PERSONAL INFORMATION

Riccardo Fantoni

29, via Udine, Trieste, 34135, Italy

+390402333479 +393384570334

rfantoni3@gmail.com

http://www-dft.ts.infn.it/~rfantoni/

riccardo.fantoni (skype)

Sex Male | Date of birth 30/08/1970 | Nationality Italy

RESEARCH STATEMENT:

Aim of the research is to develop analytical and computational methods for condensed and soft matter starting from the fundamental many-body equations. Apart from the few analytically exactly solvable models our principal instruments are Integral Equation Theory, Density Functional Theory, Thermodynamic Perturbation Theory, Association Theory, and Monte Carlo simulations which can find exact properties of many-body systems. We are combining these approaches to create new methods and to test the accuracy of calculations on materials. Current studied materials include colloidal suspensions, ionic liquids, polymer mixtures, the electron fluid, the polaron, and boson fluids (like ^{4}He, ...). We investigate the structure and thermodynamic properties of the materials including their phase transitions like the gas-liquid-solid first order ones, the percolation threshold, the clustering, the localization, the demixing, and properties like the polydispersity.

RESEARCH INTERESTS:

Statistical Mechanics:
Sum rules in many body systems, many body models soluble exactly analytically, integral equation theories for fluids (Percus-Yevick, hypernetted chain, mean spherical approximation, rational function approximation), thermodynamic perturbation theories, Monte Carlo methods, stochastic processes.

Condensed and Soft Matter Physics:
Coulomb liquids, the polaron, Bosons fluids, colloidal suspensions, polymers.

JOB APPLIED FOR
POSITION
PREFERRED JOB
STUDIES APPLIED FOR
PERSONAL STATEMENT

Quantum fluid models:
The Jellium in one, two, and three spatial dimensions and the polaron problem. The Jellium on parallel planes. Square-well Bosons as a model of cold atoms. The 4He in three and two dimensions.

Classical fluid models:
The one-dimensional nearest-neighbor fluids, the one- and two-component plasma living in one-, two-, and three-dimensions, the one- and two-component plasma living on curved surfaces, the hardsphere fluid, the penetrable square-well fluid in one-, two-, and three-dimensions, the non-additive hard-sphere mixture, the Widom-Rowlinson model, the sticky-hard-sphere one- and two-component fluid, the restricted primitive model for charged hard spheres, patchy spheres fluids (the Janus fluid, etc).

Numerical methods (NM) of interest:
The solution of integral equation theories and the Monte Carlo methods to perform computer experiments.

NM for the solution of integral equation theories:
The Newton Raphson algorithm (with conjugated gradient method) and the Picard algorithm.

NM for Monte Carlo simulations:
Ground state Monte Carlo simulations (variational and diffusion), path integral Monte Carlo simulations (conventional and worm algorithm), classical Monte Carlo simulations (NVT, NPT, grand canonical, Gibbs ensemble).

WORK EXPERIENCE

1995-2000 **Graduate student**

University of Illinois at Urbana/Champaign (U.S.A.), Physics Department (http://physics.illinois.edu/)

- Teaching Assistant, Research Assistant

Business or sector Physics

2004-2008 **Assegno di Ricerca**

University Ca' Foscari of Venezia, Dipartimento di Chimica-Fisica (http://www.unive.it/)

- Research

Business or sector Physics

2009-2012 **Postdoc**

University of Stellenbosch (South Africa), National Institute for Theoretical Physics (http://www.nithep.ac.za/)

- Research

Business or sector Physics

2018- **School Teacher**

Istituto Tecnico Nautico “Tomaso di Savoia” (https://www.nauticogalvani.edu.it/)

- Teaching

Business or sector MIUR (Italy)

EDUCATION AND TRAINING

1989-1994 **Laurea in Fisica** 110/110 cum laude

University of Pisa, Physics Department

- ~~~~~~
- Dipartimento di Fisica di Pisa
- ~~~~~~
- GEO Broglia, Fortuna
- ANA I Marino
- ANA II Marino
-
- EXP I Martinelli
- EXP II Tonelli, Bigi
- EXP III Pierazzini, Minguzzi
- EXP IV Beverini
-
- PHY I Bellettini, Barsella
- PHY II Stoppini
- PHY III Menotti, D' Emilio
- PHY SUP Bemporad
- PHY THEO Di Giacomo, Maggiore, Paffuti, Rossi
- PHY STAT Guadagnini
- PHY SOL Grosso
- PHY ST Arimondo
- PHY MECH Servadio
- MAT METH Cicogna, Morchio
-
- CHEM Palleschi
- ~~~~~~
- Scuola Normale Superiore di Pisa
- ~~~~~~
- PHY STAT Tosi
- PHY MANY BODY Tosi
- ~~~~~~

1989-1994 **Master in Physics**

University of Illinois at Urbana/Champaign (U.S.A.), Physics Department

ESL 401 Introduction to academic writing
PHYCS 302 Atmospherical Science, Walter Robinson
PHYCS 302 Principles of Atoms Dynamics, Richard Martin
PHYCS 398 Computer Simulation Methods of Many Particle Physics, David Ceperley
PHYCS 402 Theoretical Astrophysics, W. Watson and K. Cundiff
PHYCS 411 Boundary Value Problems in Physics, Yoshi Oono
PHYCS 412 Additional Techniques in Mathematical Physics, Yoshi Oono
PHYCS 413 Complex Variables Physics, Michael Stone
PHYCS 414 Advanced Mechanics, Vijay Pandharipande
PHYCS 417 Lie Groups and Physics Applications,
PHYCS 419 Physics of Elasticity, Eduardo Fradkin
Dr. Riccardo Fantoni August 5, 2016
PHYCS 430 Surface Physics, Ehrlich Gert
PHYCS 450 Biomolecular Physics, Ulrich Nienhaus
PHYCS 464 Phase Transitions, Nigel Goldenfeld
PHYCS 470 Nuclei and Particles, Vijay Pandharipande
PHYCS 481 Quantum Mechanics II, Paul Goldbart
PHYCS 498C General Relativity I, Stuart Shapiro
PHYCS 498C General Relativity II, Stuart Shapiro
PHYCS 498C Compact Objects, Stuart Shapiro
PHYCS 498C Non Equilibrium Statistical Mechanics, Klaus Schulten
PHYCS 498 Spinors in Geometry and Physics, Robert Leigh and Steven B. Bradlow
PHYCS 498 General Field Theory, Eduardo Fradkin
PHYCS 498B Topology and Groups, Michael Stone and John P. D' Angelo
PHYCS 498 Very Degenerate Atomic Gases, Anthony J. Leggett

2001-2004

Dottorato in Fisica

University of Trieste, Physics Department

(1) Computational approach to the structural and electronic properties of solids, Maria Peressi
(2) Dynamic phenomena on surfaces, Renzo Rosei
(3) Introduction to dynamical systems, Fabio Benatti
(4) Introduction to statistical thermodynamics of disordered systems, Giorgio Pastore
(5) Magnetic properties of low dimensional systems, Giorgio Rossi

PERSONAL SKILLS

Mother tongue(s): Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	Excellent	Excellent	Excellent	Excellent	Excellent

Communication skills: Excellent communication skills acquired during teaching in national and international Universities and in Italian high-school and seminars given at national and international conferences.

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient	Proficient	Proficient	Proficient	Proficient

Replace with your other computer skills. Specify in what context they were acquired. Example:

- good command of office and open office suite (word processor, spread sheet, presentation software)
- good command of various editing software (latex, emacs, vi, …)
- good command of various programming languages (FORTRAN, …)

Other skills

Responsibility in projects of supercomputing:
1995-2000 Use of the facilities of NCSA at Urbana/Champaign, Illinois, U.S.A.
2010-2012 Use of the facilities of CHPC at Cape Town, South Africa
2011-now Use of the facilities of CINECA at Bologna, Italy

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)
member of SAIP
member of SIF
member of EPS

Driving licence

A and B

ADDITIONAL INFORMATION

PUBLICATIONS:

(1) Fantoni R. and Tosi M.P., Nuovo Cimento 17D, 155 (1995)
dx.doi.org/10.1007/BF02451594
WOS:A1995QW87300005
2-s2.0-51649140258
(2) Fantoni R. and Tosi M.P., Nuovo Cimento 17D, 1165 (1995)
dx.doi.org/10.1007/BF02454131
WOS:A1995TM36400009
2-s2.0-51649138270
(3) Fantoni R. and Tosi M.P., Physica B 217, 35 (1996)
dx.doi.org/10.1016/0921-4526(95)00451-3
WOS:A1996TR03900005
2-s2.0-0030561994
(4) Fantoni R., Jancovici B., and T´ellez G., J. Stat. Phys. 112, 27 (2003)
dx.doi.org/10.1023/A:1023671419021
WOS:000182711300002
2-s2.0-0037726817
(5) Fantoni R. and Pastore G., J. Chem. Phys. 119, 3810 (2003)
dx.doi.org/10.1063/1.1590642
WOS:000184474100028
2-s2.0-0041376961
(6) Fantoni R. and Pastore G., Phys. Rev. E 68, 046104 (2003)
dx.doi.org/10.1103/PhysRevE.68.046104
WOS:000186571200013
2-s2.0-0347566148
(7) Fantoni R. and Pastore G., Physica A 332, 349 (2004)
dx.doi.org/10.1016/j.physa.2003.10.012
WOS:000188086200022
2-s2.0-0346215805
(8) Fantoni R. and Pastore G., J. Chem. Phys. 120, 10681 (2004)
dx.doi.org/10.1063/1.1739392
WOS:000221538200034
2-s2.0-2942662065
(9) Fantoni R., Gazzillo D., Giacometti A., J. Chem. Phys. 122, 034901 (2005)
dx.doi.org/10.1063/1.1831275
WOS:000226748800038
2-s2.0-22944457598
(10) Fantoni R., Gazzillo D., Giacometti A., Phys. Rev. E 72, 011503 (2005)
dx.doi.org/10.1103/PhysRevE.72.011503
WOS:000230886900043
2-s2.0-27244434158
(11) Fantoni R., Gazzillo D., Giacometti A., and Sollich P. J. Chem. Phys. 125, 164504 (2006)
dx.doi.org/10.1063/1.2358136
WOS:000241722000048
2-s2.0-33750439815

(12) Gazzillo D., Giacometti A., Fantoni R., and Sollich P., Phys. Rev. E. 74, 051407 (2006)
dx.doi.org/10.1103/PhysRevE.74.051407
WOS:000242408700047
2-s2.0-33751364294
(13) Gazzillo D., Fantoni R., and Giacometti A., Mol. Phys. 104, 3451 (2006)
dx.doi.org/10.1080/00268970601050892
WOS:000243977700009
2-s2.0-34547821930
(14) Fantoni R., Gazzillo D., Giacometti A., Miller M. A., and Pastore G., J. Chem. Phys. 127, 234507 (2007)
dx.doi.org/10.1063/1.2805066
WOS:000251908500033
2-s2.0-37549062945
(15) Gazzillo D., Fantoni R., and Giacometti A., Phys. Rev. E 78, 021201 (2008)
dx.doi.org/10.1103/PhysRevE.78.021201
WOS:000259263600051
2-s2.0-49549117568
(16) Santos A., Fantoni R., and Giacometti A., Phys. Rev. E 77, 051206 (2008)
dx.doi.org/10.1103/PhysRevE.77.051206
WOS:000256885400051
2-s2.0-44149108199
(17) Fantoni R. and T´ellez G., J. Stat. Phys. 133, 449 (2008)
dx.doi.org/10.1007/s10955-008-9616-x
WOS:000260376300004
2-s2.0-54949158394
(18) Fantoni R., Giacometti A., Malijevsk´y A., and Santos A., J. Chem. Phys. 131, 124106 (2009)
dx.doi.org/10.1063/1.3236515
WOS:000270380300010
2-s2.0-70349617808
(19) Gazzilo D., Fantoni R., and Giacometti A., Phys Rev. E 80, 061207 (2009)
dx.doi.org/10.1103/PhysRevE.80.061207
WOS:000273227500061
2-s2.0-75349098936
(20) Santos A., Fantoni R., and Giacometti A., J. Chem. Phys. 131, 181105 (2009)
dx.doi.org/10.1063/1.3265991
WOS:000272454500005
2-s2.0-72949085930
(21) Fantoni R., Giacometti A., Malijevsk´y A., and Santos A., J. Chem. Phys. 133, 024101 (2010)
dx.doi.org/10.1063/1.3455330
WOS:000279917700003
2-s2.0-77955754953
(22) Fantoni R., J. Stat. Mech. P07030 (2010)
dx.doi.org/10.1088/1742-5468/2010/07/P07030
WOS:000281744400004
2-s2.0-77957073614
(23) Fantoni R., A. Giacometti, F. Sciortino, and G. Pastore, Soft Matter 7, 2419 (2011)
dx.doi.org/10.1039/C0SM00995D
WOS:000288162500026
2-s2.0-79952395236
(24) Fantoni R., A. Malijevsk´y, A. Santos, and A. Giacometti, Europhys. Lett. 93, 26002 (2011)
dx.doi.org/10.1209/0295-5075/93/26002
WOS:000287356100015
2-s2.0-79952604983
(25) Fantoni R., A. Malijevsk´y, A. Santos, and A. Giacometti, Mol. Phys. 109, 2723 (2011)
dx.doi.org/10.1080/00268976.2011.597357
WOS:000299109300004
2-s2.0-84855979779
(26) Fantoni R. and K. K. M¨uller-Nedebock, Phys. Rev. E 84, 011808 (2011)
dx.doi.org/10.1103/PhysRevE.84.011808
WOS:000293457100008
2-s2.0-79961114703
(27) Fantoni R. and Santos A., Phys. Rev. E 84, 041201 (2011)
dx.doi.org/10.1103/PhysRevE.84.041201

WOS:000296518800003
2-s2.0-80054919881
(28) Fantoni R., Eur. Phys. J. B 85, 108 (2012)
dx.doi.org/10.1140/epjb/e2012-20820-1
WOS:000302642200018
(29) Fantoni R., J. Stat. Mech. P04015 (2012)
dx.doi.org/10.1088/1742-5468/2012/04/P04015
WOS:000303545700017
2-s2.0-84860526515
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dx.doi.org/10.1103/PhysRevE.85.061404
WOS:000304858000003
2-s2.0-84862224594
(31) Fantoni R., Phys. Rev. B 86, 144304 (2012)
dx.doi.org/10.1103/PhysRevB.86.144304
WOS:000309578100003
2-s2.0-84867308368
(32) Fantoni R., J. Stat. Mech. P10024 (2012)
dx.doi.org/10.1088/1742-5468/2012/10/P10024
WOS:000310585500027
2-s2.0-84868286397
(33) Fantoni R., Physica B 412, 112 (2013)
dx.doi.org/10.1016/j.physb.2012.12.032
WOS:000314764900023
2-s2.0-84873386313
(34) Fantoni R., Solid State Communications 159, 106 (2013)
dx.doi.org/10.1016/j.ssc.2013.01.028
WOS:000317800900025
2-s2.0-84875448172
(35) Fantoni R. and Pastore G., Europhys. Lett. 101, 46003 (2013)
dx.doi.org/10.1209/0295-5075/101/46003
WOS:000315999100021
2-s2.0-84874834405
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dx.doi.org/10.1063/1.4793626
WOS:000315874200054
2-s2.0-84874926774
(37) Fantoni R. and Santos A., Phys. Rev. E 87, 042102 (2013)
dx.doi.org/10.1103/PhysRevE.87.042102
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2-s2.0-84876703163
(38) Fantoni R. and Pastore G., Phys. Rev. E 87, 052303 (2013)
dx.doi.org/10.1103/PhysRevE.87.052303
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2-s2.0-84878389283
(39) Fantoni R., Eur. Phys. J. B 86, 286 (2013)
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WOS:000321446200046
2-s2.0-84898868063
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dx.doi.org/10.1063/1.4827861
WOS:000326922300052
2-s2.0-84887593704
(41) Fantoni R. and Santos A., J. Chem. Phys. 140, 244513 (2014)
dx.doi.org/10.1063/1.4884353
WOS:000338634200051
2-s2.0-84903710390
(42) Fantoni R. and Pastore G., J. Chem. Phys 141, 074108 (2014)
dx.doi.org/10.1063/1.4892878
WOS:000340714600011
2-s2.0-84906544798
(43) Fantoni R., Phys. Rev. E 90, 020102(R) (2014)
dx.doi.org/10.1103/PhysRevE.90.020102
WOS:000341289600001

(44) Fantoni R. and Moroni S., J. Chem. Phys 141, 114110 (2014)
dx.doi.org/10.1063/1.4895974
WOS:000342843200014
2-s2.0-84907247021
(45) Fantoni R. and Pastore G., Mol. Phys. (2015)
dx.doi.org/10.1080/00268976.2015.1061150
WOS:000362544000028
2-s2.0-84943582307
(46) Fantoni R. Giacometti A. and Santos A., J. Chem. Phys 142, 224905 (2015)
dx.doi.org/10.1063/1.4922263
WOS:000356176600037
2-s2.0-84934994542
(47) Fantoni R., Phys. Rev. E, 92, 012133 (2015)
dx.doi.org/10.1103/PhysRevE.92.012133
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2-s2.0-84938788007
(48) Fantoni R., Eur. Phys. J. B 89, 1 (2016)
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WOS:000375216500004
2-s2.0-84957802219
(49) Alastuey A. and Fantoni R., J. Stat. Phys. 163, 887 (2016)
dx.doi.org/10.1007/s10955-016-1512-1
WOS:000374676000009
2-s2.0-84962025380
(50) Fantoni R., Physica A 457, 406 (2016)
dx.doi.org/10.1016/j.physa.2016.03.024
WOS:000376693600038
2-s2.0-84964504945
(51) Fantoni R., J. Stat. Phys. 163, 1247 (2016)
dx.doi.org/10.1007/s10955-016-1510-3
WOS:000375579300010
2-s2.0-84962010485
(52) Fantoni R., J. Stat. Phys. 166, 1334 (2017)
dx.doi.org/10.1007/s10955-016-1707-5
WOS:000395082700010
2-s2.0-85008514512
(53) Fantoni R., Physica A 477C, 187 (2017)
http://dx.doi.org/10.1016/j.physa.2017.02.064
WOS:000398873300017
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http://dx.doi.org/10.1007/s10955-017-1810-2
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2-s2.0-85019677800
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https://doi.org/10.1007/s10955-017-1908-6
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(56) Fantoni R., J. Stat. Mech. P113101 (2017)
http://dx.doi.org/10.1088/1742-5468/aa9339
WOS:000414639900001
2-s2.0-85038631104
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http://dx.doi.org/10.1088/1742-5468/aab690
WOS:000430327700001
2-s2.0-85046793056
(58) Fantoni R., Int. J. Mod. Phys. C 29, 1850028 (2018)
http://dx.doi.org/10.1142/S0129183118500286
WOS:000430039400009
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http://dx.doi.org/10.1142/S012918311850064X
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2-s2.0-85049629270
(60) Fantoni R., Physica A 515C, 682 (2018)
https://doi.org/10.1016/j.physa.2018.09.107

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2-s2.0-85054815484
(61) Fantoni R., Physica A 524, 177 (2019)
https://doi.org/10.1016/j.physa.2019.04.222
WOS:000476966100018
2-s2.0-85064919235
(62) Fantoni R., Indian J. Phys. Online first (2020)
https://doi.org/10.1007/s12648-020-01750-2
WOS:000543007600002
2-s2.0-85086857771
(63) Fantoni R., J. Low Temp. Phys. Online first (2020)
https://doi.org/10.1007/s10909-020-02532-0
WOS:
2-s2

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, from a theoretical perspective”, SpringerBriefs in Physics, (2013), ISBN 978-3-319-00406-8 (Print) 978-3-319-00407-5 (Online)
dx.doi.org/10.1007/978-3-319-00407-5

PRESENTATIONS:

1994 Napoli CNR meeting. Poster on publication (1).
2002 National school of Matter Physics on “Fisica di base delle Nanostrutture e Calcolo ed Informazione Quantistica” (Torino Villa Gualino 9/9/2002-20/9/2002).
2002 School on “Fisica Statistica, Teoria della Probabilit´a e Complessit´a computazionale” (ICTP Trieste 26/8/2002-7/9/2002).
2003 XXII Fai della Paganella meeting: “Fisica Teorica e Struttura della Materia”. Posters on publication (4) and on publication (5).
2004 XXIII Fai della Paganella meeting: “Fisica Teorica e Struttura della Materia”. Poster on publication (6).
2004 “IX Convegno Nazionale di Fisica Statistica e dei Sistemi Complessi” (Parma 22-24 June). Talk on publication (8).
2004 IV Giovanni Paladin Memorial: “Statistical Mechanics, Chaos and Condensed Matter Theory” (Rome 22-24 September). Poster on publication (9).
2005 “X Convegno Nazionale di Fisica Statistica e dei Sistemi Complessi” (Parma 29-1 July). Poster on publications (9) and (10).
2005 “6th Liquid Matter Conference” (Utrecht, the Netherlands 2-6 July). Poster on publications
(9) and (10).
2006 “31st Conference of the Middle European Cooperation in Statistical Physics” (Primo˘sten,
Croatia 23-26 April). Poster on publication (10).
2007 “Fluid phase behaviour and critical phenomena from liquid state theories and simulations”
(CECAM, Lyon, France 12 July). Invited speaker on publications (14) and (15).
2007 “Statphys23” (Genova, Italy 9-13 July). Poster on publications (14) and (15).
2008 “7th Liquid Matter Conference” (Lund, Sweden 27 June-1 July). Poster on publications (14) and (15).
2009 “Long-range Interactions in Classical and Quantum Physics” (Stellenbosch, South Africa 16-27 November). Invited talk on publication (17).
2010 “21st Chris Engelbrecht Summer School in Theoretical Physics” (Stellenbosch, South Africa 18-27 January).
2010 “35th Conference of the Middle European Cooperation in Statistical Physics” (Abbaye des Pr´omontr´es, Pont-`a-Mousson, France 15-19 March). Poster on publication (16), (18), and (20).
2010 “Statphys24” (Cairns, Australia 19-23 July). Oral presentation on publication (17).
2010 Invited talk at the University of Extremadura in Badajoz on publications (16), (18), (20), (21), and (24).
2011 “22st Chris Engelbrecht Summer School in Theoretical Physics” (Stellenbosch, South Africa 19-30 January).

2011 “Equilibration and Equilibrium 2nd Stellenbosch Workshop on Statistical Physics” (Stellenbosch,
South Africa 7-18 March). Invited talk on publication (24).
2011 “Workshop on Frontiers in Ultracold Fermi Gases” (Trieste, ICTP, Italy 6-10 June). Poster on publications (33) and (39).
2011 “8th Liquid Matter Conference” (Vienna, Austria, 6-10 September). Poster on publications
(23) and (24).
2011 “National Institute for Theoretical Physics of South Africa (NITheP)” (Stellenbosch, South Africa, 21 Sptember). Invited talk on publication (23).
2011 “InternationalWorkshop on UltracoldMolecules” (Stellenbosch, South Africa, 7-11 November).
2012 “XCVIII Congresso Nazionale SIF” (Napoli, Italy, 17-21 September). Abstract on publication
(30).
2013 “38st Conference of the Middle European Cooperation in Statistical Physics” (Trieste, Italy, 25-27 March). Poster on publications (34) and (39).
2013 “Italian National Conference on Condensed Matter Physics” (Milano, Italy, 9-13 September).
Invited talk on publication (41).
2013 “XCIX Congresso Nazionale SIF” (Trieste, Italy, 23-27 September). Abstract on Publication
(36) and (40).
2013 Invited talk at the University of Extremadura in Badajoz on publications (41).
2014 “Sigma-Phi-2014” (Rhodes, Greece, 7-11 July). Talk on publication (43) and (44).
2015 “Italian National Conference on Condensed Matter Physics (FisMat 2015)” (Palermo, Italy, 28 September-2 October). Invited talk on publication (46).
2017 Invited talk at the University of Extremadura in Badajoz on publications ....
2017 “Workshop on Understanding Quantum Phenomena with Path Integrals: From Chemical Systems to Quantum fluids and Solids — (smr 3131)” (Trieste, ICTP, 3-7 July).
Partecipant.
2017 “10th Liquid Matter Conference” (Ljubljana, Slovenia, 17-21 July). Poster on publications (55)
2017 “Italian National Conference on Condensed Matter Physics (FisMat 2017)” (Trieste, Italy, 1-5 October). Invited talk on publication (55)
2018 “6th World Congress and Expo on Nanotechnology and Material Science” (Valencia, Spain, 16-18 April). Invited Talk on publication (59)

TEACHING:

1995/2000 Teaching Assistant in the Physics department at the University of Illinois at Urbana-Champaign (Electricity and Magnetism I and II, Biomolecular Physics, Waves in Physics, Thermal Physics and Fluids, Classical Mechanics, Electricity, Magnetism, and Optics, Waves and Quantum mechanics/Thermal Physics and Fluids).
2004/2006 Teaching at University Ca’ Foscari of Venice (Mathematical Methods for Science and Technlogy of Materials, Analysis II).
2008/2009 Teaching at University of Trieste (General Physics I fo Industrial Engineering).
2012/2013 Teaching Assistant at University of Trieste (Laboratory of Optics).
2013/2014 Teaching Assistant at University of Trieste (Laboratory of Calculus).
2015/2017 Teaching in Italian High-School.
2018/ Teaching at Istituto Tecnico Nautico “Tomaso di Savoia” (https://www.nauticogalvani.edu.it/) as a confirmed mathematics professor.

POSITIONS HELD:

1996 summer: Research Assistant in the Physics department at the University of Illinois at Urbana-Champaign. Coordinators David Ceperley and Richard Martin.
1997 summer: Research Assistant in the Physics department at the University of Illinois at Urbana-Champaign. Coordinators David Ceperley and Richard Martin.
1997 fall: Research Assistant in the Physics department at the University of Illinois at Urbana-Champaign. Coordinators David Ceperley and Richard Martin.
2000 Won a Ph.D. position (BAT-O IIa/2) at the Max-Planck-Institute f¨ur Plasmaphysik, Teilinstitut Greifswald, Bereich Stellaratortheorie at the 5th of January 2000 which I declined.
2000 Research Assistant (1 year) at the Department of Mathematics and Statistics, University of Limerick, Ireland in the group of S. B. G. O’Brien.

2003 January, Visiting Scientist at the University of Paris-Sud at Orsay. Scientific collaboration
with the research group of Prof. Bernard Jancovici.
2004 April 15th, “Assegno di ricerca” (Postdoctoral Fellowship 24 months) at the Department of Chemical Physics, University “Ca’ Foscari” of Venice. Title of the project: “Analysis of proteins in solutions using statistical thermodynamic techniques”. Project PRINCOFIN2003025755-
044. National coordinator Prof. Amos Maritan. Local coordinator
Prof. Achille Giacometti.

2006 March 17th, “Assegno di ricerca” (Postdoctoral Fellowship 24 months) at the Department
of Chemical Physics, University “Ca’ Foscari” of Venice. Title of the project: “Colloidal mixtures, globular proteins and liquid crystal-like phases of biopolymers”. Project PRINCOFIN2005027330.
National coordinator Prof. Amos Maritan. Local coordinator Prof.
Achille Giacometti.
2009 October 15th, Postdoctoral Fellowship (36 months) at the National Institute of Theoretical
Physics (NITheP), Stellenbosch Institute for Advanced Study, Matieland 7602, South Africa.
2010 October 10th, Visiting scientist (three months) at the University of Extremadura in Badajoz, Spain. Scientific collaboration with the research group of Prof. Andr´es Santos.
2012 January 1st, Guest (three years) at S.I.S.S.A., via Bonomea 265, 34136 Trieste, Italy.
2012 January 1st, Honorary Fellow at the Department of Molecular Science and Nanosystems,
University “Ca’ Foscari” of Venice, Calle Larga S. Marta DD2137, I-30123 Venezia, Italy.
2015 July 17th: Habilitation to teach Mathematics and Physics (classes A049, A048, A047, A038) in Italian high-school obtained at the University of Trieste with mark 87/100. One year course with exams. “Abilitazione all’ insegnamento nella scuola secondaria per la classe A049 Matematica e Fisica con punteggio 87/100”.
2016 August 24th: Passed a “Concorso per l’ assunzione in ruolo nell’ insegnamento di Matematica
(classe A026) nella scuola secondaria di secondo grado con punteggio 72.2/100”.
2017 September 1st: “Contratto a tempo indeterminato per l’ insegnamento di Matematica nella scuola secondaria di secondo grado (confirmed on 1st September 2019)”.
2019 May 10th: Habilitation for Associate Professor in Theoretical Physics of Matter (sector 02/B2) in the Italian University.

PARTICIPATION TO NATIONAL AND INTERNATIONAL RESEARCH GROUPS:

1995-2000 Research Assistant in the Physics Department at the University of Illinois at Urbana-
Champaign, USA. Coordinators: Prof. David Ceperley and Prof. Richard Martin.
2000-2001 Research group of Prof. S. B. G. O’Brien at the Department of Mathematics and Statistics,
University of Limerick, Ireland.
2001-2004 Research group of Prof. Giorgio Pastore at the Theoretical Physics Department of the
University of Trieste, Italy.
2003 Research group of Prof. Bernard Jancovici at the Laboratory of Theoretical Physics of the University of Paris-Sud at Orsay, France.
Dr. Riccardo Fantoni August 5, 2016
2004-2006 Title of the project: “Analysis of proteins in solutions using statistical thermodynamic
techniques”. Project PRIN-COFIN2003025755-044. University “Ca’ Foscari” of Venice, Italy. National coordinator Prof. Amos Maritan. Local coordinator Prof. Achille Giacometti.
2006-2008 Title of the project: “Colloidal mixtures, globular proteins and liquid crystal-like phases
of biopolymers”. Project PRIN-COFIN2005027330. University “Ca’ Foscari” of Venice, Italy. National coordinator Prof. Amos Maritan. Local coordinator Prof. Achille Giacometti.
2009 Research group of Prof. Michael Kastner at the National Institute of Theoretical Physics of the University of Stellenbosch, South Africa.
2009-2011 Research group of Prof. K. K. M¨uller-Nedebock in the Physics Department at the University
of Stellenbosch, South Africa.

2010 Research group of Prof. Andr´es Santos in the Physics Department at the University of Extremadura in Badajoz, Spain.
2011 Research group of Prof. Bert Klumperman in the Polymer Physics Department at the University of Stellenbosch, South Africa.
2013 Research group of Prof. Andr´es Santos in the Physics Department at the University of Extremadura in Badajoz, Spain.
2014 Research group of Prof. Saverio Moroni in Scuola Internazionale Superiore di Studi Avanzati
(SISSA), Italy.
2014 Research group of Prof. Angel Alastuey in the “Laboratoire de Physique ENS de Lyon”, France.
2017 Research group of Prof. Andr´es Santos in the Physics Department at the University of Extremadura in Badajoz, Spain.

SHORT VISITS AND SCIENTIFIC COLLABORATIONS:

1995-2000 Collaboration in the Physics Department at the University of Illinois at Urbana-Champaign, USA with the research group of Prof. David Ceperley and Prof. Richard Martin.
2000-2001 Collaboration with the Research group of Prof. S. B. G. O’Brien at the Department of Mathematics and Statistics, University of Limerick, Ireland.
2001-2004 Collaboration with the research group of Prof. Giorgio Pastore at the Theoretical Physics Department of the University of Trieste, Italy.
2003 January: Visiting Scientist (1 month) at the University of Paris-Sud at Orsay. Scientific collaboration with the research group of Prof. Bernard Jancovici at the Laboratory of Theoretical Physics of the University of Paris-Sud at Orsay, France.
2004-2006 Title of the project: “Analysis of proteins in solutions using statistical thermodynamic
techniques”. Project PRIN-COFIN2003025755-044. University “Ca’ Foscari” of Venice, Italy. National coordinator Prof. Amos Maritan. Local coordinator Prof. Achille Giacometti.
2006-2008 Title of the project: “Colloidal mixtures, globular proteins and liquid crystal-like phases of biopolymers”. Project PRIN-COFIN2005027330. University “Ca’ Foscari” of Venice, Italy. National coordinator Prof. Amos Maritan. Local coordinator Prof. Achille Giacometti.
2009 Research group of Prof. Michael Kastner at the National Institute of Theoretical Physics of the University of Stellenbosch, South Africa.
2009-2011 Research group of Prof. K. K. M¨uller-Nedebock in the Physics Department at the University of Stellenbosch, South Africa.
2010 October 10th: Visiting scientist (three months) at the University of Extremadura in Badajoz, Spain. Scientific collaboration with the research group of Prof. Andr´es Santos in the Physics Department at the University of Extremadura in Badajoz, Spain.
2011 Research group of Prof. Bert Klumperman in the Polymer Physics Department at the University of Stellenbosch, South Africa.
2013 October 20th: Visiting Scientist (one month) at the University of Extremadura in Badajoz, Spain. Scientific collaboration with the research group of Prof. Andr´es Santos in the Physics Department at the University of Extremadura in Badajoz, Spain.
2014 Research group of Prof. Saverio Moroni in Scuola Internazionale Superiore di Studi Avanzati (SISSA), Italy.
2014 June 15th: Visiting Scientist (one week) at the “Laboratoire de Physique ENS de Lyon”, France. Scientific collaboration with the research group of Prof. Angel Alastuey.
2017 January 8th: Visiting Scientist (two months) at the University of Extremadura in Badajoz, Spain. Scientific collaboration with the research group of Prof. Andr´es Santos in the Physics Department at the University of Extremadura in Badajoz, Spain.
2018 March 26th: Visiting Scientist (one week) at the “Laboratoire de Physique ENS de Lyon”, France. Scientific collaboration with the research group of Prof. Angel Alastuey.

SUPERVISION OF STUDENTS:

• 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.
• Cosupervision of the Ph.D. thesis of Miguel A. G. Maestre in the physics department of the University of Extremadura in Spain. Supervisor: Prof. Andr´es Santos.

SCIENTIFIC SOFTWARE AVAILABLE TO THE INTERNATIONAL SCIENTIFIC COMMUNITTY:

• Development of a Mathematica notebook which evaluates the radial distribution functions for binary mixtures of nonadditive hard spheres, according to the method described in R. Fantoni and A. Santos, “Nonadditive hard-sphere fluid mixtures. A simple analytical theory”, Phys. Rev. E 84, 041201 (2011).
• Development of a Gibbs Ensemble Monte Carlo algorithm to determine the phase properties of a ionic fluid of non-additive hard spheres, according to the method described in R. Fantoni and G. Pastore “Monte Carlo simulation of the nonadditive restricted primitive model of ionic fluids: Phase diagram and clustering”, Phys. Rev. E 87, 052303 (2013).
• Development of a new Quantum Monte Carlo algorithm to determine the phase properties of a quantum fluid of bosons, according to the method described in R. Fantoni and S. Moroni, “Quantum Gibbs ensemble Monte Carlo”, J. Chem. Phys. 141, 114110 (2014).

OTHER ACTIVITIES:

• reviewer for the American Mathematical Society (AMS), the American Physical Society (APS), the American Institute of Physics (AIP), the Institute of Physics (IOP), the Royal Society of Chemistry (RSC)
• member of SAIP, SIF, EPS
• ranked C3 by the National Research Foundation of South Africa (Division of Research Development) in 2011
• Responsibility in projects of supercomputing: Use of the facilities of NCSA at Urbana-Champaign, Illinois, U.S.A. (1995-2000); Use of the facilities of CHPC at Cape Town, South Africa (2010-2012); Use of the facilities of CINECA at Bologna, Italy (2011-present).