Title:* "Penetrable-Square-Well fluids: Analytical study and Monte Carlo simulations"
Appears in the SklogWiki

19. Gazzillo D., **Fantoni R.**, and Giacometti A., Phys Rev. E **80**, 061207 (2009) *Title:* "Local orientational ordering in fluids of spherical molecules with dipolar-like anisotropic adhesion"

20. Santos A., **Fantoni R.**, and Giacometti A., J. Chem. Phys. **131**, 181105 (2009) *Title:* "Thermodynamic consistency of energy and virial routes: An exact proof within the linearized Debye-Hückel theory"
Has been among the 14th most downloaded JCP articles in the month of November.

21. **Fantoni R.**, Giacometti A., Malijevský A., and Santos A., J. Chem. Phys. **133**, 024101 (2010) *Title:* "A numerical test of a high-penetrability approximation for the one-dimensional penetrable-square-well model"

22. **Fantoni R.**, J. Stat. Mech. P07030 (2010) *Title:* "Non existence of a phase transition for the Penetrable Square Well model in one dimension"

23. **Fantoni R.**, A. Giacometti, F. Sciortino, and G. Pastore, Soft Matter **7**, 2419 (2011) *Title:* "Cluster theory of Janus particles"
Has been the 5th most read article in Soft Matter on the month of February
Appeared as a hot article in the Soft Matter Blog in the month of February

24. **Fantoni R.**, A. Malijevský, A. Santos, and A. Giacometti, Europhys. Lett. **93**, 26002 (2011) *Title:* "Phase diagram of the penetrable square well-model"
Appears in the SklogWiki

25. **Fantoni R.**, A. Malijevský, A. Santos, and A. Giacometti, Mol. Phys. **109**, 2723 (2011) *Title:* "The penetrable square-well model: extensive versus non-extensive phases"
Appears in the SklogWiki

26. **Fantoni R.** and K. K. Müller-Nedebock, Phys. Rev. E **84**, 011808 (2011) *Title:* "Field-theoretical approach to a dense polymer with an ideal binary mixture of clustering centers"

27. **Fantoni R.** and Santos A., Phys. Rev. E **84**, 041201 (2011) *Title:* "Nonadditive hard-sphere fuid mixtures. A simple analytical theory"

28. **Fantoni R.**, Eur. Phys. J. B **85**, 108 (2012) *Title:* "A cluster theory for a Janus fluid"

29. **Fantoni R.**, J. Stat. Mech. P04015 (2012) *Title:* "Two Component Plasma in a Flamm's Paraboloid"

30. **Fantoni R.**, Salari J. W. O., Klumperman B., Phys. Rev. E **85**, 061404 (2012) *Title:* "The structure of colloidosomes with tunable particle density: simulation *vs* experiment"

31. **Fantoni R.**, Phys. Rev. B **86**, 144304 (2012) *Title:* "Localization of acoustic polarons at low temperatures: A path integral Monte Carlo approach"

32. **Fantoni R.**, J. Stat. Mech. P10024 (2012) *Title:* "The density of a fluid on a curved surface"

33. **Fantoni R.**, Physica B **412**, 112 (2013) *Title:* "Low temperature acoustic polaron localization"

34. **Fantoni R.**, Solid State Communications **159**, 106 (2013) *Title:* "Hellmann and Feynman theorem versus diffusion Monte Carlo experiment"

35. **Fantoni R.** and Pastore G., Europhys. Lett., **101**, 46003 (2013) *Title:* "The restricted primitive model of ionic fluids with nonadditive diamaters"

36. Maestre M. A. G., **Fantoni R.**, Giacometti A. and Santos A., J. Chem. Phys. **138**, 094904 (2013) *Title:* "Janus fluid with fixed patch orientations: theory and simulations"

37. **Fantoni R.** and Santos A., Phys. Rev. E **87**, 042102 (2013) *Title:* "Multicomponent fluid of nonadditive hard spheres near a wall"

38. **Fantoni R.** and Pastore G., Phys. Rev. E **87**, 052303 (2013) *Title:* "Monte Carlo simulation of the nonadditive restricted primitive model of ionic fluids: Phase diagram and clustering"
Appeared on the Kaleidoscope of PRE on the month of May

39. **Fantoni R.**, Eur. Phys. J. B **86**, 286 (2013) *Title:* "Radial distribution function in a diffusion Monte Carlo simulation of a Fermion fluid between the ideal gas and the Jellium model"

40. **Fantoni R.**, Giacometti A., Maestre M. A. G., and Santos A., J. Chem. Phys. **139**, 174902 (2013) *Title:* "Phase diagrams of Janus fluids with up-down constrained orientations"

41. **Fantoni R.** and Santos A., J. Chem. Phys. **140**, 244513 (2014) *Title:* "Depletion force in the infinite-dilution limit in a solvent of nonadditive hard spheres"

42. **Fantoni R.** and Pastore G., J. Chem. Phys **141**, 074108 (2014) *Title:* "Wertheim and Bjerrum-Tani-Henderson theories for associating fluids: a critical assessment"

43. **Fantoni R.**, Phys. Rev. E **90**, 020102(R) (2014) *Title:* "Gas-liquid coexistence for the bosons square-well fluid and the ^{4}He binodal anomaly"

44. **Fantoni R.** and Moroni S., J. Chem. Phys. **141**, 114110 (2014) *Title:* "Quantum Gibbs ensemble Monte Carlo"

45. **Fantoni R.** and Pastore G., Mol. Phys. **113**, 2593 (2015) *Title:* "Wertheim perturbation theory: thermodynamics and structure of patchy colloids"

46. **Fantoni R.**, Giacometti A., and Santos A., J. Chem. Phys. **142**, 224905 (2015) *Title:* "Bridging and depletion mechanisms in colloid-colloid effective interactions: A reentrant phase diagram?"

47. **Fantoni R.**, Phys. Rev. E **92**, 012133 (2015) *Title:* "Two phase coexistence for the hydrogen-helium mixture"

48. **Fantoni R.**, Eur. Phys. J. B **89**, 1 (2016) *Title:* "Supercooled superfluids in Monte Carlo simulations"

49. Alastuey A. and **Fantoni R.**, J. Stat. Phys. **163**, 887 (2016) *Title:* "Fourth moment sum rule for the charge correlations of a two-component classical plasma"

50. **Fantoni R.**, Physica A **457**, 406 (2016) *Title:* "The Square-Shoulder-Asakura-Oosawa model"

51. **Fantoni R.**, J. Stat. Phys. **163**, 1247 (2016) *Title:* "Exact results for one dimensional fluids through functional integration"

52. **Fantoni R.**, J. Stat. Phys. **166**, 1334 (2017) *Title:* "One-dimensional fluids with positive potentials"

53. **Fantoni R.**, Physica A **477C**, 187 (2017) *Title:* "The moment sum-rules for ionic liquids at criticality"

54. **Fantoni R.**, J. Stat. Phys. **168**, 652 (2017) *Title:* "Andersen-Weeks-Chandler perturbation theory and one-component sticky-hard-sphere"

55. **Fantoni R.** and Santos A., J. Stat. Phys. **169**, 1171 (2017) *Title:* "One-Dimensional Fluids with Second Nearest-Neighbor Interactions"

56. **Fantoni R.**, J. Stat. Mech. P113101 (2017) *Title:* "White-dwarf equation of state and structure: the effect of temperature"

57. **Fantoni R.**, J. Stat. Mech. P043101 (2018) *Title:* "Effect of quantum dispersion on the radial distribution function of a one-component sticky-hard-sphere fluid"

58. **Fantoni R.**, Int. J. Mod. Phys. C **29**, 1850028 (2018) *Title:* "Two component boson-fermion plasma at finite temperature"

59. **Fantoni R.**, Int. J. Mod. Phys. C **29**, 1850064 (2018) *Title:* "One-component fermion plasma on a sphere at finite temperature"

60. **Fantoni R.**, Physica A **5**, 682 (2018) *Title:* "From the Liouville to the Smoluchowski equation for a colloidal solute particle in a solvent"

61. **Fantoni R.**, Physica A **524**, 177 (2019) *Title:* "Plasma living in a curved surface at some special temperature"

62. **Fantoni R.**, Indian J. Phys. **95**, 1027 (2021) *Title:* "Form invariance of the moment sum-rules for jellium with the addition of short-range terms in the pair-potential"

63. **Fantoni R.**, J. Low Temp. Phys. **202**, 247 (2021) *Title:* "How should we choose the boundary conditions in a simulation which could detect anyons in one and two dimensions?"

64. **Fantoni R.**, Eur. Phys. J. B **94**, 63 (2021) *Title:* "Jellium at finite temperature using the restricted worm algorithm"

65. **Fantoni R.** and Klauder J. R., Phys. Rev. D **103**, 076013 (2021) *Title:* "Affine quantization of $(\varphi^4)_4$ succeeds while canonical quantization fails"

66. **Fantoni R.**, J. Stat. Mech. P083102 (2021) *Title:* "Monte Carlo evaluation of the continuum limit of $(\phi^{12})_3$"

67. **Fantoni R.** and Klauder J. R., J. Stat. Phys. **184**, 28 (2021) *Title:* "Monte Carlo evaluation of the continuum limit of the two-point function of the Euclidean free real scalar field subject to affine quantization"

68. **Fantoni R.** and Klauder J. R., Phys. Rev. D **104**, 054514 (2021) *Title:* "Monte Carlo evaluation of the continuum limit of the two-point function of two Euclidean Higgs real scalar fields subject to affine quantization"

69. **Fantoni R.**, Maestre M. A. G., and Santos A., J. Stat. Mech. P103210 (2021) *Title:* "Finite-size effects and thermodynamic limit in one-dimensional Janus fluids"

70. **Fantoni R.**, Mol. Phys. **120**, 4 (2021) *Title:* "Jellium at finite temperature"

71. **Fantoni R.** and Klauder J. R., Int. J. Mod. Phys. A **37**, 2250029 (2022) *Title:* "Eliminating Nonrenormalizability Helps Prove Scaled Affine Quantization of φ_4^4 is Nontrivial"

72. **Fantoni R.** and Klauder J. R., Int. J. Mod. Phys. A **37**, 2250094 (2022) *Title:* "Kinetic Factors in Affine Quantization and Their Role in Field Theory Monte Carlo"

73. **Fantoni R.** and Klauder J. R., Eur. Phys. J. C **82**, 843 (2022) *Title:* "Scaled Affine Quantization of φ_4^4 in the Low Temperature Limit"

74. **Fantoni R.** and Klauder J. R., Phys. Rev. D **106**, 114508 (2022) *Title:* "Scaled Affine Quantization of Ultralocal φ_2^4 a comparative Path Integral Monte Carlo study with scaled Canonical Quantization"

75. **Fantoni R.**, J. Stat. Mech. 083103 (2023) *Title:* "One-component fermion plasma on a sphere at finite temperature. The anisotropy in the paths conformations"

76. Klauder J. R. and **Fantoni R.**, Axioms **12**, 911 (2023) *Title:* "The Magnificent Realm of Affine Quantization: Valid Results for Particles, Fields, and Gravity"

77. **Fantoni R.**, Mod. Phys. Lett. A accepted (2023) *Title:* "Scaled Affine Quantization of φ_3^{12} is Nontrivial"

78. **Fantoni R.**, Eur. Phys. J. B **96**, 155 (2023) *Title:* "Monte Carlo simulation of Hard-, Square-Well, and Square-Shoulder Disks in narrow channels"

BOOKS:

1. **Fantoni R.** "Regole di somma in un gas di elettroni stratificato" ISBN 978-889-101-539-6

2. **Fantoni R.** "Classical liquids: exact results, integral equations theory, and Monte Carlo simulations" ISBN 978-889-101-543-3

3. **Fantoni R.** "The Janus Fluid" SpringerBriefs in Physics, (2013), ISBN 978-3-319-00406-8

4. **Fantoni R.** "Discoveries due to the observation of mathematics", Kindle Direct Publishing, (2022)