Curriculum Vitae of Gian Paolo Vacca

Path to the Ph.D.

04.05.1998	Ph.D in Physics - Bologna University. Thesis: *The hard QCD pomeron, some aspects of its phenomenology and interactions. Supervisori: G. Venturi e M. A. Braun*
19.3.1994	Master in Physics (4 years) (110/100 e Lode) - Bologna University. *Thesis: Theory and phenomenology for high energy electron-proton scattering.*
01.1991-12.1991	Research fellowship in Microelectronics Electrical engineering Department - Bologna University.
09.1989-12.1990	Compulsory military service (Technical officer of the Navy)
06.1989	*National Habilitation for the Engineering profession* (98/100)
22.03.1989	Master degree in Electrical engineering (5 years) (100/100 e Lode) Thesis: *Neural network models for biological learning phenomena*
1983	*High school:* Scientific Liceo (60/60)

Positions

04.2019-present	"Primo Ricercatore" at INFN (Sezione di Bologna) in Theoretical Physics (permanent, tenure).
01.2004-03.2019	"Ricercatore" at INFN (Sezione di Bologna) in Theoretical Physics (permanent, tenure).
08.2002-12.2003	Postdoc at the Physics Department of Bologna University
11.2001-07.2002	Postdoc at the Physics Department of Bologna University
11.2000-10.2001	Postdoc (research contract) at the II Institute for Theoretical Physics of Hamburg University within "TMR Research Network: Quantum Chromodynamics and the Deep Structure of Elementary Particles", European community program
03.1999-10.2000	Postdoc with A. von Humboldt fellowship at the II Institute for Theoretical Physics of Hamburg University
09.1998-02.1999	Short contract COFIN97 (MURST) for research at DESY.

Grants for visiting periods

04.2016	GGI grant within the workshop "Theoretical Cosmology in the Era of Large Surveys".
02.2007	GGI grant within the workshop "High density QCD".
06.2006-08.2006	A. von Humboldt fellow Grant at DESY ("on leave").
04.1996-09.1996	Visitor at the Particle Physics Department of Santiago de Compostela University

Research Grants

2001	Grant. NATO n. PST.CLG.976799 (2001): *Strong interactions in the Regge limit*. Network: Santiago de Compostela, St. Petersburg, Lisbon, Hamburg. Coordinator of the Hamburg University knot.
2002	Grant. NATO n. PST.CLG.980287 (2002): *QCD at small x*. Network: Santiago de Compostela, St. Petersburg, Bologna, Hamburg. Coordinator of the Bologna University knot.
2019	ACRI: PI for the project within the Young Investigator Training Program 2018 (51KE) FRGIM: *Functional and Renormalization Group Methods in Quantum and Statistical Physics*

Scientific habilitation

08.01.2014	Italian National Scientific Habilitation required for associate (II "fascia") and full professor (I "fascia") in the 02/A2 sector (Theoretical Physics and mathematical modelling).

INFN

03.2012-03.2020	Coordinator of the INFN Bologna Theory Group and member of the INFN theoretical physics national scientific commission (CSN4). Member of the panel for evaluation of scientific theoretical research proposals in CSN4.
04.2020-present	Observer for CSN4 in CSN5 (technological and interdisciplinary applications)
2014-2020	Scientific investigator of the research collaboration QFT@Colliders (PI at Bologna)
2020-present	PI of the INFN research collaboration QFT@Colliders
2012-2014	Scientific investigator of the research collaboration PR21 (PI at Bologna)

University activities

Teaching

1993-1994	Tutor: *Mathematical Analysis II*, Electrical Engineering - UniBO
2001-2002	Tutor: *Modern Physics, Bachelor* Physics - UniBO
2001-2002	Tutor: *Subnuclear Physics, Master in* Physics - UniBO
2004	Professor: "*Phenomenology of fundamental interactions", Ph.D. School* in Physics - UniBO.
2010-2011	Professor: *Subnuclear Physics (28hours) , Master in* Physics - UniBO
2010	Professor : "*Advanced Quantum Field Theory"* (48 hours) *Ph.D. School* in Physics - UniBO.
2011-2012	Professor: *Subnuclear Physics (28hours) , Master in* Physics - UniBO
2011	Professor: "*Advanced Quantum Field Theory"* (48 hours) *Ph.D. School* in Physics - UniBO.
2014-present	Member of the Ph.D. school board in Physics, DIFA - UniBO.
2018	Professor: "*Advanced aspects of Quantum Field Theories"* (20 hours) *Ph.D. School* in Physics - UniBO.
2019	Professor: "*Advanced aspects of Quantum Field Theories"* (24 hours) *Ph.D. School* in Physics - UniBO.

Ph.D. School:

2013-2020	Member of the "Collegio della Scuola di Dottorato in Fisica dell'Università di Bologna": Cicli (XXVIII-XXXIV)

Membership

03.1999-present	Member of the Alexander Von Humboldt foundation (German).

Editorial board

06.2020-present	Member of the editorial board of the Journal Universe (ISSN 2218-1997) (https://www.mdpi.com/journal/universe)

Organization of Conferences: member of the organizing committee

2020	QCD@LHC-X : 31/08-03/09 2020, CERN, Schwitzerland.
2019	FRGIM: *Functional and Renormalization-Group methods – Italian Meeting, ECT**, 16-20 September 2019, Trento, Italy. (chair)
2019	Third *Flag Meeting: The Quantum and Gravity*, 13-14 June 2019, Catania, Italy (co-chair)

2019	*Gravity and Other Fields Under the Vulcano*, 10-12 June 2019, Catania, Italy. (co-chair)
2016	Second *Flag Meeting: The Quantum and Gravity*, 6-8 June 2016, Trento, Italy (co-chair)
2014	*Diffraction 2014: International Workshop on Diffraction in High-Energy Physics*, 10-16 settembre 2014, Primosten, Croazia.
2014	*First Flag Meeting: The Quantum and Gravity*, 28-30 maggio 2014, Bologna Italia. (co-chair)
2013	*Beauty 2013*: *14th International Conference on B-Physics at Hadron Machines*, 8-12 aprile 2013, Bologna, Italia.
2012	*Diffraction 2012: International Workshop on Diffraction in High-Energy Physics,* 10-15 settembre 2012, Puerto del Carmen, Lanzarote, Spagna.

Referee activities

Referee for the international journals: Nuclear Physics A, B; Phys. Lett. B; Eur. Phys. J. C; JHEP, Phys. Rev. A, D; Phys. Rev. Lett.; Class. Quant. Grav., Universe…
Referee for MIUR: activities in 2013, 2016.
Referee for the Ungarian science ministery: 2019.
Referee for the European Commission (MSCA-IF program): 2019

Ph.d. Thesis examiner and member of the evaluating committee:

SISSA (Trieste, Italy): 2010, 2011, 2012, 2013 in the sectors:
AstroParticle Physics e *Theoretical Particle Physics;* examiner of 5 Thesis.
IFT - UAM (Madrid, Spain); 2013, examiner of 2 Thesis.
Firenze University (Italy): 2013, examiner of 1 Thesis.
University of Jena (Germany): 2016 and 2017, examiner of 2 Thesis.

Search committee activities

Member of the search committee for 9 postdoc positions.

Thesis supervised: (7 Ph,D, 15 master)

Publications:

84 published articles on peer reviewed international journals + 17 conference proceedings +2 preprint.

Inspire (published only): N. citations > **4000**, h-index = **31**.

Outreach events

Organizer of two events in 2004 and 2019.

Research Interests (past and present)

Theoretical Physics with broad and multidisciplinary interests. Main focus on Quantum Field Theories. Analytical approaches and methods preferred. Sometimes resort to numerical methods when the problem at hands requires it.

- Strong Interactions (QCD ed N=4 SYM) in the Regge limit, perturbative resummations (LL, NLL). Odderon and integrable models. Effective action techniques.
- Classical and quantum back-reaction in cosmology and gravitational collapse.
- Theoretical aspects of quantum and statistical field theories. RG techniques in the most broader sense. CFT in d>2.
- Asymptotic Safety approach (UV completeness) in extensions of the SM and Gravity-Matter systems.