

CURRICULUM VITAE OF PIERBIAGIO PIERI

EDUCATION AND ACADEMIC CAREER

1988: Ranks in the top ten in the national competition for the "Physics Olympic Games" and in the top fifteen in the national competition for the "Mathematics Olympic Games".

1988: Ranks first ex-aequo in the national selection for the admission to the "Scuola Normale Superiore" of Pisa.

1993: "Laurea" in Physics at the "Scuola Normale Superiore" and University of Pisa, Italy.

1996: Ph.D in Physics at the University of Bologna, Italy. Advisor: Prof. [REDACTED].

1995-1999: Six-months visit at the Institute of Theoretical Physics, Fribourg (Switzerland).

1997-1999: Post-Doctoral Fellow at the Physics Dept. of the University of Camerino, with a grant by INFN (National Institute for the Physics of Matter).

1999– 2014: Assistant Professor (Ricercatore) at the Physics Dept. of the U. of Camerino, Italy (SSD: FIS/03).

2012: Visiting scientist (one month) at the EPFL of Lausanne, collaborating with Prof. [REDACTED].

2014 - 2020: Associate Professor at the U. of Camerino (SSD: FIS/02).

2020 - : Associate Professor at the U. of Bologna (SSD: FIS/02).

AWARDS

2016: "Outstanding Referee Award" by the American Physical Society

PUBLICATIONS AND BIBLIOMETRIC INDICATORS

More than 80 publications including: 3 Nature Physics, 2 Physics Reports, 14 Physical Review Letters, 23 Physical Review B (2 Rapid Comm.), 11 Physical Review A (5 Rapid Comm.), 2 New Journal of Physics, 1 Physics Letters B, 2 Physical Review E.

Author of a "Viewpoint" for "Physics" of APS ["Cooper pairs dance in a disk", Physics **8**, 53 (2015)].

Web of Science: 2640 citations; H-index: 28

Scopus: 2690 citations; H-index: 29

Google Scholar: 3800 citations; H-index: 34

PROJECT COORDINATION

2016-2019: PRIN (Unit coordinator) "Controlling Multi-band Quantum Materials by Orbital Manipulation", funding to the unit: 70 000 €.

We set up a theory for pairing fluctuations in two-band superconductors and in ultracold Fermi gases with an orbital Fano-Feshbach resonance. Highlights of the results: we have determined the optimal conditions for enhancing the critical temperature in a two-band superconductor.

2018-2020: Grant by a private company (6-Tour srl) for a collaboration on machine learning methods applied to big data sets. Funding: 80 000 €.

TALKS AND SEMINARS

33 talks at international conferences/workshops (26 invited), including invited talks at conferences organized at: Aspen Center for Physics, Colorado (USA), Jan. 2006; Niels Bohr Institute, Copenhagen, June 2008; EPFL, Lausanne, Feb. 2011; Institute of Nuclear Theory, Seattle, Apr. 2011; ITAMP, Harvard University, (USA), Apr. 2012; CECAM, Lausanne, Aug. 2012; ICTP, Trieste, Oct. 2014 and Nov. 2017, Tokyo Univ, 2018.

Invited seminars at: "Institut Laue Langevin", Grenoble; U. of Neuchatel; U. of Fribourg; U. of Innsbruck; U. of Utrecht; Max-Planck Institute for complex systems, Dresden; Institute H. Poincare, Paris; Bilkent University, Turkey; EPFL, Lausanne, Saarbrücken University, Germany.

CONFERENCE/WORKSHOP ORGANIZATION

2005: "ESF Exploratory workshop: New Phenomena in Superfluidity and Superconductivity", Camerino Jul. 4-5, funded by the "European Science Foundation" (organized with G.C. Strinati)
2005: International Conference "Recent Challenges in Novel Quantum Systems", Camerino, Jul. 6-8 (organized with A. Perali and D. Neilson)
2008: International Conference "Strongly Coupled Coulomb Systems", Camerino, Jul. 29 – Aug. 2 (organized with A. Perali and D. Neilson).

EDITORIAL ACTIVITY

Member of the Editorial Board of "Scientific Reports"

REFEREE ACTIVITY

Journals: Referee for Physical Review Letters, Physical Review X, Physical Review A and B, New Journal of Physics, Physics Letters A, Europhysics Letters, European Physical Journal B, Journal of Physics B.

Funding agencies: MIUR - Italy; NSF - United States, ISF - Israel; ANR - France.

PhD dissertations: Acted as a reviewer or jury member for several national and European institutions.

SUPERVISION OF PHD STUDENTS AND POSTDOCTORAL FELLOWS

Supervisor of 8 post docs and 10 PhD students

ACADEMIC RESPONSIBILITIES

2015-2019 Chair of the Bachelor and Master degrees in Physics ("Coordinatore di corso di studio") at the University of Camerino.

Since 2003: Member of the PhD Committee in Physics at the University of Camerino

TEACHING

Quantum many-body system; Advanced Quantum Mechanics; Superconductivity (Master degree in Physics)

General Physics (Bachelor degree in Chemistry/Engineering)

Calculus (Bachelor degree in Physics)

RESEARCH PROFILE

The scientific activity of P. Pieri has covered different fields of theoretical physics. At the beginning of his career, he studied the problem of quark confinement in QCD with Prof. [REDACTED]. His research interests then shifted to condensed matter physics, focusing initially on strongly-correlated systems and quantum magnetism. In 1997 he joined the group of Prof. [REDACTED] in Camerino and started working on superconductivity and superfluidity, in particular on the problem of the BCS-BEC crossover.

This research has attracted considerable interest in recent years, especially in the field of ultracold Fermi gases, where the BCS-BEC crossover has been realized experimentally. The results obtained by the Camerino group on the BCS-BEC crossover, to which P. Pieri contributed in a fundamental way, have been an important reference in this field over the past several years.

Over the years, Pieri has acquired a deep knowledge of the methods of diagrammatic many-body theory, both at a formal level and in their numerical implementation. He has also developed a remarkable ability to compare the formal aspects of the theory with experimental data. This ability was appreciated by experimental physicists working in the field of ultracold gas in top international laboratories with whom Pieri has established fruitful collaborations. We mention in particular the collaborations with the experimental groups led by D. Jin of JILA (Colorado, USA), J. Hecker-Denschlag (University of Ulm Germany), and R. Grimm of the University of Innsbruck (Austria). Recently, he has started working with machine learning techniques, which he has applied to increase the performances of projective Quantum Monte Carlo methods.