

ANDREA BELLORA

CURRICULUM VITAE

Date of birth: 2 October 1994
Place of birth: Torino, TO (Italy)
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EDUCATION

Oct. 2018 **Ph.D. in Physics**
Jul. 2022 Università degli Studi di Torino (Italy),
Graduated Summa Cum Laude (110L/110 and honourable mention)
in Nuclear, Sub-nuclear and Biomedical Physics
Thesis: “Performance of the 3D pixel tracker of the CMS
Precision Proton Spectrometer and search for Anomalous Quartic Gauge
Couplings in exclusive vector boson pair production with proton tagging”

Sep. 2016 **Master of Science in Nuclear, Sub-nuclear and Biomedical Physics**
Oct. 2018 Università degli Studi di Torino (Italy),
Graduated Summa Cum Laude (110L/110 and honourable mention)
Thesis: “Commissioning and Performance Studies of the PPS
Pixel Tracking Detector”

Sep. 2013 **Bachelor of Science in Physics**
Oct. 2016 Università degli Studi di Torino (Italy),
Graduated Summa Cum Laude (110L/110)
Thesis: “Radiation damage studies on silicon strip detectors operated
at 15σ from the LHC beam”

RECENT POSITIONS

Mar. 2022 **Post-doc researcher**
Present Università degli Studi di Torino (Italy)

Set. 2020 **INFN CERN Associate** (INFN simil-fellow)
Set. 2021

MAJOR COLLABORATIONS

2016 Member of the CMS Collaboration (CERN)
Present Signing author since 2019

2017 INFN Associate
Present

FELLOWSHIPS AND AWARDS

2022	CMS Detector Award
Jun. 2019	Machine Learning Hackathon Award for achieving the 2 nd best performance in the Higgs discovery challenge, INFN School of Statistics
Feb. 2018	INFN Fellowship “Particle Physics to explore the Universe”
May 2018	(call n. 19335) - 1 st position
Jul. 2016	CERN Summer Student Programme
Aug. 2016	
2014	3 rd place at the Alfa Class math team competition organized by Fondazione CRT

MAIN RESEARCH ACTIVITIES

Analysis of physics data

2020	“Exclusive WW and ZZ production in the fully hadronic channel with protons
2022	reconstructed in PPS”
2019	“Search for exclusive ttbar production, $pp \rightarrow ppt\bar{t}$,
2022	with the CMS Precision Proton Spectrometer (PPS) proton tagging”

Detector development

2022	Preparation and commissioning of the new 3D pixel tracker of CMS PPS
Present	for the LHC Run 3 data-taking
2018	Radiation damage and performance studies of the CMS
2020	PPS tracking system on LHC-Run2 data
2018	Installation and commissioning of the 3D pixel tracker of CMS PPS
2016	Radiation damage studies on the silicon strip detectors used in the PPS

Software development

2021	Development of the monitoring and control software for the PPS tracker
	movement system
2021	Coordination and development of the automation software for the PPS
Present	calibration workflows
2019	DAQ software development for the CMS PPS
Present	tracking detector
2019	Optimization and maintenance of the CMS PPS
Present	reconstruction software and Data Quality Monitor

RESEARCH PERFORMANCE

183 publications in refereed international journals ([full list](#)), 5 detector performance internal notes, 4 presentations and 1 poster at international conferences and workshops, 2 presentations at national conferences.

TEACHING EXPERIENCE

2022 <i>Present</i>	Teaching support and online teaching platform development for the “Analysis of Biological Systems” course (Agricultural Sciences), Università degli Studi di Torino, 20 hours
2019 <i>Present</i>	Teaching support and online teaching platform development for the Physics course (Agricultural Sciences), Università degli Studi di Torino, 120 cumulative hours
2018 <i>Present</i>	Teaching support for the Applied Physics course (Nursing and Paramedic Sciences), Università degli Studi di Torino, 165 cumulative hours
2018 2019	Physics Problem Sessions for Biotechnology students, Università degli Studi del Piemonte Orientale, 20 hours

PRESENTATIONS AT CONFERENCES/WORKSHOPS

2022	<i>New results with the CMS Precision Proton Spectrometer (PPS)</i> , ICHEP 2022, 6-13 July 2022, Bologna (Italy), parallel talk
2021	<i>PPS: preparation for Run 3</i> , CMS Italia 2021: CMS Italian annual workshop, 11-13 October 2021, Napoli (Italy), plenary talk
2021	<i>Anomalous $\gamma\gamma \rightarrow t\bar{t}$ scattering at the LHC</i> , Low-x 2021: Workshop on “low x” physics, 26 September – 1 October 2021, Isola d’Elba (Italy), plenary talk
2020	<i>Performance and prospects of the PPS tracking system</i> , TREDI2020: 15 th “Trento” Workshop on Advanced Silicon Radiation Detectors, 17-19 February 2020, Vienna (Austria), plenary talk
2019	<i>The PPS pixel tracking detector</i> , CMSWeek2019: CMS Week in Bangkok, 16-20 December 2019, Bangkok (Thailand), poster
2019	<i>Il Precision Proton Spectrometer di CMS e le sue prestazioni durante il Run 2</i> , SIF2019: 105-esimo Congresso Società Italiana di Fisica, 23-27 September 2019, L’Aquila (Italy), parallel talk

2019 *Recent results from PPS and PPS status and prospects*
Low-x2019: Workshop on “low x” physics,
26 Aug. – 1 Sep. 2019, Nicosia (Cyprus), **plenary talk**

LANGUAGES

Italian: Native Language

English: Advanced Listening, Speaking, Reading and Writing

French: Intermediate Listening, Speaking, Reading and Writing

German: Novice Listening, Speaking, Reading and Writing

COMPUTER SKILLS

Programming: C++ (ROOT), Python (Django, Flask, Numpy, Matplotlib, Plotly), Bash, LaTeX, Make. Basic knowledge in FORTRAN, Mathematica, Java, HTML, CSS, SQL.

Applications: MS Office package, Open Broadcast Studio, Inkscape, Oracle VM VirtualBox, Moodle, Auto Multiple Choice (AMC), Maple T.A., Jenkins, OpenShift, basic knowledge of CAD software (freeCAD, Fusion360), basic knowledge of video editing software (Adobe Premiere Pro).

Operating Systems: Windows, Unix distributions (Ubuntu, KDE, CentOS, Scientific Linux)