

Pierluigi Falco

Postdoctoral member
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Personal Data

born in Taranto, Italy, in 1977. Italian nationality.

Research Interests: Mathematical Physics. In particular:

1. second order phase transitions in lattice models;
2. Quantum Field Theory;
3. statistical aspects of dynamical systems in connection with Nonequilibrium Statistical Mechanics.

Education

- 2 Mar 2006** PhD in Mathematics - Università “La Sapienza”.
Rome Thesis title: “Rigorous construction of the Thirring model: Ward-Takahashi identities, Schwinger-Dyson equations and new Anomalies”.
Supervisors: G.Benfatto and V.Mastropietro.
- 17 Jul 2001** Degree in Physics - Università “La Sapienza”.
Rome Thesis title: ”Studio della misura di Sinai, Bowen e Ruelle in sistemi semplici“.
Final mark: 110/110 *cum laude*
Supervisors: F.Bonetto and G.Gallavotti.

Postdoctoral Positions

- Sep 2009 - Jul 2011** Postdoctoral member
Princeton. School of Mathematics, Institute for Advanced Study.
- Aug 2007 - Aug 2009** Postdoctoral fellow
Vancouver. Mathematics Department, University of British Columbia.

Short Term Positions

- 1 Mar - 30 Apr 2007** Junior research fellow,
Vienna Erwin Schrodinger Institute.
- 5 Jun - 4 Aug 2006** Junior research fellow,
Vienna Erwin Schrodinger Institute.
- 1 Jun - 31 Jul 2006** Research fellow
Rome Dipartimento di Matematica, Università “Tor Vergata”.

Short Visits

- 9 Mar - 12 Mar 2011** Department of Mathematics.
Coventry University of Warwick.
- 23 Mar - 26 Mar 2010** Department of Mathematics.
Ann Arbor University of Michigan.
- 8 Nov - 20 Nov 2009** Department of Mathematics.
Charlottesville University of Virginia.
- 20 Apr - 30 Apr 2009** School of Mathematics
Princeton Institute for Advanced Study.
- 12 Jan - 28 Feb 2006** School of Mathematics
Atlanta Georgia Institute of Technology.
- 11 Dec - 23 Dec 2003** Department of Mathematics
New Brunswick Rutgers University.
- 1 Oct - 10 Dec 2003** School of Mathematics
Atlanta Georgia Institute of Technology.

Scientific Articles

- submitted**
- 1 *G.Benfatto, P.Falco and V.Mastropietro*:
“Universal Luttinger Liquid Relations in the 1D Hubbard Model”
arXiv 1106.0356.
 - 2 *P.Falco*:
“Kosterlitz-Thouless Transition Line for the Two Dimensional Coulomb Gas”
arXiv 1104.1974.
- published papers**
- 1 *P.Falco*:
“Vector and Axial anomaly in the Thirring-Wess model”
J.Math.Phys **51** 082306 (2010).
 - 2 *G.Benfatto, P.Falco and V.Mastropietro*:
“Universal formulas for non-solvable statistical models”
Phys.Rev.Lett. **104** 075701 (2010).
 - 3 *G.Benfatto, P.Falco and V.Mastropietro*:
“Extended scaling relations for planar lattice models”
Comm.Math.Phys. **292** 569-605 (2009).
 - 4 *G.Benfatto, P.Falco and V.Mastropietro*:
“Massless Sine-Gordon and Massive Thirring Models: proof of the Coleman’s equivalence.”
Comm.Math.Phys. **285** 713-762 (2009).
 - 5 *P.Falco and V.Mastropietro*:
“Renormalization Group and Asymptotic Spin-Charge separation for Chiral Luttinger liquids.”
J.Stat.Phys. **131** 79-116 (2008) .
 - 6 *A. Amaricci, F. Bonetto and P.Falco*:
“Analyticity of the Sinai-Ruelle-Bowen measure for a class of simple Anosov flows”.
J.Math.Phys **48** 072701 (2007).
 - 7 *G.Benfatto, P.Falco and V.Mastropietro*:
“Functional integral construction of the Massive Thirring model: verification of the axioms and massless limit”.
Comm.Math.Phys. **273** 67-118 (2007).
 - 8 *F.Bonetto, P.Falco and A.Giuliani*:
“Analyticity of the SRB measure of a lattice of coupled Anosov diffeomorphism of the torus”.
J.Math.Phys. **45** 3282-3309 (2004).

Seminars

(*): invited speaker in conferences

- 29 May 2011** *Banff*. BIRS. Workshop: “Gradient Random Field”. (*)
- 20 Apr 2011** *Princeton*. School of Mathematics, Institute for Advanced Study.
- 16 Mar 2011** *Oberwolfach*. MFO. Workshop: “The Renormalization Group”. (*)
- 10 Mar 2011** *Coventry*. Department of Mathematics, University of Warwick.
- 21 Sept 2010** *Princeton*. School of Mathematics, Institute for Advanced Study.
- 25 Mar 2010** *Ann Arbor*. Department of Mathematics, University of Michigan.
- 12 Feb 2010** *New York*. Courant Institute of Mathematical Sciences, New York University.
- 18 Nov 2009** *Charlottesville*. Department of Mathematics, University of Virginia.
- 11 Nov 2009** *Charlottesville*. Department of Mathematics, University of Virginia,
- 24 Sept 2009** *Princeton*. School of Mathematics, Institute for Advanced Study.
- 30 Apr 2009** *Princeton*. School of Mathematics, Institute for Advanced Study.
- 6 Dec 2008** *Ottawa*. Canadian Mathematical Society - 2008 Winter Meeting. (*)
- 1 Oct 2008** *Vancouver*. Department of Mathematics, University of British Columbia.
- 9 Jun 2008** *Rome*. Università “Tor Vergata” - Workshop “Matematica e teoria dei campi”. (*)
- 14 Nov 2007** *Vancouver*. Department of Mathematics, University of British Columbia.
- 31 Oct 2007** *Vancouver*. Department of Mathematics, University of British Columbia.
- 22 Mar 2007** *Vienna*. Erwin Schrodinger Institute.
- 17 Feb 2006** *Atlanta* School of Mathematics, Georgia Institute of Technology.
- 14 Dec 2004** *Rome* Dipartimento di Matematica, Università di Roma 3.

Teaching Experiences

- 2008-09 I-term** “Multivariable Calculus”.
Vancouver University of British Columbia.
- 2007-08 II-term** “Introduction to Stochastic Processes”.
Vancouver University of British Columbia. .
- 2006-07 I-term** “Preliminary course of Mathematics”.
Rome Università “La Sapienza”.
- 2005-06 II-term** Assistance for the course of ”Meccanica Razionale”
Rome Università “La Sapienza”.
- 2005-06 II-term** Assistance for the course of ”Calcolo integrale”
Rome Università “La Sapienza”.
- 2004-05 I-term** ”Preliminary course in Mathematics”,
Rome Università “La Sapienza”.
- 2003-04 II-term** Assistance for the course ”Equazioni differenziali e Meccanica”
Rome Università di Roma 3.