europass

Luca Martinelli

WORK EXPERIENCE

Post-doc

Sapienza Università di Roma [01/03/2023 – Current]

City: Roma | **Country:** Italy

The scientific activity is in the field of Experimental Elementary Particle Physics.

- Convener of the Muon Combined Performance group (L2 responsability, ~ 100 people). The objective of the guide all the ATLAS analyses on the usage of the muons. Four sub-groups are under the Muon Combined Performance (MCP) responsability with the goal of identify the best way to identify the muons and to correct all possible mis-modelling of the MonteCarlo simulations [10.1140/epjc/s10052-023-11584-x] [10.1140/epjc/s10052-021-09233-2].
- Editorial Board Member: WbWb cross-section differential measurements
- Convener of the Muon Momentum Scale and Resolution sub-group (L3 responsability, ~ 25 people). The objective of the group is to release the recommendations to all the ATLAS analyses on how to correct the reconstructed muon momentum to consider misalignment, non-perfect knowledge of the magnetic fields, a non-good description of the geometry and of the real performance of the detectors [10.1140/epjc/s10052-023-11584-x] [10.1140/epjc/s10052-021-09233-2].
- Main analyser for the measurement Higgs boson production in association with a top anti-top pair using the one τ two same-sign leptons channel using the 2015-2018 dataset at √s = 13 TeV collected by the ATLAS experiment.
- Coordinator of the Muon Detector Reconstruction and Performance sub-group (responsible for one of the subgroups of the ATLAS Muon Detector Performance group). Mainly focused on the implementation of the reconstruction of the muon segments using the New Small Wheel (upgrade of the ATLAS Muon Spectrometer) [10.1016/j.nima.2024.169290].
- Supervisor of 1 Master-degree student thesis in Physics (M. Momed: “Study of signal and background cluster properties of Micromegas chambers in the New Small Wheel of the ATLAS experiment at the LHC”).
- Tutor during the experimental particle physics laboratory lessons for the Master degree in Physics (aa 2024/2025 - 2023/2024 - 2022/2023)
- Speaker during different ATLAS internal meetings
- Local organiser of ATLAS Italia 2024 - Rome (Italy) - Chair for the “Physics: Precision Measurements” session
- Speaker at XVI Workshop ATLAS Italia - Rimini (Italy) “Legacy and muon CP”
- Speaker at PSD13 - 2023 (13th International Conference on Position Sensitive Detectors) - Oxford (UK) “ATLAS New Small Wheel Performance Studies After First Year of Operation”.
- Speaker at IFAE 2023 (19th Incontri di Fisica delle Alte Energie) - Catania (Italy) “Sulla strada per il Run III di LHC - Le prestazioni della New Small Wheel ”.
- Speaker at Les Rencontres de Physique de la Vall´ee d’Aoste - La Thuile (italy) “Measurement of top-quark pair inclusive and differential cross-sections in the emu channel in pp collisions at 13 TeV using the ATLAS detector”
- Different outreach activities such as Masterclass

- Co-author of 494 paper within the ATLAS Collaboration.
- Co-author of 2 paper (external to the ATLAS Collaboration).
- Author of 4 proceeding on behalf the ATLAS Collaboration.
- Hirsch (H) index: 37

Post-doc

Sapienza Università di Roma [01/03/2021 – 28/02/2023]

City: Rome | **Country:** Italy

The scientific activity is in the field of Experimental Elementary Particle Physics.

- Convener of the Muon Momentum Scale and Resolution sub-group (L3 responsability, ~ 25 people). The objective of the group is to release the recommendations to all the ATLAS analyses on how to correct the

reconstructed muon momentum to consider misalignment, non-perfect knowledge of the magnetic fields, a non-good description of the geometry and of the real performance of the detectors [10.1140/epjc/s10052-023-11584-x] [10.1140/epjc/s10052-021-09233-2].
- Coordinator of the Muon Detector Reconstruction and Performance sub-group (responsible for one of the subgroups of the ATLAS Muon Detector Performance group). Mainly focused on the implementation of the reconstruction of the muon segments using the New Small Wheel (upgrade of the ATLAS Muon Spectrometer) [10.1016/j.nima.2024.169290].
- Analyser of the Higgs decaying in ZZ, 4 lepton channel [10.1140/epjc/s10052-023-12130-5]
- Paper editor and main analyser for the measurement of the top anti-top inclusive and differential cross section using the dilepton channel using the 2015-2018 dataset collected by the ATLAS experiment [10.1007/JHEP07(2023)141] [Phys. Let. B 848 (2024) 138376] [10.1140/epjc/s10052-020-7907-9] [10.1007/JHEP06(2023)138].
- Construction of the MicroMegas (MM) chambers for the New Small Wheel upgrade. Main analyser of the cosmic ray (INFN Frascati and BB5 at CERN) and test beam data collected to validate the performances of the MicroMegas chambers. Commissioning of the chambers installed on the New Small Wheel [10.1016/j.nima.2019.04.040] [10.1016/j.nima.2022.167285].
- Tutor during the experimental particle physics laboratory lessons for the Master degree in Physics (aa 2022/2023, 2021/2022, 2020/2021)
- Speaker during different ATLAS internal meetings
- Speaker at the LHC Top Working Group 2022 - Online "ATLAS highlight talk: Measurement of differential cross-sections of ttbar production in the electron-muon channel with the full Run 2 dataset"
- Speaker at the XV Workshop ATLAS Italia - Pisa (Italy) "Muons 1: Run3 status"
- Chair of ATLAS Italia Young 2021 - Online
- Speaker at TOP2021 - Online "Inclusive & differential cross-section measurements of top-quark-pair production with ATLAS and CMS".
- Speaker at PSD12 - 2021 (12th International Conference on Position Sensitive Detectors) - Birmingham (UK) "Micromegas sectors for the ATLAS Muon Upgrade, towards the
- installation of the New Small Wheel in 2021 ".
- Different outreach activities such as Masterclass, European Researchers' Night, HEPscape

PhD in physics

Universìta degli studi di Roma Tre [01/11/2017 – 20/05/2021]

City: Rome | **Country:** Italy

Thesis title: "From top anti-top cross section measurements to the top pole mass extraction and the MicroMegas upgrade project for the ATLAS experiment", Supervisor: G. Salamanna.

- Paper editor and main analyser for the measurement of the top anti-top inclusive and differential cross section using the dilepton channel using the 2015-2018 dataset collected by the ATLAS experiment [10.1007/JHEP07(2023)141] [Phys. Let. B 848 (2024) 138376] [10.1140/epjc/s10052-020-7907-9] [10.1007/JHEP06(2023)138].
- Construction of the MicroMegas (MM) chambers for the New Small Wheel upgrade. Main analyser of the cosmic ray (INFN Frascati and BB5 at CERN) and test beam data collected to validate the performances of the MicroMegas chambers. Commissioning of the chambers installed on the New Small Wheel [10.1016/j.nima.2019.04.040] [10.1016/j.nima.2022.167285].
- ATLAS Muon Combined Performance Liaison for the ATLAS Top Working Group (contact person between the two groups).
- Poster at "2019 PAPAP" - Rome (Italy) "Top anti-top cross-section measurements with the ATLAS detector ".
- Poster at "2019 European School of High Energy Physics" - Saint Petersburg (Russia) "Top anti-top cross-section measurements with lepton kinematics using Full Run II dataset of ATLAS".
- Speaker at IFAE 2019 (18th Incontri di Fisica delle Alte Energie) - Napoli (Italy) "Studio delle prestazioni delle camere MicroMegas di tipo SM1 per l'upgrade dello spettrometro a muoni nella regione in avanti dell'esperimento ATLAS ad LHC".
- Speaker at 104th Congresso Nazionale della SIF (Societ`a Italiana di Fisica) - Arcavacata di Rende (Italy) "Study of the impact of metal mesh on the performance of Micromegas detectors in the ATLAS experiment".
- Tutor during the General Physics lessons for the Bachelor degree in Physics at the Universit`a degli studi di Roma Tre (aa 2019/2020).

- Tutor during the experimental particle physics laboratory lessons for the Bachelor degree in Physics at the Universit`a degli studi di Roma Tre (aa 2018/2019).
- Different outreach activities such as Masterclass, European Researchers' Night, and other local events in Roma Tre

CERN Associate position

CERN [01/01/2020 – 31/12/2020]

City: Geneva | **Country:** Switzerland

Project title: "Measurements of the top quark mass and differential $t\bar{t}$ cross section as a function of lepton kinematical variables at 13 TeV in the eμ channel and commissioning of the Micromegas detectors for the integration in the New Small Wheel ".

- Paper editor and main analyser for the measurement of the top anti-top inclusive and differential cross section using the dilepton channel using the 2015-2018 dataset collected by the ATLAS experiment [10.1007/JHEP07(2023)141] [Phys. Let. B 848 (2024) 138376] [10.1140/epjc/s10052-020-7907-9] [10.1007/JHEP06(2023)138].
- Construction of the MicroMegas (MM) chambers for the New Small Wheel upgrade. Main analyser of the cosmic ray (INFN Frascati and BB5 at CERN) and test beam data collected to validate the performances of the MicroMegas chambers. Commissioning of the chambers installed on the New Small Wheel [10.1016/j.nima.2019.04.040] [10.1016/j.nima.2022.167285].

EDUCATION AND TRAINING

PhD in physics

Università degli studi di Roma Tre [01/11/2017 – 20/05/2021]

City: Rome | **Country:** Italy | **Website:** www.uniroma3.it | **Field(s) of study:** Particle Physics | **Final grade:** maximum grade | **Level in EQF:** EQF level 8 | **Thesis:** From top anti-top cross section measurements to the top pole mass extraction and the MicroMegas upgrade project for the ATLAS experiment

Master's degree in Physics

Sapienza Università di Roma [28/09/2015 – 23/10/2017]

City: Rome | **Country:** Italy | **Website:** www.uniroma1.it | **Field(s) of study:** Particle Physics | **Final grade:** 110 cum laude (maximum grade) | **Level in EQF:** EQF level 7 | **Thesis:** Study of the MicroMegas chambers performance for the upgrade of the ATLAS experiment at LHC

Bachelor's degree in Physics

Sapienza Università di Roma [01/10/2011 – 23/06/2015]

City: Rome | **Country:** Italy | **Website:** www.uniroma1.it | **Field(s) of study:** Particle Physics | **Final grade:** 99 | **Level in EQF:** EQF level 6 |
Thesis: Il problema della Dark Matter e il modello del Dark Photon: l'esperimento PADME

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C1 **READING** C1 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

C++ / Python / LaTeX / Microsoft Office / C / Keras / Machine Learning / Tensorflow / Git / JIRA / Numpy / Linux / Microsoft / Apple / Data Science / Matplotlib / Artificial Intelligence

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Statement

Autorizzo il **trattamento** dei miei **dati personali** ai sensi del Decreto Legislativo 196/2003, coordinato con il Decreto Legislativo 101/2018, e dell'art. 13 del GDPR (Regolamento UE 2016/679) ai fini della pubblicazione in Trasparenza Ateneo - Sapienza come da normativa vigente.