

Curriculum Vitae - Gianluca RASTELLI

Personal and Contact Data

First Name : Gianluca
Last Name : Rastelli
Date of birth : 16th August 1976
Place of birth : Ortona (Italie)



Laboratory : Laboratoire de Physique et Modélisation des Milieux Condensés (LPMMC)
Université Joseph Fourier & CNRS Grenoble
Address : 25 Avenue des Martyrs, CNRS, BP166, 38042 Grenoble Cedex, France
Phone : +33 (0)4 76 88 79 82
E-mail : gianluca.rastelli@grenoble.cnrs.fr
Home-page : <http://lpm2c.grenoble.cnrs.fr/gianluca.rastelli>

Research Activity

Condensed Matter Theory

Interests: Mesoscopic Physics, Quantum Many Body Systems, Phase Transitions and Critical Phenomena

Work Experiences

since Sep. 2007, Post-doc, LPMMC, CNRS, Grenoble, France

[mesoscopic superconductivity, quantum transport in nanoscale systems, interactions in mesoscopic systems, quantum dissipative dynamics, NanoElectroMechanical systems, superconductor/insulator transition] *collaborations*: F.W.J. Hekking, F. Pistolesi

2006 - June 2007, Post-docs

- grant “Angelo Della Riccia” (ex-LEPES, now Institut Néel) CNRS, Grenoble, France
[Coulomb interaction in 1D electronic lattice, excitons, polarons, transport in organic semiconductors] *collaborations* : S. Fratini

- Institute for Complex Systems, CNR, Rome, Italy
[phonons, anharmonic effects, premelting, Helium quantum solids, superfluid transition at grains-boundary, overheating] *collaborations* : L. Pietronero, E. Capellutti

20th February 2006, Ph.D. Degree in Physics (excellent), University of L’Aquila

[Wigner Crystals, electronic interactions, electron-phonon interaction, polarons]
thesis: “Wigner crystallization in anisotropic and polarizable systems”

advisor : S. Ciuchi

Theoretical Methods: Path Integral, variational methods and self-consistent equations (numerical calculation), Keldysh Diagram techniques

Education

2002 - 2004 PhD, University of L'Aquila, Italy

2002 March "*Laurea in fisica 110/110*" (*cum laude*), University of L'Aquila, Italy
(Master's degree in Physics)

Teaching Experiences

1) winter term 2011/2012

Undergraduate Teaching (50 hours), first degree in Engineering

Joseph Fourier University, Grenoble (France)

Lectures+Problem classes+Laboratory, (*General Physics: Mechanics and Fluids*)

2) winter term 2010/2011

Undergraduate Teaching (45 hours), first degree in Maths

Joseph Fourier University, Grenoble (France)

Lectures+Problem classes+Laboratory, (*General Physics: Mechanics and Fluids*)

3) summer term 2004/2005

Master of Physics (26 hours), second degree in Physics

University of L'Aquila (Italy), Lectures (*Statical Mechanics*)

4) winter term 2005/2006

Undergraduate Teaching (20 hours), first degree in Biotechnology

University of L'Aquila (Italy), Problem classes (*Mechanics and Thermodynamics*)

Skills

Languages

Italian : mother tongue

English : fluent

French : fluent

Computer

Programming language : Fortran 77

Operating systems : VMS, DOS, WINDOWS, Unix, Linux

General applications : MS Office, OpenOffice, Latex

Graphical applications : Xfig, Gimp, G3data

Scientific applications : Gnuplot, Origin, Maple, Mathematica

Publications

1. **G. Rastelli**, M. Houzet, L. Glazman, F. Pistolesi
“*Interplay of magneto-elastic and polaronic effects in electronic transport through suspended carbon-nanotube quantum dots*” (submitted to Comptes rendus de Physique)
2. **G. Rastelli**, I. M. Pop, W. Guichard, F. Hekking
“*Quantum phase-slips in Josephson junction chains: effects of finite size and propagating modes*” (arXiv :1201.0539, submitted to PRB)
3. **G. Rastelli**, E. Cappelluti
“*Mechanical lattice instability and thermodynamical properties in classical solids*”
Phys. Rev. B **84**, 184305 (2011)
4. **G. Rastelli**, M. Houzet, F. Pistolesi
“*Resonant magneto-conductance of a suspended carbon nanotube quantum dot*”
EuroPhysics Letters **89**, 57003 (2010)
5. S.Gaudio, E.Cappelluti, **G. Rastelli**, L.Pietronero
“*Finite-size Berezinskii-Kosterlitz-Thouless transition at grain boundaries in solid ^4He and the role of ^3He impurities*”
Phys. Rev. Lett. **101**, 075301 (2008), Phys. Rev. Lett. **104**, 049602 (2010)
6. E. Cappelluti, **G. Rastelli**, S. Gaudio, L. Pietronero
“*Surface instability and isotopic impurities in quantum solids*”
Phys. Rev. B **77**, 054301 (2008)
7. S. Fratini, **G. Rastelli**
“*Optical and spectral properties of quantum domain-walls in the generalized Wigner lattice*”
Phys. Rev. B **75**, 195103 (2007)
8. I. N. Hulea, S. Fratini, H. Xie, C. L. Mulder, N. N. Iossad, **G. Rastelli**, S. Ciuchi, A. F. Morpurgo
“*Tunable Frohlich Polarons in Organic Single-Crystal Transistors*”
Nature Materials **5**, 982 (2006)
9. **G. Rastelli**, P. Quémerais, S. Fratini
“*Enhancement of Wigner crystallization in quasi-low-dimensional solids*”
Phys. Rev. B **73**, 155103 (2006)
10. **G. Rastelli**, S. Ciuchi
“*Wigner crystallization in a polarizable medium*”
Phys. Rev. B **71**, 184303 (2005)
11. **G. Rastelli**, S. Fratini, P. Quémerais
“*On the stability of hole crystals in layered cuprates*”
Eur. Phys. J. B **42**, 305 (2004)

Proceedings

- S. Ciuchi, S. Fratini, **G. Rastelli**, A. F. Morpurgo,
II Workshop di Ateneo sulle Nanotecnologie, L'Aquila, Italie (2008)
- **G. Rastelli**, S.Fratini, proceedings J. Phys. IV France **131**, 277 (2005)

Invited Talks

22 nd November	2011	Institut Néel (CNRS), Nanosciences foundation-Grenoble, France
12 th April	2011	Institut de Physique et Chimie de Matériaux de Strasbourg (IPCMS) CNRS-Strasbourg, France
8 th -9 th April	2010	“Quantum Transport in NanoElectroMechanical Systems” Workshop-Bordeaux, France
4 th February	2009	Max Planck Institute, Festkörperforschung, Stuttgart, Germany
27 th January	2009	Physikzentrum RWTH, University of Aachen, Germany
13 th November	2008	School of Physics and Astronomy, Univerisity of Nottingham United Kingdom
15 th March	2007	Center for Atomistic-scale Materials Design, DTU, Technical University of Denmark -Copenhagen, Denmark
7 th February	2007	Laboratoire de Physique et Modélisation des Milieux Condensés CNRS-Grenoble, France
23 rd November	2006	University of L’Aquila, Italy
27 th October	2006	Laboratoire Matériaux et Microélectronique de Provence CNRS-Marseille, France
19 th September	2006	SISSA, Trieste, Italy
20 th December	2005	CASTI Laboratory,INFN-CNR, L’Aquila, Italy
2 nd November	2005	Institute for Complex Systems, CNR-Rome, Italy

Contributions to Conferences and Workshops

2011 November	“Les défis actuels de la supraconductivité”, Séminaire Daniel Dautreppe French Physical Society (SFP), Grenoble (France) [seminar]
2011 September	“Superconducting Hybrids: from Conventional to Exotic” Villard de Lans (France) [poster]
2011 March	Conference “Rencontres de Moriond” on Quantum Mesoscopic Physics La Thuile (Italy) [poster]
2010 September	“Nano-Opto-Electro-Mechanical Systems Approaching the Quantum Regime” ICTP Abdus Salam, Trieste (Italy) [poster]
2010 April	Conference “Quantum Transport in NanoElectroMechanical Systems” Bordeaux (France) [invited seminar]
2009 October	Conference GDR - Physique Mésoscopique, CNRS-France, Aussois [poster]
2008 December	Conference GDR - Physique Mésoscopique, CNRS-France, Aussois [poster]
2008 June	School of Mesoscopic Physics, CNRS-France, Cargese [poster]
2005 August	“ECRYS: Workshop on Electronic Crystals” CNRS-France, Cargese [poster]
2005 June	CLXI International school “Enrico Fermi”, Italian Physical Society [poster]
2004 September	“Statistical Mechanics, Chaos and Condensed Matter Theory ” (memorial G. Palladin) Physics department of University “La Sapienza” Rome (Italie) [poster]
2004 July	“Novel States and Phase Transitions in Highly Correlated Matter” Workshop, ICTP Abdus Salam, Trieste (Italy) [poster]
2003 July	CLVI International school “Enrico Fermi”, Italian Physical Society Varenna (Italy) [poster]
2002 June	INFN-Meeting, Bari (Italy) [poster]
2002 March	Workshop “XXI Convegno di Fisica Teorica e Struttura della materia” INFN-University of Trento, Fai della Paganella, Italy

Grants and Awards

2006 *post-doc grant* offered by the Italian-Swiss foundation “Angelo Della Riccia”

2002 *award* for young scientific authors, INFM-Meeting, Bari, Italy

Referee : Physical Review B , Physical Review Letters

References

- Prof. Frank W. J. Hekking
Laboratoire de Physique et Modélisation des Milieux Condensés
Université Joseph Fourier - CNRS, Grenoble, France
phone +33 (0)476 887984, e-mail : frank.hekking@grenoble.cnrs.fr
- Prof. Sergio Ciuchi
University of L'Aquila, Italy,
phone +39 (0)862 433080, e-mail : Sergio.Ciuchi@aquila.infn.it
- Dr. Simone Fratini
Institute Néel, CNRS-Grenoble, France
phone +33 (0)476 881085, e-mail : simone.fratini@grenoble.cnrs.fr
- Dr. Fabio Pistolesi
Laboratoire Ondes et Matière d'Aquitaine - CNRS, Bordeaux, France
phone +33 (0)540 002508, e-mail : fabio.pistolesi@u-bordeaux1.fr