

Antonio Falabella

INFN CNAF Technological Researcher

Skill

Linux

Python

Data Center Monitoring

Automatic Server Provisioning

Data analysis

HPC

Networking

C

C++

Bash

Education

- 2010 - 2014 Ph.D. March 2014 *New developments of the flavour tagging algorithms for the LHCb experiment.*
University of Ferrara, Ferrara
- 2007 - 2010 Master Degree in Nuclear and Subnuclear Physics, awarded March 2010 (110/110) *Measurement of the efficiency and alignment of the muon detector of the LHCb experiment.*
University of Ferrara, Ferrara
- 2004 - 2007 Bachelor Degree in Physics and Astrophysics, awarded March 2007 (110/110 cum laude) *Study of the alignment of the muon detector of LHCb experiment at Cern.*
University of Ferrara, Ferrara

Professional experience

- 2021-present INFN CNAF Technological Researcher - Bologna (Italy)
Staff member of the storage functional unit of the INFN CNAF Tier1 data center, responsible of Ceph clusters installation and operations. Also involved in storage servers provisioning, monitoring and configuration.
- 2018-2021 INFN CNAF Technological Researcher - Bologna (Italy)
I am part of the farm functional unit of the INFN CNAF Tier1 data center collaborating also with the storage and user support units. I also collaborate in several tasks of the Extreme DataCloud, DEEP Hybrid DataCloud and EOSC-hub Horizon 2020 projects.
- 2017-2018 INFN CNAF Technological Researcher - Bologna (Italy)
I worked mainly in the farm functional unit of the INFN CNAF Tier1 data center. I joined the ASTERICS Horizon 2020 project where I was mainly involved in the parallel filesystem and low-power architectures tests.
- 2014-2016 INFN CNAF Fellow - Bologna Italy
I started working at INFN CNAF in Bologna where the italian WLCG Tier1 site is hosted. I joined the user support team as a contact person for the LHCb experiment. I had also collaboration with the farm functional unit, and infrastructure unit.
- 2010-2014 Ph.D. Student - University of Ferrara, Ferrara (Italy)
As Ph.D. student of University of Ferrara I worked on the Flavour Tagging (FT) of the LHCb experiment. For the asymmetries measurements and CP violation studies in the b-sector performed in LHCb, FT is a fundamental tool to determine the flavour of the reconstructed B. In LHCb FT is performed with different algorithms. The sensitivity on the measured asymmetries is directly related to the tagging performances. During my Ph.D. I worked on FT to improve its performances (See detailed description at the end).
- 2011-2013 INFN Fellow
I worked at Cern with the offline computing group of LHCb, in particular with the LHCbDirac developers team to give support to operational activities. LHCbDirac is the software layer used by the LHCb experiment for Grid computing activities.
- 2010-2011 Tutor - University of Ferrara, Ferrara (Italy)
Physics Tutor (Classical Mechanics) for the first year of Bachelor Physics students.
- 2007 Tutor- University of Ferrara, Ferrara (Italy)
Tutor of Computer Science (Basic programming techniques with ANSI-C) for the first year of Bachelor in computer science.

Education

- 2010-2014 Ph.D. March 2014 *New developments of the flavour tagging algorithms for the LHCb experiment.*
University of Ferrara, Ferrara
- 2007-2010 Master Degree in Nuclear and Subnuclear Physics, awarded March 2010 (110/110) *Measurement of the efficiency and alignment of the muon detector of the LHCb experiment.*
University of Ferrara, Ferrara
- 2004-2007 Bachelor Degree in Physics and Astrophysics, awarded March 2007 (110/110 cum laude) *Study of the alignment of the muon detector of LHCb experiment at Cern.*
University of Ferrara, Ferrara

Conferences and Workshops

- 2018 International Symposium on Grids & Clouds (ISGC) *INFN Dynamic Extension to the Azure Cloud.*
Taipei (Taiwan)
- 2017 2nd Asterics-Obelics workshop *BeeGFS tests on Low power SoC.*
Barcelona (Spain)
- 2016 38th International Conference on High Energy Physics *LHCb computing in Run 2 and its evolution towards Run 3.*
Chicago (USA)
- 2016 NPSS 20th Real Time Conference *Large-scale DAQ tests for the LHCb upgrade.*
Padova (Italy)
- 2015 13th Pisa Meeting on Advanced detectors *The 40 MHz trigger-less DAQ system for the LHCb Upgrade.*
Elba Island (Italy)
- 2013 Beauty 2013 *Optimization and Calibration of Flavour Tagging Algorithms for the LHCb experiment.*
Bologna (Italy)
- 2013 IFAE *Optimization and Calibration of Flavour Tagging Algorithms for the LHCb experiment.*
Cagliari (Italy)
- 2013 LHCC Meeting Cern *Optimization and Calibration of Flavour Tagging Algorithms for the LHCb experiment.*
Geneva (Switzerland)
- 2012 IFAE *Optimization and Calibration of Flavour Tagging Algorithms for the LHCb experiment.*
Ferrara (Italy)
- 2011 SIF *Study and Optimization of Flavour Tagging with LHCb data.*
L'Aquila (Italy)

Higher education schools

- 2014 INFN International School
Architecture, tools and methodologies for developing large scale scientific computing applications
Ce.U.B. Bertinoro(FC)- Italy
- 2013 International School Niccolò Cabeo
Physics beyond the standard model: the precision frontier
IUSS Ferrara - Italy
- 2012 PSI School of PSI Summerschool on Particle Physics
Closing in on the Standard Model
Lyceum Alpinum a Zuoz- Switzerland
- 2011 CSC
Cern School of Computing
Copenhagen- Denmark

PERSONAL INFORMATION

Alessandra Fanfani

[0000-0003-2256-4117](https://orcid.org/0000-0003-2256-4117) Scopus author-ID 7004878163

Sex F |

Nationality Italian

Enterprise	University	EPR
<input type="checkbox"/> Management Level	<input type="checkbox"/> Full professor	<input type="checkbox"/> Research Director and 1st level Technologist / First Researcher and 2nd level Technologist
<input type="checkbox"/> Mid-Management Level	<input checked="" type="checkbox"/> Associate Professor	<input type="checkbox"/> Level III Researcher and Technologist
<input type="checkbox"/> Employee / worker level	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator

WORK EXPERIENCE

September 2016 – present

Associate Professor in Experimental Physics

Department of Physics and Astronomy at Alma Mater Studiorum - University of Bologna (Italy)

- President of the evaluation board for post-graduate recruitment at INFN-CNAF (2017-2020) on topics related to Computing infrastructure, Big Data and H2020 projects (IoTwinns, Harmony, etc)
- Monte Carlo (MC) generator contact for the Muon group in the CMS experiment at LHC (CERN)
- Muon object expert within the B-physics group in CMS
- Internal CMS reviewer as ARC member of data analysis in B-physics (i.e., the selection of the rare B0s $\rightarrow \mu + \mu^-$ decay relies on machine-learning techniques) and Higgs groups
- Manager for CMS of the INFN-Bologna Computing Tier-3 Centre (part of the national INFN computing network)
- MIUR reviewer for the evaluation of national projects (PRIN, VQR,...)

October 2005 – August 2016

Researcher (Assistant Professor) in Experimental Physics

Department of Physics and Astronomy at Alma Mater Studiorum - University of Bologna (Italy)

- Convener of the Quarkonium Working Group (QWG) within the B-physics group in CMS
- Expertise in Muon reconstruction performance studies both with cosmic muon and with pp collisions
- Data management handling among distributed sites for Muon and B-physics groups
- Development of CMS analysis tool (CRAB) in CMS to enable analyses on a distributed computing environment
- Responsible of the development of the tool used to produce MC samples for the whole CMS collaboration, using the worldwide-scale hierarchical and distributed computing infrastructure (of which the INFN network is part)

2001-2005

Research fellow

Department of Physics and Astronomy at Alma Mater Studiorum - University of Bologna (Italy)

- Author of the EU deliverable "Application Migration report" of the EGEE project
- Membership in EU projects: EGEE I, EGEE II
- Responsible of the integration and development of CMS MC production tools in the European Grid (EDG) and LHC Computing Grid (LCG)
- CMS representative in the Technical Working Group of the Work Package 8 of the EDG project
- Reviewer of the EU deliverable "Evaluation of testbed operation" of the EDG project
- Member of the CMS collaboration (since 1998)
- Lectures given at the "GGF (Global Grid Forum) School of Grid Computing" (July 2003 and July 2004)

EDUCATION AND TRAINING

1998-2001

"Dottorato di Ricerca" (PhD) in Experimental Physics

EQF8

Alma Mater Studiorum - Università di Bologna (Italy).

Thesis on trigger studies for muonic final state in the CMS detector at LHC (Supervisors: Prof. Giorgio Giacomelli, Dr. Marco Dallavalle)

1992-1997 **“Laurea” (M.Scaster) in Physics** EQF7

Alma Mater Studiorum - Università di Bologna (Italy). 110/110 cum laude

Thesis on bb(bar) events collected at LEP2 by the OPAL experiment (Supervisor: Prof. Giorgio Giacomelli)

July-August 1996 **Summer student fellowship at CERN**

CERN, Geneva (Switzerland)

Study on dE/dx systematics through τ 3-prong decay (Supervisor: Dr. Michael Hauschild)

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s) English (proficient), French (intermediate)

Job-related skills - Team management up to tens of collaborators

Digital skills - Programming (Python, Perl, C++, PHP, Scripts)
 - Distributed computing development and infrastructures
 - Grid-based High-Energy Physics applications (scaling up to the exascale level)

Bibliometrics H-index (Scopus) : 111
 Citations (Scopus) : 73374
 Indexed products in the last 10 years (Scopus): 1259

ADDITIONAL INFORMATION

Publications Selected :

- 1) **"Performance of the CMS muon detector and muon reconstruction with proton-proton collisions at $\sqrt{s} = 13$ TeV"** CMS Collaboration. Published in: JINST 13 (2018) P06015,
- 2) **"Observation of the rare $B_0 \rightarrow \mu^+ \mu^-$ decay from the combined analysis of CMS and LHCb data"** . Published in: Nature 522(2015) 68-72
- 3) **"Measurement of the $X(3872)$ production cross section via decays to $J/\psi \pi \pi$ in pp collisions at $\sqrt{s} = 7$ TeV"**, CMS Collaboration, DOI: 10.1007/JHEP04(2013)154, JHEP 1304 (2013) 154
- 4) **" J/ψ and $\psi(2S)$ production in pp collisions at $\sqrt{s}=7$ TeV"**, CMS Collaboration, DOI: 10.1007/JHEP02(2012)011B, JHEP 1202 (2012) 011
- 5) **"Performance of CMS muon reconstruction in pp collision events at $\sqrt{s}=7$ TeV"**, CMS Collaboration, DOI: 10.1088/1748-0221/7/10/P10002, JINST 7 (2012) P10002.
- 6) **"Measurement of the charge ratio of atmospheric muons with the CMS detector "**, CMS Collaboration, DOI: 10.1016/j.physletb.2010.07.033, Phys.Lett.B692:83-104 (2010)
- 7) **"Performance of CMS Muon Reconstruction in Cosmic-Ray Events"**, CMS Collaboration, DOI: 10.1088/1748-0221/5/03/T03022, JINST 5 T03022 (2010)
- 8) **Automation of user analysis workflow in CMS.** D. Spiga , M. Cinquilli , G. Codispoti , A. Fanfani , F. Fanzago , F. Farina , S. Lacaprara , E. Miccio , H. Riahi, E. Vaandering, JOURNAL OF PHYSICS. CONFERENCE SERIES. International Conference on Computing in High Energy and Nuclear Physics (CHEP'09). vol. 219, 072019, pp. 1 - 7. (2010)
- 9) **"Distributed Analysis in CMS"**, A.Fanfani et al.(primary author), DOI: 10.1007/s10723-010-9152-1, J. Grid Computing (2010) 8:159-179 (2010)
- 10) **"Distributed Computing Grid Experiences in CMS"**, A.Fanfani et al., DOI: 10.1109/TNS.2005.852755, IEEE Transactions on Nuclear Science, vol 52, issue 4. pp. 884-890 (2005)
- 11) **Use of the gLite-WMS in CMS for production and analysis.** G Codispoti, C Grandi, A Fanfani, D Spiga, M Cinquilli, F Farina, V Miccio, F Fanzago, A Sciaba', S Lacaprara, S Belforte, D Bonacorsi, A Sartirana, D Dongiovanni, D Cesini, S Wakefield, J Hernández, S Lemaitre, M Litmaath, Y Calas and E Roche, JOURNAL OF PHYSICS. CONFERENCE SERIES. 17th International Conference on Computing in High Energy and Nuclear Physics (CHEP'09). vol. 219, parte 6, pp. 59 – 66 (2010)
- 12) **Bringing the CMS distributed computing system into scalable operations.** S. Belforte , A. Fanfani , I. Fisk , J. Flix , J.M. Hernandez, T. Kress, J. Letts, N. Magini, V. Miccio, A. Sciaba', JOURNAL OF PHYSICS. CONFERENCE SERIES. 17th International Conference on Computing in High Energy and Nuclear Physics (CHEP'09). vol. 219, 062015, pp. 1 - 11.(2010)

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

15 Febbraio 2022

Firma

[Select you current working level]

Enterprise	University	EPR
<input type="checkbox"/> Management Level	<input type="checkbox"/> Full professor	<input checked="" type="checkbox"/> Research Director and 1st level Technologist / First Researcher and 2nd level Technologist
<input type="checkbox"/> Mid-Management Level	<input type="checkbox"/> Associate Professor	<input type="checkbox"/> Level III Researcher and Technologist
<input type="checkbox"/> Employee / worker level	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator	<input type="checkbox"/> Researcher and Technologist of IV, V, VI and VII level / Technical collaborator

WORK EXPERIENCE

- 2005-actual 1st Level Technologist
 INFN CNAF, Viale Berti Pichat 6/2, Bologna

 - Leader of the Progetti Esterni e Trasferimento Tecnologico (External Projects and Technology Transfer) division.
 - Director of INFN-TTlab, Industrial Research Laboratory in Emilia Romagna Region. Coordinate INFN TTlab participation in Emilia Romagna Region POR FESR e POR FSE. Manager of WE-light e SmartChain and Fortress Projects in POR FESR 2014-2020
 - Harmony IMI2- Enabling Better and Faster Treatment for Patients with Hematologic Malignancies: project manager for INFN
 - EPIC platform, information secure management system following ISO27001:201standards
 - Dal 2007 al 2011 leader of the Data Center TIER1 division,
 - EEE, Extreme Energy Events, member of the experiment collaboration. Data collection system design

- 1995-2005 2nd Level Technologist
 INFN CNAF, VIALE BERTI PICHAT 6/2, BOLOGNA

Since 1999 she participated in the technical evaluations of the various distributed computing systems and the whole series of European infrastructure projects based on GRID: DataGrid, EGEE, EGEE-II, EGEE-III. She contributed to the definition of the INFN-GRID special project proposal and was a member of the project's executive committee. He had technical responsibility for the European project DataTAG (2002-2004). He was responsible for the technical coordination of INFN activities in the miur national project, GRID-IT. She was in charge of INFN Grid computing infrastructure from April 2004 to 2007. She was responsible for the INFN of the European projects ETICS and ETICS 2 from 2006 to 2010

- 1990-1995 Level III Technologist
 INFN CNAF, VIALE BERTI PICHAT 6/2, BOLOGNA

She actively collaborated in the design and in the various phases of construction of GARR network infrastructures in collaboration with other Italian and international institutes and research institution.

EDUCATION AND TRAINING

- 1986 Master Degree in Electronic Engineering University of Bologna, magna cum laude

Replace with EQF (or other) level if relevant

PERSONAL SKILLS

Mother tongue(s) Italian

Other language(s) Good English written and spoken

ADDITIONAL INFORMATION

- Publications
1. The Extreme Energy Events HECR array: status and perspectives
I. Gnesi (Enrico Fermi Ctr., Rome & INFN, Turin & Turin U.) et al.. Mar 18, 2017. 4 pp.
 2. Operation and performance of the EEE network array for the detection of cosmic rays
M. Abbrescia (Enrico Fermi Ctr., Rome & Bari U. & INFN, Bari) et al.. 2017. 4 pp.
Published in Nucl.Instrum.Meth. A845 (2017) 383-386
 3. The EEE Project: a sparse array of telescopes for the measurement of cosmic ray muons
P. La Rocca (INFN, Catania & Catania U.) et al.. 2016. 12 pp.
Published in JINST 11 (2016) no.12, C12056
 4. Recent results and performance of the multi-gap resistive plate chambers network for the EEE Project
EEE Collaboration (M. Abbrescia (Enrico Fermi Ctr., Rome & Bari U. & INFN, Bari) et al.). 2016.
Published in JINST 11 (2016) no.11, C11005
 5. A Multigap Resistive Plate Chambers array for the Extreme Energy Events Project
D. De Gruttola (Enrico Fermi Ctr., Rome & INFN, Salerno & Salerno U.) et al.. 2016. 8 pp.
Published in Nucl.Part.Phys.Proc. 279-281 (2016) 31-38
 6. EEE - Extreme Energy Events: an astroparticle physics experiment in Italian High Schools
M. Abbrescia (Enrico Fermi Ctr., Rome & Bari U. & INFN, Bari) et al.. 2016. 5 pp.
Published in J.Phys.Conf.Ser. 718 (2016) no.8, 082001
 7. A study of upward going particles with the Extreme Energy Events telescopes
M. Abbrescia (Bari U. & INFN, Bari) et al.. 2016. 7 pp.
Published in Nucl.Instrum.Meth. A816 (2016) 142-148
 8. Looking at the sub-TeV sky with cosmic muons detected in the EEE MRPC telescopes
M. Abbrescia (Enrico Fermi Ctr., Rome & Bari U. & INFN, Bari) et al.. 2015.
Published in Eur.Phys.J.Plus 130 (2015) no.9, 187
 9. The INFN Tier-1 G. Bortolotti (INFN, CNAF) et al.. 2012. 6 pp.
 10. INFN Cnaf Annual report 2016, 2015
 11. Search for long distance correlations between extensive air showers detected by the EEE network
EUR PHYS J PLUS (2018) Volume 133 Issue 2
 12. Accessing Grid and Cloud Services Through a Scientific Web Portal
J GRID COMPUT (2015) Volume 13 Issue 2
 13. European Conference on Parallel Processing Euro-Par 2018: Euro-Par 2018: Parallel Processing Workshops 8 pp 638-649 Cross-Environment Comparison of a Bioinformatics Pipeline: Perspectives for Hybrid Computations
 14. EPJ Web of Conferences 214, 08017 (2019)
<https://doi.org/10.1051/epjconf/201921408017>
SGSI project at CNAF"