Curriculum Vitae

PERSONAL INFORMATION

NAME:	Bozzi, Concezio
DATE OF BIRTH:	Dec. 25th 1968, Chieti, Italy
RESEARCHER UNIQUE IDENTIFIER:	orcid.org/0000-0001-6782-3982
INSPIRE PROFILE:	http://inspirehep.net/author/profile/C.Bozzi.1
H-INDEX:	126 (source: scopus.com)
FULL PUBLICATIONS LIST:	https://inspirehep.net/authors/1015512

EDUCATION

1996	PhD in Physics, Pisa University
1992	MSc in Physics, Pisa University

CURRENT POSITION

2019 –	Dirigente di Ricerca, INFN Sezione di Ferrara

PREVIOUS POSITIONS

2016 – 2019	Project Associate, *EP Department, CERN*
2015 – 2016	Scientific Associate, *EP Department, CERN*
2007 – 2018	Primo Ricercatore, INFN Sezione di Ferrara
1998 – 2006	Ricercatore, INFN Sezione di Ferrara
2004 – 2015	Lecturer (Professore a Contratto), Ferrara University

FELLOWSHIPS

1997 – 1998	Post-doctoral fellowship, Pisa University

TEACHING ACTIVITIES

2017	Qualification for Full Professorship in Italian Universities, sector: 02/A1
2010 – 2015	Lecturer (MSc) – Phenomenology of Electroweak Interactions, Ferrara U
2009, 2011	Lecturer (BSc) – Subatomic Physics, Ferrara U
2004 – 2010	Lecturer (MSc) – B Meson Physics, Ferrara U
2002, 2010	Invited Lecturer – CP Violation, Nordic Particle Physics School, Spaatind (Norway)

ORGANISATION OF SCIENTIFIC MEETINGS

2024	Quantum Computing @ INFN, 80 participants, main organiser
2022	Quantum Computing @ INFN, 80 participants, main organiser
2022	International Conference of High Energy Physics (ICHEP), ~1000 participants, Bologna (Italy): member of the Local Organizing Committee
2020	International Conference of High Energy Physics (ICHEP), ~1000 participants, Prague (Czech Republic), held on-line due to COVID-19: co-chair of the Software and Computing track
2019 –	Computing in High-Energy Physics (CHEP) Conference series, ~500 participants: member of International Advisory Committee (IAC)
2016	Workshop Prospects and challenges for semitauonic decays at LHCb, (CERN), 35 participants: member of the Organizing Committee (OC)
2012 – 2015	International School of Physics "Niccolò Cabeo" (Ferrara), 40 participants: co-chair of OC
2012 –	Italian Series of Meetings on High Energy Physics (Incontri di Fisica delle Alte Energie), 150 participants: co-chair of Local OC and editor of the proceedings of the 2012 edition, member of the scientific committee (SC)
2009 –	International Series of Meetings on B Physics, 40 participants: member of SC and local organizer of the 2009 edition
2008	Vxb workshop, SLAC (Stanford CA, USA): member of OC, 30 participants
2000	International Conference on CP Violation (Ferrara): member of Local OC and editor of the conference proceedings, 80 participants

INSTITUTIONAL RESPONSIBILITIES

2024-2025	Co-chair of the working group on HTC/HPC within the Computing initiative of the Joint ECFA/NuPECC/APPEC (JENA) activities
2022-	INFN Representative in the European Open Science Cloud (EOSC) Association
2022-	INFN Representative in the Executive Board of the Italian Computing and Data Infrastructure (ICDI)
2022-	INFN Representative in the Council of the European Grid Initiative (EGI) Foundation
2022-	Coordinator of the INFN Quantum Computing activities
2022-	Member of the INFN Committee for Scientific Computing (C3SN)
2019 – 2024	Member of the Worldwide LHC Computing Grid (WLCG) Management Board, CERN, 30 people
2019 – 2024	Member of the WLCG Grid Deployment Board (GDB), CERN, 70 people
2019 – 2024	Member of the LHCb Technical Board, CERN, 25 people
2019 – 2024	Member of the LHCb Operations Planning Group, CERN, 21 people
2019 – 2024	Member of the LHCb Physics Planning Group, CERN, 22 people
2019 – 2024	Computing Project Leader, LHCb, CERN, 30 people
2018 – 2021	Team Leader, INFN Timespot Ferrara group, 3 people
2016 – 2018	Chair of the National Computing Board, LHCb, CERN, 15 people
2015 – 2017	Co-convener of Working Group on Semileptonic b-hadron Decays, LHCb, CERN, 30 people

2014 – 2016   Co-convener of the Working Group on Flavour Physics, "What next" initiative on Particle Physics in the next ten years, INFN, Rome
2013 – 2014   Team Leader, INFN LHCb Ferrara group, 15 people
2013 – 2014   Member of the Collaboration Board, LHCb, CERN, 60 people
2014 – 2018   National representative of LHCb computing, INFN
2011 –   Member of Physics Ph.D Board, Ferrara University
2009 – 2015   Member of Physics BSc and MSc Boards, Ferrara University
2009 – 2011   INFN representative in meetings of the Computing Resources Review Board (CERN)

MEMBERSHIP IN COMMISSIONS OF TRUST

2024   Reviewer for the SMASH project, funded by the European Union's Horizon Europe research and innovation programme under the Marie Sklodowska-Curie action
2022   Reviewer for the Research Agency of the Spanish Government
2019 –   Reviewer for the Swiss National Science Foundation (SNF)
2016   Reviewer for the Italian National Agency for the Evaluation of Universities and Research Institutes (ANVUR), VQR2011-2014
2007 – 2012   Italian representative, appointed by the INFN Executive Board, in the CERN WLCG Computing Resources Scrutiny Group. Referee of ATLAS and CMS computing
2010   member of the DoE committee reviewing computing and operations of the US LHC collaborations, Argonne Nat. Lab. IL (US)
2005 – 2011   member of the INFN committee reviewing scientific computing of the LHC experiments in Italy, the Italian Tier1 at CNAF, the INFN Grid and other EU-funded projects. Committee chair in 2007-2011
2005   member of CERN committee in charge of the review of the Computing Technical Design Reports of the LHC experiments
2004   member of the DoE committee reviewing the BTeV experiment, Fermi National Laboratory, Batavia IL (US)
2004 – 2011   member of the INFN National Scientific Committee for Physics at Particle Accelerators (CSN1)

MAJOR COLLABORATIONS AND RELATED ACTIVITIES

2018 – 2021   Timespot, INFN: R&D on solid-state tracking devices with timing information for future experiments at colliders
2009 –   LHCb experiment, CERN: heavy flavour physics analysis, scientific computing
2008 –   Heavy Flavour Averaging Group (HFLAV): world averages of flavour physics quantities
1999 –   Babar experiment, SLAC (USA): silicon vertex tracker, heavy flavour physics analysis, simulation and scientific computing
2004 – 2007   International Linear Collider project: R&D on monolithic active pixel sensors

| 1995 – 1998 | CMS experiment, CERN: silicon detector development and modelization, design of silicon tracker |
| 1992 – 1998 | ALEPH experiment, CERN: vertex detector, physics analysis |

SELECTED CONFERENCES AND SEMINARS

2021	Software e computing in LHCb: la sfida di Run3 (e oltre), Seminario CNAF, Bologna (Italy)
2019	*LHCb Computing: status and challenges*, joint HSF/OSG/WLCG Workshop, Jefferson Lab, Newport News VA (USA)
2018	*Challenges in the LHCb trigger*, joint HSF-WLCG Workshop, Naples (Italy)
2017	*Recent LHCb results on semileptonic b-hadron decays*, EPS-HEP Conference, Venice (Italy)
2016	*R(D) and R(D*) measurements at LHCb*, CKM Workshop, Mumbai (India)
2016	*Quark Flavour: Experimental results*, SUSY Conference, Melbourne (Australia)
2016	*The LHCb software and computing upgrade for Run3*, CHEP Conference, San Francisco (US)
2015	*Semileptonic decays at LHCb*, Belle II Theory Interface Platform, Krakow (Poland)
2013	*Review of B and B_s decays*, Physics in Collision Conference, Beijing (China)
2012	*LHCb results on semileptonic B, B_s and Λ_b decays*, CKM Workshop, Cincinnati (US)
2012	*Review of semileptonic decays and $B \rightarrow D^{(*)}\tau\nu$ at Babar*, HQL Conference, Prague (Czech Republic)

MENTORING

- M. Argenton (PhD student)
- B. Couturier (PhD student and CERN staff in the LHCb computing group)
- B. Siddi (PhD, currently at private company)
- E. Dall'Occo (MSc, PhD at NIKHEF, Amsterdam, currently post-doc at the Technische Universitaet Dortmund, recipient of the 2017 LHCb early career award)
- F. Betti (MSc, PhD in Bologna, currently post-doc in Bologna)
- V. Battista (MSc, PhD at EPFL Lausanne, currently at Swiss private company)
- A. Lupato (MSc, PhD in Padova, currently post-doc in Padova)
- A. Mazurov (PhD, currently at private company)
- M. Fiore (PhD, currently at IT company in Bologna)
- P. Franchini (PhD, currently research fellow in Warwick, UK)
- V. Azzolini (PhD, currently research associate at MIT, Cambridge, US)
- A. Petrella (PhD, currently at United Nations, Geneva).

OUTREACH ACTIVITIES

| 2008-2014 | Local organizer of the International Physics Masterclass, an outreach initiative for high-school students managed by the European Particle Physics Outreach Group (EPPOG) and coordinated in Italy by INFN |
| 2007,2011-2014 | Seminars on experimental particle physics in high schools |

2010-2011,2014	Co-organizer of the Ferrara edition of the European Researchers' Night, within the EU-financed DREAMS project
2013-2014	Speaker in public events on the discovery of the Higgs boson
2013-2018	Organiser and guide of visits of high-school and university students to CERN and the LHCb experimental site
2014	Organiser of a refresher course in physics for high-school teachers
2016	Author of an article (*Per qualche sigma in più*) published on the INFN magazine *Asimmetrie* n.20
2018	Co-author of an article (*Beauty quarks test lepton universality*) published as cover story in the *CERN Courier* vol. 58 n.3

RECENT SCIENTIFIC COMPUTING ACTIVITIES

Since 2013: computing resource manager of LHCb, in charge of: ensuring that an adequate level of computing resources is granted by the computing centers providing resources to LHCb; preparing half-yearly reports on resource usage and computing needs; participating to the review process by the Computing Resources Scrutiny Group (C-RSG) within the CERN LHC Resource Review Board.

2015-2020: development of fast and parametric simulations for LHCb with the goal of generating datasets by using ~100 times less computing work than standard simulation, in collaboration with an INFN fellow on scientific computing, of whom I was PhD supervisor, and other LHCb colleagues.

2015-2018: responsible of software and computing activities in view of the upgrade of the LHCb experiment. I presented the status of this project at international conferences and workshops. I was editor of two Technical Design Reports, on Software & Computing and the Computing Model for the LHCb Upgrade, reviewed and approved by the CERN LHC Committee (LHCC) in 2017 and 2018. The R&D work culminating in these documents pave the way towards the actual implementation, to be completed by 2022, when the upgraded LHCb detector will enter operations and take data from LHC collisions. The LHCb upgrade represents a formidable challenge in terms of software and computing, as the expected data rate from the detector exceeds by a factor 30 the one collected previously, and it is not possible nor practical to plan a corresponding increase in the computing resources. Therefore, an innovative R&D program, of which I was responsible, was carried out, exploring several dimensions of software and computing. The LHCb codebase was completely overhauled towards the optimal, cost-effective usage of modern computing architectures such as accelerators (GPGPUs), vector registers and multi-threading, thus enabling offline-quality software triggering and online data processing, with a subsequent reduction of the pressure on the offline computing, most notably storage. The computing model of LHCb was also significantly rearranged and the ever-increasing demands on compute work required by Monte Carlo simulation have been met by developing faster simulation techniques that enable the production of the required samples with factor less computing work without sacrificing in physics accuracy of the simulation.
Due to these efforts, LHCb is now ready to enter in a different realm and explore flavour physics at a much more precise scale than before.

2019-2024: Project Leader of LHCb Computing, managing and coordinating all activities related to research and development, commissioning, operations, and maintenance of the LHCb core and distributed computing infrastructures, with particular regard on the preparation of the data taking with the upgraded LHCb detector. In this capacity, I am also member of the LHCb Technical Board, of the Worldwide LHC Computing Grid (WLCG) Management Board and of the WLCG Grid Deployment Board.

Since 2022: Member of Spoke 10 of the ICSC National Research Center for High Performance Computing, Big Data and Quantum Computing; leader of work package on software applications of quantum computing (WP1). Coordinator of INFN quantum computing software activities. Technical coordinator of the CERN-INFN agreement on the utilization of the IBM CERN Quantum Hub.

RECENT PHYSICS RESEARCH ACTIVITIES

Since 2008: member the Heavy Flavour Averaging Group (HFLAV), responsible of averaging the measurements of the $|V_{ub}|$ element of the CKM matrix, using inclusive charmless semileptonic decays of b hadrons. These averages were included in reports at major international conferences, in the CKM matrix review published in Physics Reports, in the biennial Review of Particle Physics since 2010. I wrote the corresponding section of the HFLAV review, published in EPJC.

2011-2013: studied, together with colleagues from Italy, Germany and the Netherlands, semileptonic decays of B^o mesons with LHCb data, to measure CP violation in mixing and matter-antimatter oscillations of neutral B mesons. Two Master theses supervised. The outcome of these studies was: a CP asymmetry measurement that settled a tension with the SM present in previous data, and a measurement of the Bo oscillation frequency that is the most precise performed so far and that dominates the world average. On a related topic, I supervised the thesis work of two undergraduate students on semileptonic decays of B mesons in P-wave D mesons.

2012-2014: performed the measurement of χ_b meson production and spectroscopy in Upsilon gamma final states by using LHCb data, together with colleagues from CERN and Moscow. PhD thesis supervised.

2014-2017: developed, in collaboration with a colleague at LAL, a post-doc in Santiago, and three PhD students a novel technique to measure semi-tauonic decays of B^o mesons with LHCb data, where the tau decays in 3 pions and a neutrino. Measured the branching fraction of the B^o->$D^{*-}\tau^+ \nu_\tau$ decay with precision comparable to the world average, showing that, contrary to initial expectations, these studies can be successfully performed in a hadron collider environment. Wrote two LHCb papers, published in PRL and PRD and both mentioned as editors' choices; presented the results at international conference and seminar.

2018-2021: collaborating in TimeSpot, a project financed by a competitive INFN grant, to build a demonstrator of a vertex detector using time-sensitive solid-state sensors, to be used in future experiments. Leader of the Ferrara group, working on device simulation, characterisation and analysis of test beam data.

2022-ongoing: involved in quantum computing activities, with the objective of identifying the most promising avenues in software algorithms that can benefit experimental high-energy research. Leader of a group of 5 people at INFN Ferrara performing research on: charged particle tracking with hybrid classical-quantum graph neural networks; an innovation project with IntesaSanPaolo on Quantum Credit Scoring; setting up a heterogeneous (CPU+GPU) cluster for quantum emulators.

SELECTED PAPERS

[a complete list of publications is available at https://inspirehep.net/authors/1015512]

1. M. Argenton et al, Charged particle tracking with quantum graph neural networks, PoS ICHEP2024 (2025) 997

2. A. Boyer et al, Integrating LHCb Offline Workflows on Supercomputers State of Practice, EPJ Web Conf. 295 (2024) 10005

3. T. Basaglia et al (DPHEP Collaboration), Data preservation in high energy physics, Eur.Phys.J.C 83 (2023) 9, 795

4. T. Boccali et al, Enabling HPC systems for HEP: the INFN-CINECA Experience, PoS ISGC2021 (2021) 003

5. T. Boccali et al, Extension of the INFN Tier-1 on a HPC system, EPJ Web Conf. 245 (2020), 09009

6. C. Biscarat et al, New developments in cost modeling for the LHC computing, EPJ Web Conf. 245 (2020), 03014

7. C. Bozzi, S. Ponce, and S. Roiser, The core software framework for the LHCb Upgrade, EPJ Web Conf. 214 (2019), 05040

8. C. Bozzi and S. Roiser, Towards a computing model for the LHCb Upgrade, EPJ Web Conf. 214 (2019), 03045

9. C. Biscarat et al, System performance and cost modelling in LHC computing, EPJ Web Conf. 214 (2019), 03019

10. J. Albrecht et al (HSF Software Foundation Collaboration), A Roadmap for HEP Software and Computing R&D for the 2020s, Comput.Softw.Big Sci. 3 (2019) 1, 7

11. The LHCb Collaboration, Computing Model of the Upgrade LHCb experiment Technical Design Report, CERN-LHCC-2018-014, LHCb-TDR-018, May 2018

12. S. Roiser and C. Bozzi, [The LHCb Software and Computing Upgrade towards LHC Run 3](#), J.Phys.Conf.Ser. 1085 (2018) 3, 032049

13. The LHCb Collaboration, [Upgrade Software and Computing Technical Design Report](#), CERN-LHCC-2018-007, LHCb-TDR-017

14. C. Bozzi and S. Roiser, [The LHCb software and computing upgrade for Run 3: opportunities and challenges](#), J.Phys.Conf.Ser. 898 (2017) 11, 112002

15. Y. Amhis et al (HFLAV collaboration), [Averages of *b*-hadron, *c*-hadron, and τ-lepton properties as of summer 2016](#), Eur.Phys.J.C 77 (2017) 12, 895

16. R. Aaij et al (LHCb Collaboration), [Measurement of the ratio of the $B^o \to D^{*-} \tau^+ \nu_\tau$ and $B^o \to D^{*-} \mu^+ \nu_\mu\$ branching fractions using three-prong τ-lepton decays](#), Phys.Rev.Lett. 120 (2018) 17, 171802

17. R. Aaij et al (LHCb Collaboration), [Test of Lepton Flavor Universality by the measurement of the $B^o \to D^{*-} \tau^+ \nu_\tau$ branching fraction using three-prong τ decays](#), Phys.Rev.D 97 (2018) 7, 072013

18. C. Bozzi, [Recent results from LHCb on semileptonic decays of b-hadrons](#), PoS EPS-HEP2017 (2017), 206

19. R. Aaij et al (LHCb Collaboration), [A precise measurement of the B^o meson oscillation frequency](#), Eur.Phys.J.C 76 (2016) 7, 412

20. R. Aaij et al (LHCb Collaboration), [Study of χ_b meson production in pp collisions at sqrt(s)=7 and 8 TeV and observation of the decay $\chi_b(3P) \to Y(3S)\} \gamma$](#), Eur.Phys.J.C 74 (2014) 10, 3092

21. J. P. Lees et al (Babar Collaboration), [Study of B--> X_u lν decays in BB(bar) events tagged by a fully reconstructed B-meson decay and determination of $|V_{ub}|$](#), Phys.Rev.D 86 (2012), 032004

Ferrara, July 7th, 2025