

Prof. Roberto Tateo,
Dipartimento di Fisica,
Via P. Giuria 1, 10125, Torino

CURRENT ACADEMIC POSITION: Full Professor

EDUCATION:

1990-1993: Torino Univ. , PhD in Physics (First in the PhD selection)

1985-1990: Torino Univ., Degree in Physics (110/110 cum laude)

WORK EXPERIENCE:

Since 2002: Researcher/Associate Professor, Physics Dept., Torino;

2001-2003: EPSRC Advanced Fellow, Maths Dept., Durham, UK;

2000-2001: EPSRC Visiting Professor, Maths Dept., Durham, UK;

1998-2000: Post-doc, FOM Fellowship, Physics Dept., University of Amsterdam, NL;

1997-1998: Post-doc, TMR Fellowship, Service de Physique Theorique, CEA, Saclay, France;

1994-1997: Post-doc, Maths Dept. , Durham, UK;

AWARDS AND PRIZES:

2000: EPSRC Visiting Professor Fellowship;

2001: 5 year EPSRC Advanced Fellowship;

2001: EPSRC Fellowship Support Funds;

2011: Best Paper Prize, Journal of Physics A;

"[Spectral equivalences, Bethe ansatz equations, and reality properties in PT-symmetric quantum mechanics](#)", P. Dorey, C. Dunning, R.Tateo, 2001 *J. Phys. A: Math. Gen.* **34** 5679

2017: Two articles among the "Most influential papers from Journal of Physics A, The 50th anniversary of the Journal of Physics series",

(<http://iopscience.iop.org/journal/1751-8121/page/JPhys50-viewpoints>):

A) "[Spectral equivalences, Bethe ansatz equations, and reality properties in PT-symmetric quantum mechanics](#)", P.

Dorey, C. Dunning, R.Tateo, 2001 *J. Phys. A: Math. Gen.* **34** 5679 ([View point by Carl M. Bender](#))

B) "[Thermodynamic Bethe ansatz for planar AdS/CFT: a proposal](#)",

D. Bombardelli, D.Fioravanti, R.Tateo, 2009 *J. Phys. A: Math. Theor.* **42** 375401([View point by Joseph A. Minahan](#))

PARTICIPATION TO RESEARCH AND TRAINING PROGRAMS:

1996-2000: TMR Network ERBCHRXCT920069,

"Integrability, non-perturbative effects, and symmetry in quantum field theory".

2002-2006: FP5 Network EUCLID, HPRN-CT-2002-00325,

"Integrable models and applications: from strings to condensed matter".

2005-2007: NATO grant PST.CLG.98042

2002-2007: Iniziativa specifica TO12

Since 2008: Iniziativa specifica PI11, FTECP, SFT

2009-2012: PRIN contract 2009KHZKRX-007

2013-2016: UniTo-SanPaolo research grant Nr TO-Call3-2012-0088,

"Modern Applications of String Theory (MAST)"

2013-2017: Local coordinator of the RAI /Physics Dept. research agreement

Since 2018: Co-Chair of the GATIS+ Network (<https://gatisplus.desy.de/scientists/>)

PEER REVIEWING:

Nuclear Physics B, Physics Letters A and B, Journal of Physics A, SIGMA Journal of High Energy Physics, Journal of Statistical Mechanics, Physical Review D, Physical Review Letters, Communications in Mathematical Physics.

ORGANIZATION ACTIVITY:

09/2002 (Conference): "Third Meeting of the North British Mathematical Physics Seminar", Durham, UK

06/2004 (Conference): "New Frontiers in Quantum Mechanics", Shizuoka, JP

09/2004 (Conference): "CFT and Integrable Models", Bologna.

09/2006 (Conference): "5th Workshop on Pseudo Hermitian Hamiltonians in Quantum Physics", Bologna.

2005: Member of the committee for the establishment of the degree in Optics and Optometry (with Prof.s M.P. Busa and M. Serio), UniTo.

2005-2008: Member of the "Lagrange Prize" committee for high school students, UniTo.

Since 2007: Head of the committee for the assessment of didactics, Physics Dept., UniTo

2007-2012: Member of the committee for the assessment of didactics, Faculty of Sciences, UniTo.

2008-2017: Member of the committee for the assessment of didactics, Maths Dept., UniTo.

Since 2013: Member of the Faculty Board of the Doctoral School in Physics, UniTo

2016: Member of the admission committee “Scuola di Studi Superiori Fernando Rossi”, UniTo
2015-2017: Head of the committee for the assessment of didactics, Natural Sciences, UniTo.
Since 2017: Member of “Commissione Spazi”, Physics Dept., UniTo.
Since 2017: Board member of “Commissione Didattica Paritetica (CDP)”, UniTo.
2017: Member of the admission committee “Scuola di Studi Superiori Fernando Rossi”, UniTo

THESIS PROJECTS AND POST-DOCS:

TFA and First level Laurea Thesis: 23;

Master Thesis: 19 (14 winners of PhD positions, 1 Best Thesis Prize, 2 A. Molinari Prizes).

PhD students: 5 (1 Italian-French University award for PhD mobility with ENS Paris).

Post-Docs: 5

RECENT TALKS (2010-2018):

28/2/- 5/3/2010: “Physics in the Plane: from condensed matter to strings”,

Place: Ecole de Physique des Houches, Les Houches, France,

Title: “AdS/CFT and the Thermodynamic Bethe Ansatz”.

28/5/- 5/5/2010: “Analytic and Algebraic Methods V”,

Place: Villa Lanna, Prague, Czech Republic

Title: “PT symmetry breaking and exceptional points”.

14-16/6/2010: “Developments in quantum integrable systems”,

Place: RIMS, Kyoto, Japan

Title 1: “The ODE/IM correspondence and its applications”,

Title 2: “Thermodynamic Bethe Ansatz and the AdS/CFT correspondence”.

28-2/7/2010: “Integrability in Gauge and String Theories 2010 (IGST10)”,

Place: Nordita, Stockholm, Sweden

Title: “TBA and functional relations for the AdS/CFT correspondence”.

25-28/9/2011: “PTQM 2011 symposium”,

Place: Heidelberg University, Germany

Title: “Bethe Ansatz and nonlinear wave equations”.

16-19/4/2012: “British Maths workshop 2012”,

Place: Kent University, UK

Title: “The Bethe Ansatz and the Bullough-Dodd equation”.

19-23/8/2013: “Integrability in Gauge and String Theories 2013”,

Place: Utrecht, NL

Title: “Nambu-Goto string and quark-anti-quark potential from TBA”.

2-6/7/2013: “Pseudo-Hermitian Hamiltonians in Quantum Physics”,

Place: Koc University, Istanbul, Turkey

Title: “Spectral singularities in perturbed conformal field theory”.

16-20/12/2013: “CFT and Integrability: in memory of Alexei Zamolodchikov”,

Place: Sogang University, Korea

Title: “The Nambu-Goto string spectrum and the TBA”.

15-18/9/2014: “CFT and Integrable Models”,

Place: Bologna, Italy

Title: “The Quantum Spectral Curve”.

13-15/5/2015: “Flux tubes”,

Place: Perimeter Institute for Theoretical Physics, Waterloo, Canada

Title: “Quark-anti-quark potential and the TBA”.

3/8-14/9/2015: “Hidden symmetries and integrability methods in super Yang-Mills theories and their dual string theories”,

Place: CRM, Montreal, Canada

Title: “The Quantum Spectral Curve of the ABJM model”.

9/10-10/10/2015: “Mini-conference on Statistical Physics”,
Place: SISSA, Trieste, Italy,
Title: “A new approach to the finite temperature Hubbard model”.

22/9/2016: Maths Department, King’s College London, London, UK
Title: “Non-Wilsonian RG flows and the TbarT perturbation of 2D quantum field theories”.

17/7-21/7/2017: “Integrability in gauge theory”,
Place: Ecole Normale Supérieure, Paris, France
Title: “CDD ambiguity and irrelevant deformations of 2D QFT”.

25/7-4/8/2017: “Exact methods in low dimensional statistical physics”,
Place: Cargèse, France
Title: “TbarT perturbation of 2D QFTs”.

29/9-30/9/2017: “Mini-conference on Statistical Physics”,
Place: SISSA, Trieste, Italy
Title: “TbarT perturbation of 2D Quantum Field Theories”.

20/9/2018:
Place: ENS, Lyon, France
Title: “TbarT -deformed classical and quantum field theories in two dimensions”.

31/10/2018:
Place: ETH, Zurich, Switzerland
Title: “TbarT -deformed classical and quantum field theories in two dimensions”.

07/11/2018:
Event: “Joint ICTP/SISSA seminar”,
Place: SISSA, Trieste, Italy
Title: “TbarT-deformed classical and quantum field theories”.

LECTURES AT SCHOOLS AND WORKSHOPS:

11/1999: 4 Lectures,
Title: “Integrable models and Thermodynamic Bethe Ansatz”,
Place: APCTP, Seoul, Korea

12/2000: 3 Lectures,
Title: “The ODE/IM correspondence”,
Place: SISSA, Trieste, Italy

06/2003: 2 Lectures,
Title: “The thermodynamic Bethe Ansatz”,
Conference: TMR school on Integrable Models,
Place: Budapest, Hungary

05/2005: 4 Lectures,
Title: “Differential equations and Integrable models”,
Conference: EU network EUCLID, Spring School “New Paths in Theoretical Physics”,
Place: SISSA, Trieste, Italy

07/2007: 2 Lectures,
Title: “The ODE/IM correspondence”,
Conference: Workshop on the Geometric Langlands Program,
Place: Desy, Hamburg, Germany

01/2008: 2 Lectures,
Title: “Orientation course on PT-Symmetric quantum mechanics”,
Conference: Homi Bhabha Centenary Conference on “Non-Hermitian Hamiltonians in Quantum Physics”,
Place: Mumbai, India

07/2014: 3 Lectures,

Title: “Novel approaches to finite-size effects in integrable models”,

Conference: Summer School on Quantum Groups and Integrability –Algebraic, Analytic and Geometric Aspects,

Place: Desy, Hamburg, Germany

02/2017: 3 Lectures,

Title: “ODE/IM correspondence”,

Conference: Young Researchers Integrability School and Workshop 2017,

Place: Dublin, Ireland

RESEARCH TOPICS:

Conformal field theory, Exact S-matrix theory, Integrable quantum field theories with and without boundaries, Integrable lattice models, Thermodynamic Bethe Ansatz, The correspondence between Ordinary Differential Equations and Integrable Models, Integrability and the AdS/CFT correspondence, Functional relations and Cluster Algebra, Effective Field Theories.

BOOK:

Title: “PT-symmetric Quantum Mechanics”,

Authors: C. M. Bender et al.

Year: 2018

Publisher: World Scientific Publishing

PUBLICATIONS (Since 2008):

- 1) P. Dorey, C. Dunning, F. Gliozzi, R. Tateo, “On the ODE/IM correspondence for minimal models”, J. Phys. A41:132001, 2008;
- 2) D. Bombardelli, D. Fioravanti, R. Tateo, “Thermodynamic Bethe Ansatz for planar AdS/CFT: a proposal”, J. Phys. A42, 375401 (2009);
- 3) P. Dorey, C. Dunning, A. Lishman, R. Tateo, “PT symmetry breaking and exceptional points for a class of inhomogeneous complex potentials”, J. Phys. A42, 465302 (2009);
- 4) P. Dorey, C. Rim, R. Tateo, “Exact g-function flow between conformal field theories”, Nucl. Phys. B834:485- 501 (2010);
- 5) D. Bombardelli, D. Fioravanti, R. Tateo, “TBA and Y-system for planar AdS(4) /CFT(3)”, Nucl. Phys. B834:543-561 (2010);
- 6) A. Cavaglià, D. Fioravanti, R. Tateo, “Extended Y-system for the AdS(5) /CFT(4) correspondence”, Nucl. Phys. B843: 302 (2011);
- 7) T. Nakanishi, R. Tateo, “Dilogarithm identities for sine-Gordon and reduced sine-Gordon Y-systems”, SIGMA 6: 085 (2010);
- 8) P. Dorey, R. Tateo, R. Wilbourne, “Exact g-function flows from the staircase model”, Nucl. Phys. B843: 724 (2011);
- 9) P. Dorey, C. Dunning, R. Tateo, “Quasi-exact solvability, resonances and trivial monodromy in ordinary differential equations”, J. Phys. A45 , 444013 (2012);
- 10) P. Dorey, S. Faldella, S. Negro, R. Tateo, “The Bethe Ansatz and the Tzitzéica-Bullough-Dodd equation”, Phil. Trans. A371 (2013) 23;
- 11) M. Caselle, D. Fioravanti, F. Gliozzi, R. Tateo, “Quantisation of the effective string with TBA”, JHEP 1307, 071 (2013);
- 12) A. Cavaglià, D. Fioravanti, R. Tateo, “Discontinuity relations for the AdS(4) /CFT(3) correspondence”, Nucl. Phys. B 877, 852 (2013);
- 13) A. Fabbri, D. Fioravanti, S. Piscaglia, R. Tateo, “Exact results for the low energy AdS(4) x CP(3) string theory”, JHEP 1311, 073 (2013);
- 14) A. Cavaglià, D. Fioravanti, N. Gromov, R. Tateo, “The Quantum Spectral Curve of the ABJM theory”, Phys. Rev. Lett. 113 (2014) no.2, 021601.
- 15) A. Cavaglià, M. Cornagliotto, M. Mattelliano, R. Tateo, “A Riemann-Hilbert formulation for the finite temperature Hubbard model”, JHEP 1506 (2015) 015;
- 16) L. Anselmetti, D. Bombardelli, A. Cavaglià, R. Tateo, “12 loops and triple wrapping in ABJM theory from integrability”, JHEP 1510 (2015) 117;
- 17) A. Cavaglià, S. Negro, I. Szécsényi, R. Tateo, “TbarT-deformed 2D Quantum Field Theories”, JHEP 1610, 112 (2016);
- 18) D. Bombardelli, A. Cavaglià, D. Fioravanti, N. Gromov, R. Tateo, “The full Quantum Spectral Curve for AdS(4)/CFT(3)”, JHEP 1709, 140 (2017);
- 19) D. Bombardelli, A. Cavaglià, R. Conti, R. Tateo, “Exploring the spectrum of planar AdS(4)/CFT(3)”, JHEP 1804 (2018) 117;
- 20) R. Conti, L. Iannella, S. Negro, R. Tateo, “Generalised Born-Infeld models, Lax operators and the TbarT perturbation”, JHEP 1811 (2018) 007;

21) R. Conti, S. Negro, R. Tateo, "The TbarT perturbation and its geometric interpretation", JHEP 02 (2019) 085