Curriculum Vitae – Nicolò Jacazio

Contacts and personal information:

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Personal homepage: https://about.me/jacazio

Researcher at the University of Piemonte Orientale (RTT) working in the ALICE experiment at CERN and providing state-of-the-art research in high-energy nuclear physics. Research work has been published in international journals, including Nature Physics. Coordinator of the ALICE 3 simulation activities (about 50 active people). Former convener of the ALICE Physics Working Group dedicated to the study of the Light Flavour Physics (about 60 active people) and member of the ALICE Physics Board. Former coordinator of two analysis working groups (about 30 people each) in an international background (40 countries), experienced data analyst, skilled code developer (C/C++, Python). Responsible for the Quality Control and hardware expert for the Time-of-Flight detector, which is critical for the success of the whole experiment. Able to handle stressful situations where real-time feedback is required, e.g., critical data-taking periods. Speaker at international conferences. Expert in test beam analysis with bent silicon pixel chips. Experienced user of machine learning suites, particle identification expert, Monte Carlo simulation expert, data handling expert, experienced UNIX user, and creative LaTeX user. Scientific contribution recognised by the Italian National Education Ministry (MUR) in 2023 (ASN).

Research activities:

I focus my research on the characterisation of the quark-gluon plasma, a deconfined state of QCD matter reached in extreme temperature and density conditions, and where the fundamental degrees of QCD (quarks and gluons) are freed. These conditions are reached in relativistic heavy ion collisions. However, one cannot observe the QGP directly; one can only study it through the particles emerging from its hadronisation present in the final state. In particular, the bulk of the particles produced consists of low-momentum pions, kaons, and protons, which are the probes I study to characterise the QGP. The final state can be used to extract the QGP's thermodynamic properties (such as temperature and volume). For these reasons, in my early studies, I investigated the production of pions, kaons, and (anti-)protons across pp, Xe–Xe, and Pb–Pb collisions, and I contributed to the observation of unexpected behaviour such as the strangeness enhancement in high multiplicity pp collisions. I am an expert in particle identification. I developed the framework for particle identification that is used in the data analysis of the whole experiment. My framework is used in all analyses requiring particle identification, including for (anti-)nuclei (e.g. ^{3}He and ^{4}He) where the specific energy loss measured in the Time Projection Chamber (TPC) and Time of Flight measured in the TOF detector is

used. I also developed the analysis workflows used to monitor the tracking performance (e.g., pointing resolution, momentum resolution, et cetera), tracking efficiency, and TPC-TOF matching efficiency of the reconstructed data. I contributed to the project for an upgraded Inner Tracking System (ITS3), a revolutionary silicon tracker with extremely low material and cylindrical detector elements. My involvement in this project focused on studying the physics cases with the upgraded detector and the performance measurement of the detector prototypes in the beam tests. I contributed to writing the Letter of Intent for the ALICE 3 detector, a new silicon-based detector capable of recording high-rate heavy-ion collisions with extreme precision in Run 5. In particular, I evaluate the detector capabilities for tracking, vertexing, and particle identification. I also developed the physics cases covered by the detector in the light nuclei and exotica sector. In this context, I studied the decay of heavy-flavour hadrons and the exploratory studies for the detection of super-nuclei (bound states of heavy-flavour hadrons). I developed the fast simulation framework used to assess the performance and the physics reach of ALICE 3 and now coordinate the Simulation activities of the whole project. Currently, my efforts are fully dedicated to the Run 3 activities, projecting the future physics programme of the ALICE Collaboration in its era of high statistics. In this context, I am interested in the way that light (anti-)nuclei are formed. My goal is to provide critical measurements to constrain models of anti-nuclei propagation into space for dark matter searches. I am searching for exotic states and decay channels to produce light anti-nuclei from beauty hadron decays. In addition, I am measuring the size of the particle emitting source in pp and AA collisions by applying femtoscopy methods. I measured the Σ baryon production via its decay into anti-neutrons. I measured the production of multi-strange hadrons (Ξ and Ω) at the highest charged particle multiplicity ever achieved in pp collisions.

Notes of pride:

- Personal contribution to the discovery of the strangeness enhancement in small systems
- Presented my work at the major international conferences of the field
- Earned "Best ALICE Thesis" award for the best doctoral thesis, competing against 30 candidates from 40 countries
- Fluent in Italian, English and French (mother tongue)
- Aptitude towards an international environment
- IOT enthusiast, automation programmer

Professional experience:

- **Researcher (RTT), University of Piemonte Orientale**
  03/03/2025 – present

  - Researcher in experimental high-energy nuclear physics within the ALICE experiment at CERN, contributing to the study of the quark–gluon plasma and the physics of relativistic heavy-ion collisions.
  - Coordinator of the ALICE 3 simulation activities (about 50 active people), responsible for detector performance studies, fast simulation frameworks, and physics reach projections.
  - Developer of core analysis and reconstruction tools, including particle identification frameworks and workflows for tracking performance, efficiency, and TPC–TOF matching.
  - Expert in particle identification, Monte Carlo simulations, data handling, and machine learning techniques applied to high-energy physics analyses.
  - Teaching in Bachelor courses at the University of Piemonte Orientale, including Physics and Laboratory of Physics II.

- **Research fellow (RTDa), Bologna University**
  07/03/2022 - 20/02/2025
  - Senior researcher in ERC project Cosmic Anti-Nuclei focused on analysing the Large Hadron Collider data to provide constraints for dark matter searches. Responsible for the supervision of students and post-doctoral fellows (10 people).
  - Convener of the Physics Working Group on Light Flavour hadrons (about 60 people)
  - Coordinator of the Analysis Objects and Tools working group (about 30 people). Critical role in assessing the quality of the reconstructed data for analysis and developing the fundamental tools used by the collaboration in the O2/Physics packages, the main reconstruction, calibration, and analysis software of ALICE.
  - Developed the crucial aspects of the O2Physics particle identification framework to maximise throughput.
  - Measured the Σ production in pp and p–Pb collision reconstructing the decay channel into anti-neutrons.
  - Measured the Ξ and Ω production in high-multiplicity pp collisions.
  - Measured the π, K, p, production as a function of the charged particle multiplicity in pp and Pb–Pb collisions with data collected during the Run 3 of LHC.
  - Measured the ^{3}He production in pp collisions with data collected during the Run 3 of LHC.
  - Measured the proton emitting source size in pp and Pb–Pb collisions with data collected during the Run 3 of LHC.
  - Teaching in the Bachelor first-year and second-year courses of Laboratory of Physics
  - Teaching in the PhD courses of particle physics
  - Scientific contribution recognised by Italian National Education Ministry (MIUR) in 2023

    Abilitazione Scientifica Nazionale alle funzioni di professore universitario di Seconda Fascia nel Settore Concorsuale 02/A1
    FISICA SPERIMENTALE DELLE INTERAZIONI FONDAMENTALI.

- **CERN research fellow**
  01/01/2020 - 28/02/2022, CERN, Geneva Switzerland
  - Coordinator of the Physics Analysis Group dedicated to the light flavour hadron analyses, i.e. hadrons composed of u, d, s quarks (about 30 people).
  - Developed the framework for fast Monte Carlo simulation to optimise the design for a new detector (ALICE 3) to be installed at CERN in the years 2035. Member of the writing committee for writing the Letter of Intent released in 2021. Very positive feedback was received from the LHCC funding board, recommending to continue the R&D.
  - Pioneered the analysis with bent silicon chips with test beam data and demonstrated a novel way to identify light nuclei in silicon pixel detectors with analogue readout.
  - Supervision of Summer student projects focused on testing the new analysis framework.

- **Fellowship for technological research**
  01/04/2019 - 31/10/2019, INFN CNAF, Bologna (IT)
  - Contact person with the Tier1 for the ALICE experiment.
  - Performance measurement of Monte Carlo simulation on HPC clusters.
- **CERN Cooperation Associate (COAS, INFN fellowship)**
  01/01/2018 - 31/12/2018, CERN, Geneva (CH)
  - Measurement of the behaviour of the ALICE Time Of Flight in special high collision rate runs with conditions equivalent to the one of 2022.
  - On-call expert for the ALICE Time Of Flight detector during data taking. On-site expert for hardware interventions.
- **Marco Polo grant of the Bologna University**
  01/08/2017 - 1/01/2018, CERN, Geneva (CH)
  - On-call expert for the ALICE Time Of Flight detector during data taking. On-site expert for hardware interventions.

Academic path:

- **Bologna University:** 2015 - 2018
  - PhD in nuclear physics with scholarship, member of the ALICE Collaboration
    Thesis title: *Production and nuclear modification factors of pions, kaons and protons in pp and AA collisions at the LHC*
    Supervisor: Prof. Luisa Cifarelli, Co-Supervisor: Dr. Francesca Bellini
    Date of defense 18/03/2019
    Awarded the "Best ALICE Thesis Award" prize in 2019
- **Torino University:** 2012 - 2015
  - Master degree in nuclear and sub-nuclear physics (109/110)
    Thesis title: *Transverse momentum spectra of $\pi^{\pm}$, $K^{\pm}$, p and $\bar{p}$ as a function of the charged particle multiplicity in pp collisions at $\sqrt{s} = 7$ TeV with the ALICE experiment*
    Supervisor: Prof. Massimo Masera, Co-Supervisor: Dr. Francesco Prino
- **Torino University:** 2009 - 2012
  Bachelor in physics (109/110)
  Thesis title: *Application of the path integral formalism for the study of molecules and crystals*
  Supervisor: Prof. Mariaelena Boglione
- **Liceo scientifico A. Avogadro Biella:** 2004 - 2009

Responsibility roles and coordination activities:

- **Coordinator of the ALICE 3 simulation working group**
  May 2025 - Ongoing

  I am the coordinator of the ALICE 3 simulation working group. With this role, I am responsible for steering the development, the analysis and validation of the simulation framework for the ALICE 3 detector, coordinating efforts across the collaboration to ensure physics accuracy and computational efficiency. In this context I am also responsible for the performance estimates for the Technical Design Reports (TDRs) that have been written, coordinating efforts with a group of about 50 active people across the collaboration.

- **Convener of the ALICE Physics Working Group (PWG) on Light Flavour Physics and member of the ALICE Physics Board**
  April 2023 - May 2025

  I am one of the two coordinators of the Physics Working Group. With this role, I am responsible for steering the several light flavour analyses carried out within the group (about 60 active people). The scope of this task is to produce physics output focusing on the light flavour probes. During my convnership, the PWG absorbed the former PWG-MM (Multiplicity and Monte Carlo), I handled the transition and the merging of the two PWGs.

- **Coordinator of the DPG AOT-track group**
  April 2022 - April 2023

  I am one of the two coordinators of the Analysis Objects and Tools working group. With this role, I am responsible for steering the several analyses carried out within the group (about 30 active people). The scope of this task force is to assess the quality of the reconstructed and simulated data for analysis and to develop the fundamental tools used by the collaboration in the analysis.

- **Coordinator of the Spectra Physics Analysis Group**
  October 2020 - April 2023

  I am one of the two coordinators of the Spectra Physics Analysis Group (PAG). With this role, I am responsible for steering the several analyses carried out within the PAG (about 30 active people). The scope of this PAG is to carry out the most fundamental measurements to characterize the dynamics of heavy-ion collisions by measuring the light flavour particle production.

- **Responsible for the PID in the O^2 analysis software**
  February 2020 - Ongoing

  I am the main responsible for the development of the Particle Identification (PID) in the O^2 analysis framework, the analysis framework that will be used in Run 3 and Run 4 by the whole ALICE Collaboration. This task involves the development and performance assessment of the several detector responses (e.g. with the Time Of Flight, Time Projection Chamber, High Momentum Particle IDentification detectors) that allow for particle identification, from electrons to (anti-)protons and light (anti-)nuclei (up to ^{4}He), at the analysis level. This feature is of primary importance in the heavy-ion community to provide the fundamental measurements used to characterize heavy-ion collisions. This task includes the development of flagship analyses to prove the portability of analyses to the new O^2 analysis framework and to pave the road towards the restart of the data taking during Run 3.

- **Quality Control responsible for the ALICE Time Of Flight detector**
  2019 - 2023

  I am the main responsible for the Quality Control software in the O^2 framework for the quality monitoring during data taking and reconstruction with the ALICE Time Of Flight detector. To this purpose, I coordinate the TOF Quality Control team (three people) and provide support during the several commissioning phases carried out in view of Run 3. The ALICE TOF detector is fundamental for most of the analyses that are carried out within the collaboration as it is one of the main detectors used for particle identification, especially important for the light (anti-)nuclei identification. In addition, the ALICE TOF detector provides a trigger for cosmic events and ultra-peripheral collisions. The TOF detector Quality Assurance task includes the development of tools used to assess the stability of the detector performance during data taking.

- **Quality Assurance responsible for the ALICE Time Of Flight detector**
  December 2015 - 2019

  I am the main responsible for the quality checks on the data collected (and simulated) with the ALICE Time Of Flight detector. For this task I analysed all the data collected to evaluate the performance of the detector and validating its calibration, ensuring a stable performance over all data taking periods. In particular, I contributed to the stability of the performance of the TOF detector and its PID over the whole LHC Run 2, thus providing an indirect but essential contribution to all analyses that use TOF for particle identification. To this purpose, I coordinated the TOF Quality Assurance team (more than four people).

- **On-Call expert for the ALICE Time Of Flight detector**
  July 2017 - December 2018

  As an on-Call expert of the ALICE Time Of Flight detector, I have the responsibility of the system integrity and its operations during the data taking. This task includes ordinary maintenance on the detector like, for instance, changing hardware modules or performing tests with particular configurations of interaction rate or filling scheme, immediate interventions and problem-solving to maximise data taking efficiency. I also analysed the raw data collected in the high interaction rate tests carried out in 2017 in view of Run 3. These results were used to prove the feasibility of the upgrade program of the TOF detector and were presented by myself at the LHCP conference in 2018. I am also part of the team in charge of the hardware upgrade of the ALICE TOF detector.

- **Member of several internal analysis review committees**
  2015 - Ongoing

  As an ALICE member I contributed to the internal reviewing of 8 analyses before they were approved to be published.

Conference and workshop organization:

- **51th International Symposium on Multiparticle Dynamics (ISMD2022)**
  August 2022

  Track convener for the High-temperature QCD session

- **50th International Symposium on Multiparticle Dynamics (ISMD2021)**
  July 2021

  Track convener for the High-temperature QCD session

- **First light-flavour analysis with O^2 workshop (ALICE internal)**
  March 2021

  Organizer, speaker and tutor of the session (80 participants)

Technical skills:

On a day-by-day basis my work involves the development of software mostly using Python or C++. I use statistical techniques for my research e.g. in particle identification and Monte Carlo studies.

- I am familiar with the UNIX systems and with the Windows OS.
- I know most of MS Office products as well as their open-source alternatives.
- I use on a daily basis Markdown, LaTeX and Beamer as well as their extensions for graphics PGF/TikZ.
- As a programming language, I mainly use C++ (proficient) and Python (proficient) but have experience also with Java and Bash.
- I am familiar with the Keras neural networks utility for Machine Learning analyses using TensorFlow.
- I know data analysis packages such as Root, RooFit, Mathematica, Rivet, Yoda, Agile.
- I contribute to the development of the Corryvreckan software package for the analysis of the beam test data.
- In the context of the Monte Carlo simulation I'm familiar with the Delphes package and I contribute to its ALICE declination: DelphesO2.
- I'm an experienced user of the Pythia8 event generator.
- I'm an experienced user of the EPOS4 event generator.
- Concerning the ALICE experiment, I'm used to work with the AliRoot and AliPhysics packages. I have also experience with the AliDPG and O2DPG for the simulation/reconstruction of the data of the ALICE experiment. I wrote several injection schemes for the addition of rare signals on top of the background events.
- I'm an experienced user of the ALICE O^2 software and contribute regularly to the software of the ALICE Quality Control project.

Miscellanea:

- Peer reviewer for the European Physical Journal Plus
- Member of the ECFA Early-Career Researchers Panel

Teaching:

2025-today

- Lecturer: HGS-HIRe PEP: Introduction to Tracking

  Course for the Helmholtz Graduate School for Hadron and Ion Research (HGS) at the University of Frankfurt https://hgs-hire.de/ (8 hours)

  https://hgs-hire.de/program/lab/pep/25-1/index.shtml

  Topics covered:

  - Introduction to tracking detectors.
  - Track reconstruction algorithms.
  - Performance evaluation.

- Lecturer: FISICA (48 hours)

  Bachelor Course in Biology at the University of Piemonte Orientale

  Topics covered:

  - Basic physics.
  - Gravitation, electric/magnetic field, fluidodynamics, waves.
  - Biology implications.

- Lecturer: LABORATORIO DI FISICA II (72 hours)

  Bachelor Course in Applied Physics at the University of Piemonte Orientale

  Topics covered:

  - Optics, electronics.
  - Laboratory measurements, statistical analysis.

2023-2025

- Lecturer: Highlights in Experimental Nuclear Physics (6 hours)
  Course for the XXXIX Cycle of the PhD programme in Physics at the University of Bologna
  Topics covered:
  - Nuclear physics at accelerators.
  - Discussion of selected measurements related to QCD phenomenology and physics with nuclear beams
  - Introduction to the state-of-the-art research, including the main future directions in the field.
- Lecturer: LABORATORIO DI MECCANICA E TERMODINAMICA 10 CFU - Modulo 2 (42 hours)
  Bachelor Course in Physics at the University of Bologna
  Topics covered by Module 2:
  - Introduction to statistics and probability.
  - Introduction to experimental measurements and DAQ chains.
  - Introduction to error treatment and confidence intervals.
  - Data analysis with ROOT.
- Lecturer: LABORATORIO DI ELETTROMAGNETISMO E OTTICA 10 CFU - Modulo 5 (24 hours)
  Bachelor Course in Physics at the University of Bologna
  Topics covered by Module 5:
  - Concepts of Object-Oriented Programming in C++: coding conventions, classes, methods and attributes, encapsulation, aggregation, and inheritance. Polymorphism. ROOT.
  - Application of ROOT's Monte Carlo methods for generating physical distributions and parameterizing the effects of the measurement and detection apparatus (resolution, efficiency).
  - Introduction to git, usage and software deployment.

2022-2023

- Lecturer: LABORATORIO DI MECCANICA E TERMODINAMICA 10 CFU - Modulo 2 (42 hours)
  Bachelor Course in Physics at the University of Bologna
  Topics covered by Module 2:
  - Introduction to statistics and probability.
  - Introduction to experimental measurements and DAQ chains.
  - Data analysis with ROOT.

2016-2017

- Tutor for the Bachelor Course in Physics at the University of Bologna named LABORATORIO DI FISICA 2 (Modulo 2): Linguaggio di programmazione C++

2011-2013

- Tutor for the Bachelor Course in Physics at the University of Torino named LABORATORIO DI FISICA 1

Student supervision:

2025

- Supervision of a PhD student at the Bologna University:
  - Thesis title: "Production of ^{3}He and $\overline{^3\text{He}}$ in pp collisions at $\sqrt{s} = 13$ TeV with ALICE."
    https://amsdottorato.unibo.it/id/eprint/12220/
- Supervision of a Bachelor student of the Bologna University:
  - Thesis title: "Facility for c-deuteron production in ALICE"
    https://amslaurea.unibo.it/id/eprint/37352/

2024

- Supervision of a master student of the Bologna University:
  - Thesis title: "Study of antideuteron production from $\overline{\Lambda}_b$ at the LHC"
    https://amslaurea.unibo.it/id/eprint/33418/
- Supervision of a Bachelor student of the Bologna University:
  - Thesis title: "Studio della produzione di (anti)deuteroni con Pythia 8 a $\sqrt{s} = 13$ TeV"
    https://amslaurea.unibo.it/id/eprint/34118/

2023

- Supervision of a master student of the Bologna University:
  - Thesis title: "Experimental study of the antideuteron source in p-p collisions at LHC energies"
    https://amslaurea.unibo.it/30045/
- Supervision of a bachelor student of the Bologna University:
  - Thesis title: "Studio della funzione di correlazione per coppie di (anti)protoni in collisioni pp a $\sqrt{s} = 900$ GeV a LHC"
    https://amslaurea.unibo.it/28416/

2021

- Supervision of two projects of the CERN summer student programme:
  - Project title: "Measurement of the nuclear modification factor with the O^2 framework"
    https://cds.cern.ch/record/2780546?ln=en
  - Project title: "Evaluating the impact of PID on Λ_c^+ signal extraction with the ALICE 3 detector"
    https://cds.cern.ch/record/2780704?ln=en
- Co-supervision of one project of the CERN summer student programme:
  - Project title: "Delphes fast simulation for ALICE"

2018

- Supervision of two projects of the CERN summer student programme:
  - Project title: "Using deep neural network to reduce mismatch in ALICE Time Of Flight"
    https://cds.cern.ch/record/2639190

- Project title: "Comparison of the Effectiveness of the Boltzmann-Gibbs Blast Wave-Model with the Tsallis Blast-Wave Model of pp Collisions at 7 TeV"
  https://cds.cern.ch/record/2638410
- Co-supervision of one project of the CERN summer student programme:
- Project title: "Analysis of the TOF single-channel performance by using cosmic rays triggered in the ALICE experiment during the 2016/17 data taking campaign"
  https://cds.cern.ch/record/2635967

2016

- Supervision of a bachelor student of the Bologna University:
- Thesis title: "Misura della risoluzione temporale del sistema a Tempo di Volo (TOF) di ALICE a $\sqrt{s_{\rm NN}} = 5.02$ TeV"
  https://amslaurea.unibo.it/12401/

Outreach:

As part of my activities as a scientist, I contribute to introduce the general public to the topics of science and to the field of research that are carried out at the LHC.

- Public engagement activity: Da dove vengono i colori?

  Laboratory show activity for the youngest on the origin of the colours
  https://web.infn.it/photondetectors2025/da-dove-vengono-i-colori/

- Book presentation with editor

  "Dieu la science les preuves", M. Bolloré, O. Bonnassies
  http://www.oratoriosanfilippobiella.it/2024/05/10/dio-la-scienza-le-prove/

- ALICE Masterclass 2024 (30 students)

  20th edition of the The International Masterclasses steered by the International Particle Physics Outreach Group (IPPOG). Organizer and lecturer of the masterclass. https://ippog.org/news/international-masterclasses-2024-registration-now-open

- ALICE Masterclass 2023 (30 students)

  19th edition of the The International Masterclasses steered by the International Particle Physics Outreach Group (IPPOG). Organizer and lecturer of the masterclass. https://ippog.org/news/19th-international-masterclasses-2023

- Official ALICE CERN guide since 2018

- Guide of the Società Italiana di Fisica (SIF) exhibition: "Enrico Fermi – Una duplice genialità tra teorie ed esperimenti"

  6th February – 10th of April 2016, in Bologna
  https://www.bo.infn.it/tgenerale/mostra-enrico-fermi/

Talks in national and international conferences:

2025

- XXXI Cracow Epiphany Conference on the recent LHC Results (Vysoke Tatry, Slovakia)
  https://indico.cern.ch/event/1459306/
  Invited plenary talk: *Dark Matter Searches by ALICE*
- Quark Matter 2025 (Frankfurt, Germany)
  https://indico.cern.ch/event/1334113/
  Poster: *ALICE explores the dependence of strangeness production on global and local properties of the pp collision*
- 2025 European Physical Society Conference on High Energy Physics (Marseille, France)
  https://indico.in2p3.fr/event/33627/
  Poster: *Probing sound propagation in the QGP via relativistic ultra-central collisions with ALICE*
- Workshop on isospin symmetry violation: kaons and beyond - ISO-BREAK 25 (Kielce, Poland)
  https://indico.cern.ch/event/1557894/
  Invited plenary talk: *Charged and neutral kaon production in ALICE*

2024

- Triggering Discoveries in High Energy Physics III (Vysoke Tatry, Slovakia)
  https://indico.cern.ch/event/1361472/
  Invited plenary talk: *ALICE3*
- Congresso Nazionale SIF (Bologna, Italy)
  https://2024.congresso.sif.it/
  Parallel talk: *Modelling antideuteron production by coalescence from high-energy hadronic collisions to cosmic rays*
- EXA/LEAP 2024 (Vienna, Austria)
  https://indico.cern.ch/event/1335855/
  Parallel talk: *Formation of (anti)deuteron from a coalescence afterburner*
- ICHEP 2024 (Prague, Czech Republic)
  https://indico.cern.ch/event/1291157/
  Invited plenary talk: *ALICE highlights*

2023

- Particle Colloquium (Heidelberg, Germany)
  http://www.physi.uni-heidelberg.de/Veranstaltungen/Vortraege/Abstract_Jacazio.pdf
  Invited seminar: *ALICE looks at the sky*

- LMee Workshop (Burg Ebernburg, Germany)
  https://indico.cern.ch/event/1335041/
  Invited seminar: *Experience with Run3 data: challenges and caveats*
- Quark Matter 2023 (Houston, USA)
  https://indico.cern.ch/event/1139644
  Poster: *Production of pion, kaon, proton in high multiplicity pp collisions at 13 TeV at the ALICE experiment*
- LHCP 2023 (Belgrade, Serbia)
  https://indico.cern.ch/event/1198609/
  Invited plenary talk: *The limits of QGP-like effects towards smaller systems: from Pb-Pb down to pp and fixed-target collisions*
  Proceedings in: *PoS* LHCP2023 (2024), p. 211. DOI: 10.22323/1.450.0211. arXiv: 2401.13745 [hep-ex]

2022

- The 15th Quark Confinement and the Hadron Spectrum conference (Stavanger, Norway)
  https://indico.uis.no/event/2/
  Invited plenary talk: *Heavy ion collisions as a tool: which physics can be explored?*
- ICHEP 2022 (Bologna, Italy)
  https://agenda.infn.it/event/28874
  Parallel talk: *ALICE 3*
- Nuclear Physics Seminar Frankfurt (Frankfurt, Germany)
  https://itp.uni-frankfurt.de/~hees/np-colloquium/kolloquium-ws2122.html
  Invited seminar: *Light flavour production in pp and heavy ion collisions at the LHC*

2021

- The 30th International Workshop on Vertex Detectors (Online attendance)
  https://indico.cern.ch/event/1047531/
  Parallel talk: *Analysis of test beam data with bent MAPS sensors for the ALICE upgrade.*
- Online Strangeness in Quark Matter Conference 2021 (Online attendance)
  https://indico.cern.ch/event/985652/
  Parallel talk: *Studying light-flavour hadrons produced in the collisions of different nuclei at the LHC with ALICE*
  Proceedings in: *EPJ Web Conf.* 259 (2022), p. 11012. DOI: 10.1051/epjconf/202225911012. arXiv: 2109.12638 [nucl-ex]
- Workshop di CCR - italian Commission of Computing and Network (Online attendance)
  https://agenda.infn.it/event/25889/
  Plenary talk: *Evolution of ALICE computing: model for LHC Run 3 and 4 and analysis framework for Runs 2 and 3*

2020

- INFN seminar: aperitivi scientifici (Bologna, Italy)
  https://agenda.infn.it/event/23191/
  Invited seminar: *Light flavour production in pp and heavy ion collisions at the LHC*

2019

- 7th Edition of the Large Hadron Collider Physics Conference (Puebla, Mexico)
  https://indico.cern.ch/event/687651/
  Parallel talk: *Recent results on collective effects and soft particle production in heavy-ion collisions from ALICE*
- FATA2019: FAst Timing Applications for nuclear physics and medical imaging (Acireale, Italy)
  https://agenda.infn.it/event/18991/
  Invited plenary talk: *Ten years of operation of the MRPC TOF detector of ALICE: results and perspectives*

2018

- The Sixth Annual Large Hadron Collider Physics conference LHCP 2018 (Bologna, Italy)
  http://lhcp2018.bo.infn.it/
  Parallel talk: *PID performance of the ALICE-TOF detector at Run 2*
  Proceedings in: *PoS* LHCP2018 (2018), p. 232. DOI: 10.22323/1.321.0232. arXiv: 1809.00574 [physics.ins-det]
- Quark Matter 2018, the XXVIIth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions (Venezia, Italy)
  https://indico.cern.ch/event/656452/overview
  Poster: *Energy dependence of particle production and R_{AA} in Pb–Pb collisions with ALICE*
- 53rd Rencontres de Moriond, QCD and High Energy Interactions (La Thuile, Italy)
  http://moriond.in2p3.fr/QCD/2018/MorQCD18Prog.html
  Plenary talk: *Measuring hydrodynamical expansion via the production of identified hadrons in Pb–Pb collisions with ALICE*
  Proceedings in: *53rd Rencontres de Moriond on QCD and High Energy Interactions*. 2018, pp. 271–274. arXiv: 1806.07617 [nucl-ex]

2017

- Quark Matter 2017, the XXVIth International Conference on Ultra-relativistic heavy-ion Collisions (Chicago, USA)
  https://indico.cern.ch/event/433345/overview
  Parallel talk: *Production of identified and unidentified charged hadrons in Pb–Pb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV*
  Proceedings in: *Nucl. Phys. A* 967 (2017). Ed. by Ulrich Heinz, Olga Evdokimov, and Peter Jacobs, pp. 421–424. DOI: 10.1016/j.nuclphysa.2017.05.023. arXiv: 1704.06030 [nucl-ex]

2016

- INFN 2016, Terzo Incontro Nazionale di Fisica Nucleare 2016 (Frascati, Italy)
  https://agenda.infn.it/event/10586/
  Plenary talk: *Misura degli adroni composti da quark leggeri in funzione della molteplicità con l'esperimento ALICE.*
- Hot Quarks 2016, 7th Workshop for young scientists on the physics of ultrarelativistic nucleus-nucleus collisions (South Padre Island, USA)
  https://indico.cern.ch/event/507867/
  Plenary talk: *Multiplicity dependence of light flavour hadrons in small systems with the ALICE experiment*
  Proceedings in: *J. Phys. Conf. Ser.* 832.1 (2017), p. 012019. DOI: 10.1088/1742-6596/832/1/012019
- IFAE 2016, XV Incontri di Fisica delle Alte Energie (Genova, Italy)
  https://agenda.infn.it/event/10129/
  Plenary talk: *Multiplicity dependence of light flavour hadrons in pp collisions at* $\sqrt{s} = 7$ *TeV with the ALICE experiment*
  Proceedings in: *Nuovo Cim. C* 40.1 (2017), p. 7. DOI: 10.1393/ncc/i2017-17007-8

2015

- LHCC Student poster session (Geneve, Switzerland)
  https://indico.cern.ch/event/369822/
  Poster: *Transverse momentum spectra of pi, K and p in small collision systems: search for collective phenomena.*

Summary of publications with personal contribution :

As a member of the ALICE Collaboration I am co-author of more than 400 scientific articles.
https://inspirehep.net/authors/1419008
Accounting for 13090 citations by 4635 documents
h-index: 63 https://www.scopus.com/authid/detail.uri?authorId=57220400921
ORCID: https://orcid.org/0000-0002-3066-855X