Bastiano Vitali

Curriculum Vitae

Born in Naples, Italy, 05.06.1995
Riviera di Chiaia 264, Naples 80121
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Education

Ph.D.
in Accelerator Physics
Nov. 2020 - May 2024
EQF level 8

Sapienza Università di Roma, Ph.D. in Accelerator Physics, Rome, Italy
Thesis: *Precision searches at the intensity frontier with muons at PSI: From MEG II calibration methods to the muEDM positron tracker*
Supervisors: A. Papa (INFN, UniPi, PSI)
Defended: May 17th, 2024
Assessment: Excellent

Master's Degree
in Particles Physics
Oct. 2017 - Oct. 2020
EQF level 7

Università di Pisa, master in Particles Physics, Pisa, Italy
Thesis: *In situ monitoring of the stopped muon flux at Mu2e*
Supervisors: P. Murat (FNAL), S. Donati (INFN, UniPi)
Defended: Oct. 28th, 2020
Assessment: 110/110 cum laude

Bachelor's Degree
in Physics
Sep. 2014 - Oct. 2017
EQF level 6

Università di Pisa, BA in Physics, Pisa, Italy
Thesis: *New ideas for a muon collider*
Supervisor: Guido Tonelli (INFN, UniPi)
Defended: Oct. 24th, 2017
Assessment: 108/110

Personal skills

Languages

- Italian
- English
- French, German
- Japanese

Computing

Link to my *HackerRank* and *Leetcode* profiles

Languages

- C/C++, Python, ROOT
- LaTeX
- HTML, CSS, JavaScript
- SQL, FHiCL, Java

Software

- GitHub: *https://github.com/b-vitali*
- Autodesk Inventor, FreeCAD

Physics simulations

- GEANT4
- LTSPICE, LabVIEW
- MAD-X, PyHEADTAIL, FEMM

Additional interests

- Blender
- Unitiy5 (C#)
- Godot (GDScript)

Publications

Eur.Phys.J.C Article
MEG II, Other Author
Mar. 2024

Eur.Phys.J.C: A search for $\mu^+ \to e^+\gamma$ with the first dataset of the MEG II experiment

Eur.Phys.J.C Article
MEG II, Other Author
May 2024

Eur.Phys.J.C: Performances of a new generation tracking detector: the MEG II cylindrical drift chamber

Eur.Phys.J.C Article
MEG II, Other Author
Feb. 2024

Eur.Phys.J.C: Operation and performance of the MEG II detector

JINST proceeding
muEDM, Other Author
Jul. 2023

NeFLeF23: 1) Status of the search for a muon EDM using the frozen-spin technique 2) Superconducting shield for the injection channel of the muEDM experiment at PSI

NuFact2022
muEDM, Other Author
Jul. 2023

Status of the muEDM Experiment at PSI.

JINST Article
muEDM, Other Author
May 2023

JINST: Operating the GridPix detector with helium-isobutane gas mixtures for a high-precision, low-mass Time Projection.

NIMA Proceeding
NDIP20, Other Author
Nov. 2022

9th Conference on New Developments in Photodetection: The liquid xenon detector for the MEG II experiment to detect 52.8 MeV γ with large area VUV-sensitive MPPCs

Universe Article
Mu2e, Other Author
Oct. 2022

Universe: Mu2e Run I Sensitivity Projections for the Neutrinoless Conversion Search in Aluminum, Mu2e Collaboration. Universe 2023; https://doi.org/10.3390/universe9010054

NIMA Proceeding
PM2021, First Author
22-28 May 2022

Poster and proceeding at the *15th Pisa Meeting on Advanced Detectors*: A liquid hydrogen target to fully characterize the new MEGII liquid xenon calorimeter
Nuclear Instruments and Methods in Physics Research A

NIMA Proceedings (9)
PM2021, Other Author
22-28 May 2022

15th Pisa Meeting on Advanced Detectors:
1) Commissioning of liquid xenon gamma-ray detector for MEG II experiment 2) Analysis and study of the problems on the wires used in the MEG CDCH and the construction of the new drift chamber 3) The Cylindrical Drift Chamber of the MEG II Experiment 4) The WaveDAQ integrated Trigger and Data Acquisition System for the MEG II experiment 5) The trigger system for the MEG II experiment 7) Commissioning and preliminary performance of the MEG II drift chamber 8) Towards large calorimeters based on Lanthanum Bromide or LYSO crystals coupled to silicon photomultipliers: A first direct comparison for future precision physics 9) The liquid xenon detector for the MEG II experiment to detect 52.8 MeV γ with large area VUV-sensitive MPPCs *Nuclear Instruments and Methods in Physics Research A*

NIMA Article
Other Author
22-28 May 2022

The measuring system of the wire tension for the MEG-II Drift Chamber by means of the resonant frequency technique
Nuclear Instruments and Methods in Physics Research A

Conferences

NePSi 23
15-17 Feb. 2023
Presentation on the muEDM experiment at PSI for the NePSi workshop

PM2021
22-28 May 2022
Poster and proceeding at the *15th Pisa Meeting on Advanced Detectors*: A liquid hydrogen target to fully characterize the new MEGII liquid xenon calorimeter

APS April Meeting
17-21 Apr. 2021
Contribution to the *American Physical Society April meeting 2021; E20 Weak Decays and Charged Lepton Properties*
Presentation on the results and developments of the MA thesis

SIF Contribution
Sep. 2020
Accepted to present the results of the MA thesis at the 106th National Congress of the Italian Physical Society

Fellowships and experiences

U-Tokyo (JP)
Secondment at ICEPP
Mar. 2023
U-Tokyo: International Center for Elementary Particle Physics (ICEPP)
Supervisor: W. Ootani
A month at U-Tokyo working on Likelihood analysis for MEG II X17 2023 data, with a focus on Feldman-Cousins Confidence Levels

JUAS (CERN)
Courses I & II
Jan. 2021 - Mar. 2021
Both courses of CERN's Joint Universities Accelerator School:
I - The Science of Particle Accelerators
II - The Technology & Applications of Particle Accelerators

URA (IL, USA)
Fellowship
Three months URA Fellowship at Fermilab, Mu2e experiment
(Awarded but not benefited from due to the Covid-19 outbreak)

URA (IL, USA)
Fellowship
Feb. 2020 - Apr. 2020
URA Fellowship at Fermilab, Mu2e experiment
Supervisors: Pavel Murat, Donati Simone
Two months devolved into turning the initial study on proton tracks into a Master's Thesis on a stopped muon flux monitoring system

INFN (IL, USA)
Fellowship
Aug. 2019 - Oct. 201
Fermilab Short-Term Scholar, Mu2e experiment
Supervisors: Pavel Murat, Donati Simone
Three months Fellowship, INFN scholarship n. 20731, to continue the studies on muon flux monitoring at Mu2e

FNAL (IL, USA)
Internship
Aug. 2018 - Sep. 2018
Fermilab summer student, Mu2e experiment
Supervisor: Pavel Murat
A two months stage on a data-driven stopped muon flux monitoring at the Mu2e experiment, using DIOs and proton reconstruction

September 2, 2024