

Roberta Arcidiacono CURRICULUM VITAE

Email: Roberta.Arcidiacono@to.infn.it

Education

1999 - Ph.D. in Physics, Università di Torino, Torino (Italy)
1995 - Awarded Physics degree, Università di Torino, Torino (Italy) (cum laude).

Current Position

2019 to present - Professore Associato (FIS01), Università del Piemonte Orientale (I)
1995 – 2000 - Associate member of the Istituto Nazionale di Fisica Nucleare (INFN)
2006 to present|

Previous Positions

2010 – 2019 Staff Researcher at the Università del Piemonte Orientale (I)
2006 – 2010 Research Scientist (Program "Rientro Cervelli" - MIUR), Università di Torino
2003 – 2006 Research Scientist, MIT, Boston (MA - USA)
2001 – 2003 Research Fellow in Physics, CERN, Geneva (CH)
1999 – 2000 Post-Doctoral Fellow, Università di Torino

Summary of Scientific and Institutional Responsibilities

2021 to present - Convener of the ETL Sensor group
2018 to present - Group leader (INFN TO) for the CMS timing layer (Phase2 Upgrade)
2016 to present - Group leader (INFN TO) for the RD50 Collaboration
2016 – 2021 - Run Coordinator for the CMS ECAL sub-detector
2012 – 2016 - Convener of the Trigger Performance Group of CMS
2012 – 2014 - Trigger Coordinator for the Forward and Soft QCD Physics group
2008 – 2019 - Responsible for the CMS ECAL Front-End monitoring
2002 - Project Coordinator for the NA48 electromagnetic calorimeter read-out
2000 – 2003 - NA48 Run Coordinator for periods of one month
2000 – 2001 - Project Coordinator for the NA48 Master Service Card
1997 – 2000 - Responsible for the NA48 Trigger Supervisor.

Leadership in Research Projects supported by Grants

09/2018 to 08/2021 - Beneficiary of ERC Advanced Grant “Ultra-Fast Silicon Detectors: Enabling Discoveries”, UFSD-669529.
09/2019 to present - Coordinator for the research unit Università del Piemonte Orientale, PRIN 2017: "4DInSiDe: Innovative Silicon Detectors for particle tracking in 4Dimensions".

Teaching activities

Supervised several students, undergraduates and graduates in Particle Physics, and summer students at CERN.
2007 to present - Lectures in “Calorimetry in Particle Physics Experiments” for the Graduate School in Physics and Astrophysics, Università di Torino.
2010 to present - Corso di FISICA, for the Master degrees in Farmacia and Chimica e Tecnologie Farmaceutiche, Università del Piemonte Orientale
2006 – 2009 - Corso di Esperimentazioni di Fisica II, for the Master degree in Ottica e Optometria, Università di Torino.

RESEARCH EXPERIENCE

“Abilitazione Scientifica Nazionale” for Full Professor obtained in 2021 (field 02/A1).

Active in the NA48-NA48/1-NA48/2 collaborations (CERN), from 1995 to 2003.

From 2003: worked in CMS (Compact Muon Solenoid).

In 2014: started to work on silicon detectors development/studies within the RD50 project and in the project supported by the Advanced ERC "Ultra-Fast Silicon Detectors: Enabling Discoveries".

1996-2000 Graduate student/Post-doc in Torino. NA48.

Deep involvement in the development of the NA48 central trigger system (Trigger Supervisor), as well as in some analysis topics related to the main analysis of the experiment. Worked at the design, realization and tests of the NA48 L2 Trigger Supervisor (a fully pipelined 40 MHz VMEbus system, 8 boards). Responsible for the integration of the system in the experiment trigger chain.

Analysis: study of a number of potential systematics inherent to the $\text{Re}(\epsilon'/\epsilon)$ measurement. Study of KL-KS beam correlations. In collaboration with other physicists from Italian Institutions, worked on an independent analysis of the $\text{Re}(\epsilon'/\epsilon)$ measurement.

2001-August 2003 CERN Fellow. NA48.

Study, implementation and coordination of the upgrade of the EM calorimeter read-out, aiming to double the rate capability of the system.

Analysis: finalisation of $\text{Re}(\epsilon'/\epsilon)$ analysis. Study of the effects on the energy resolution and linearity of a reduced read-out window. Studies for the $\text{KS} \rightarrow \pi^0 e^+ e^-$ analysis.

September 2003-August 2006 MIT Research Scientist. CMS.

Worked at the development and commissioning of hardware and software components of the CMS DAQ system, related to the layer that interfaces the subdetectors read-out systems to the central event building (D2S). Design and realization of the qualification tests, coordinations of the tests activities.

October 2006-August 2010 Research Scientist/Contract Professor. CMS.

Joined the electromagnetic calorimeter (ECAL) group. Worked in the ECAL data acquisition system (DAQ). Development of the Monitoring Software for the DCU system, which reads the relevant operating parameters of the ECAL detector. Commissioning of the calorimeter during installation and integration in the experimental area.

Analysis: study of the ECAL linearity in the energy response using test beam data. Study of the stability of the operating parameters of the calorimeter. Feasibility studies for the calibration of the calorimeter with low mass resonances (J/Psi, Upsilon).

From September 2010 Staff Researcher. CMS/NA62/UFSD

Committed as ECAL Front-End Monitoring Responsible. Coordination of the trigger activities of the Forward and Low-x QCD analysis group of CMS for two years. From June 2012, for four years, co-convenor of the CMS Trigger Performance group (STEAM - 20 physicists). The group coordinates the trigger performances studies, the validation and monitoring activities of the High Level Trigger triggers. Worked in the GigaTracker group of NA62, during the years 2013-2015.

From September 2014: as part of the RD50 collaboration and later within the UFSD ERC winning project, working on new silicon sensor design, with internal low gain, to achieve excellent timing and position resolution with the same device, suitable for “4D-tracking” in High luminosity experiments. Working to the development of the sensor for the CMS Endcap Timing Layer.

Analysis: in 2011 study of the diffractive cross section of Z events in LHC. Working afterword to the measurement of the visible inelastic p-p cross section at $\sqrt{7}$ TeV with the CMS detector.

Served in review committees for several CMS papers and in the DAQ Technical Design Report.

PERSONAL INFORMATION

Marco Zanetti

✉ Marco.zanetti@unipd.it

Sex Male

| Nationality Italian

WORK EXPERIENCE

2014-Present

Associate Professor

Physics and Astronomy Department, University of Padova, Via Marzolo 8, 35131, Padova (ITALY)

- Council chair of "Physics of Data" Master Program
- Advisor to the Rector in matter of High-Performance Computing
- Member of the Department Executive Board
- Member of the PhD School Council
- Coordinator of Computing and Machine Learning departmental research group

2010-2014

Research scientist

Laboratory of Nuclear Physics, Massachusetts Institute of Technology, Cambridge, MA (USA)

- Member of the CMS experiment Physics Coordination group
- Coordinator of CMS Luminosity group
- Operations coordinator of the CMS Tier0 Computing Centre

2007-2010

Research Fellow

Physics Department, CERN, Geneva, (SWITZERLAND)

- Operations coordinator of the CMS Online Computing Farm
- Member of the LHC Hardware Commissioning Coordination team
- Engineer in charge of the LHC

EDUCATION AND TRAINING

2004-2007

PhD in Physics

University of Padova, Padova (ITALY)

Thesis on the CMS Muon System and the development of the analysis strategy for the discovery of the Higgs Boson in final states with two opposite charged muons and missing transverse momentum.

2011

CERN Summer Student

Physics Department, CERN, Geneva, (SWITZERLAND)

Development of the software framework for the CMS reconstruction and simulation.

1998-2003

Master in Physics

University of Padova, Padova (ITALY)

Thesis on the CMS Muon System and the development of the analysis strategy for the discovery of the Higgs Boson in final states with two opposite charged muons and missing transverse momentum.

PERSONAL SKILLS

Mother tongue Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C1	C1	C1
French	B1	B1	B2	B2	A2

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Organisational / managerial skills

- Management of working groups up to 100 people
- Coordination of production, deployment, commissioning and operations of large scientific infrastructures (with values of several Millions Euros)

Evaluation Metrix

- H-index: 114
- Citations: 66439
- Indexed products in the last 10 years: 1098

Digital skills

- Expert in programming languages (python, C++, bash)
- Expert in Computing Farm organization and operation
- Expert in analysis, statistical and machine learning techniques

SELECTED PUBLICATIONS

- M. Migliorini, R. Castellotti, L. Canali and M. Zanetti, "Machine Learning Pipelines with Modern Big Data Tools for High Energy Physics", DOI:10.1007/s41781-020-00040-0, Comput. Softw. Big Sci. 4 (2020) no.1, 8
- R. T. D'Agnolo, G. Grosso, M. Pierini, A. Wulzer, M. Zanetti, "Learning multivariate new physics", DOI:10.1140/epjc/s10052-021-08853-y, Eur.Phys.J.C 81 (2021) 1, 89
- M. Zanetti et al., "Using Big Data Technologies for HEP Analysis", 06030 DOI:10.1051/epjconf/201921406030, EPJ Web Conf. 214 (2019) 4
- M. Zanetti et al., "Observation of a New Boson at a Mass of 125 GeV with the CMS Experiment at the LHC", DOI:10.1016/j.physletb.2012.08.021, Phys.Lett.B 716 (2012), 30-61
- M.Zanetti et al. "Performance of CMS Muon Reconstruction in pp Collision Events at sqrt(s)=7 TeV", DOI:10.1088/1748-0221/7/10/P10002, JINST 7 (2012), P10002



PERSONAL INFORMATION

Gaetano Maron

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Sex Male |

| Nationality Italian

EPR 1st level Technologist

WORK EXPERIENCE

1984 – onwards

INFN Technologist -> INFN Director of technological research (Dirig. Tecnologo)

INFN – Laboratori Nazionali di Legnaro . Viale dell'Università 2, 35020 Legnaro, Italy.
<http://www.lnl.infn.it> and <http://www.infn.it>

Management and coordination roles:

- 2013-2021: Director of INFN – CNAF “Centro Nazionale per la ricerca e lo sviluppo nelle tecnologie informatiche applicate alla fisica nucleare e delle alte energie”
- 2013-2015: In charge of the INFN UNIT of the PRIN 2010/11 call: project on “Development of technologies for LHC data access through Grid and Cloud approaches”.
- 2012-2013: President of “CNAF technical and scientific committee “
- 2010-2013: in charge of the CMS experiment at Laboratori Nazionali di Legnaro (LNL)
- 2006-2013: In charge of the “LNL-Pd Tier 2 LHC Data Analysis Center”
- 2004-2007: Project Manager of the FP6 European Project GRIDCC
- 2000-2009: In charge of the “IT and Electronic Technologies Service” of LNL
- 2001-2003: In charge (national level) of a work package of the INFN Special Project “INFN-GRID”
- 2000-2002: In charge of LNL training plans
- 1998-2001: Member of “Comitato per la transizione alle Nuove Tecnologie del Calcolo – CNTC”
- 1995-1999: In charge of the EUROBALL experiment data acquisition project
- 1997-2001: In charge (national level) of the technological experiment (CSN5) SADIRC and SADIRC2000
- 1990-1994: In charge of the GASP experiment data acquisition project
- 1990-1994: Member of “Commissione Calcolo e Reti dell'INFN”
- 1989-1990: In charge (national level) of the technological experiment (CSN5) TROL
- 1987-1988: In charge (local) of the technological experiment (CSN5) VMEHEP
- 1987-1994: In charge of LNL Computing Service

Main activities

- Scientific Computing Infrastructure Developments
- European and National GRID developments
- Data acquisitions and online data analysis systems developments
- Nuclear and particle physics experiments: Gasp LNL (1990-1995), Euroball LNL (1995-1999), Agata LNL (2008-2011), Obelix at CERN/LEAR (1989-1995) and CMS at CERN/LHC (1998-onwards)
- Scientific dissemination (collaboration with the MIUR project “Extreme Energy Events” (2013-onwards)
- Teaching (department of Physycs, Università di Padova) and tutoring (master and phd students). National scientific qualification obtained as full professor in the sector 02/A1 – Experimental physics of fundamental interactions as defined in DD 222 of July 20, 2012

1981 - 1984

Assistant Physicist

“Istituto di Ricovero e Cura a Carattere Scientifico (IRCCS) “Fondazione Clinica del Lavoro S. Maugeri”, Pavia

- Software developer



EDUCATION AND TRAINING

1976 - 1980

Master degree in Physics,

110/100 cum laude

University degli studi di Padova, Italy

- Nuclear Science, experimental physics, computing, data acquisition. Thesis dissertation: nuclear physics techniques applied to the multi-elemental analysis, Physics Department of Padova and INFN Legnaro's National Labs. Prof. Paolo Mittner

PERSONAL SKILLS

Mother tongue(s)

Italian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1
French	B1	B1	A2	A2	A1
German	A1	A1	A1	A1	A1

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Digital skills

System and network management; fortran, C and Java languages; software developments tools; data acquisition and control systems for large astro and particle physics experiments; real time operating systems, distributed systems.

Job-related skills

- Project Management of international and local R&D projects, size in the order of tens researchers with budget in the order of few millions of euro
- Management of large computing infrastructures with more than 50 staff members and budget 5-10 M€
- Experience in institutional working groups and steering boards of projects

ADDITIONAL INFORMATION

Publications
Evaluation metrics

www.scopus.com

258 publications (Scopus), H-Index (Scopus) 47, Citations (Scopus) 20555

Selected publications

Alunni Solestizi, L., Argiro, S., Bagnasco, S., Barberis, D., Barone, L. M., Boccali, T., . . . Vilucchi, E. (2015). Improvements of LHC data analysis techniques at italian WLCG sites. case-study of the transfer of this technology to other research areas. Paper presented at the Journal of Physics: Conference Series, , 664(3) doi:10.1088/1742-6596/664/3/032006 Retrieved from www.scopus.com

Badoer, S., Biasotto, M., Costa, F., Crescente, A., Fantinel, S., Ferrari, R., . . . Toniolo, N. (2014). The legnaro-padova distributed tier-2: Challenges and results. Paper presented at the Journal of Physics: Conference Series, , 513(TRACK 3) doi:10.1088/1742-6596/513/3/032090 Retrieved from www.scopus.com

Boccali, T., Dal Pra, S., Zani, S., Morganti, L., Cesini, D., Sapunenko, V., . . . Maron, G. (2021). Enabling HPC systems for HEP: The INFN-CINECA experience. Paper presented at the Proceedings of Science, , 378 Retrieved from www.scopus.com

Boccali, T., Donvito, G., Pompili, A., Ricca, G. D., Mazzoni, E., Argiro, S., . . . Maron, G. (2014). Optimization of italian CMS computing centers via MIUR funded research projects. Paper presented at the Journal of Physics: Conference Series, , 513(TRACK 6) doi:10.1088/1742-6596/513/6/062006 Retrieved from www.scopus.com

Bortolotti, G., Caberletti, M., Crimi, G., Ferraro, A., Giacomini, F., Manzali, M., . . . Zanella, M. (2014). Computing on knights and kepler architectures. Paper presented at the Journal of Physics: Conference Series, , 513(TRACK 5) doi:10.1088/1742-6596/513/5/052032 Retrieved from www.scopus.com

Honours and awards
Memberships

2021- onwards: member of Olympic Academy, www.accademiaolimpica.it

