



Vieri Candelise

CURRICULUM VITAE

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I was born in Cosenza, Italy, on the 23rd of February, 1987. Since 2010, I am associated to the research activities of CERN and INFN. I am a member of the CMS Collaboration at CERN since 2011. I collaborate with the International Muon Collider Collaboration since 2020.

WORK EXPERIENCE

- Abilitazione Scientifica Nazionale I Fascia — obtained on 08/07/2024
Professore Ordinario, Sector 02/A1, Experimental Physics of Fundamental Interactions
- Abilitazione Scientifica Nazionale II Fascia — obtained on 05/10/2018
Professore Associato, Sector 02/A1, Experimental Physics of Fundamental Interactions
- Senior Faculty Researcher (RTDb) — 01/10/2022 - ongoing
University of Trieste
- Junior Faculty Researcher (RTDa) — 01/12/2017 - 02/10/2022
University of Trieste
- Post-doctoral Researcher — 01/02/2016 - 30/11/2017
National Central University of Taiwan 國立中央大學
- Assegno di Ricerca INFN — 01/02/2014 - 01/02/2016
University of Trieste
- CERN Associate — 01/07/2014 - 01/07/2015
Geneva, Switzerland

EDUCATION

- Ph.D. in Particle Physics — 2011-2014, obtained on March 14th, 2014
University of Trieste. Relatori: Prof. G. Della Ricca, Dr. F. Cossutti.
Title: *Measurement of the associated production of a Z boson and b quarks at 8 TeV with the CMS experiment.*
- Master Degree in Nuclear and Subnuclear Physics — 2008-2010
University of Rome “La Sapienza”. Relatori: Prof. C. Dionisi, Stefano Giagu
Rank: 110/110 *cum laude*.
Title: *Study of the muon trigger algorithms of the ATLAS experiment with early LHC data*
- Bachelor Degree in Physics — 2005-2008
University of Rome “La Sapienza”. Relatori: Prof. C. Dionisi
Title: *Oscillation and Regeneration of Neutral Kaons*

INTERNATIONAL RESEARCH RESPONSIBILITIES

- Coordinator (Convener) — 2023, ongoing (2 years mandate)
LHC Electroweak Working Group at CERN
- Coordinator (Convener) — 2020-2023 (3 years mandate)
Standard Model Vector Bosons plus Jets physics group of the CMS experiment at CERN
- Coordinator (Convener) — 2019-2021 (2 years)
LHC Electroweak Working Group - Jets and Bosons physics group at CERN
- Coordinator (Convener) — 2018-2020 (2 years)
Physics Comparisons and Generator Tunes group of the CMS experiment at CERN
- Generators Expert (Contact Person) — 2014-2017 (3 years)
Standard Model, Beyond-two-Generations and Muon groups of the CMS experiment
- Shift Leader and Technical Shifter at the CMS Experiment (from 2023) at CERN

NATIONAL ACADEMIC RESPONSIBILITIES

- Membro del Gruppo Esperti Valutazione (GEV) dell'ANVUR, selezionato a marzo 2024.
Mandato di due anni per la valutazione della VQR 2020-2024 (Ministero della Ricerca)
- Valutatore di panel d'area (VPA) for the CVR (Commissione per la Valutazione della Ricerca), campagna 2023 - appointed by University of Trieste for the Department of Physics, September 2023
- Membro della Task force for the web development for the Department of Physics at University of Trieste - Dipartimento di Eccellenza

AWARDS, FUNDINGS AND INTERNATIONAL PROJECTS

- PRIN Associate Investigator, local PI — 2021, University of Trieste
Progetto di Ricerca di Rilevante Interesse Nazionale: PINCH: Precision timing in the quest for New physics at LHC, ERC subfields PE2₂, PE2₃. — 2022 (**awarded, score 98/100**)
- Microgrants Award — 2020, University of Trieste
funded on the project Measurement of the Z(invisible)+photon cross section and search for new physics through the anomalous invisible triple gauge couplings at 13 TeV with the CMS experiment at CERN (**awarded**)
- FRA Award — 2020, University of Trieste
funded on the project “Measurement of the W/Z+photons cross section and search for new physics through the anomalous invisible triple gauge couplings at 13 TeV with the CMS experiment at CERN” (**awarded**)
- PRIN Associate Investigator, local PI — 2021, University of Trieste
Progetto di Ricerca di Rilevante Interesse Nazionale: Cutting edge Machine Learning

algorithms for jet substructure in the search for new physics at the LHC and Muon Collider, ERC subfields PE2₁, PE2₂. — 2021 (not selected)

- PRIN Associate Investigator, local PI — 2017, University of Trieste
Progetto di Ricerca di Rilevante Interesse Nazionale: HIT: Frontier Higgs Physics at the Large Hadron Collider with High precision Timing Sensors and Advanced Methods, ERC subfields PE2₁, PE2₂. — 2017 (not selected)

EDITORIAL BOARD AND COMMITTEES

- Referee of the *European Physics Journal C, EPJC* (4 reviews)
- Referee of the *Journal Nuclear Inst. and Methods in Physics Research, A* (2 reviews)
- Referee of the Scientific Evaluation Board of the *FNRS* - Belgium (4 reviews)
- Member of the Scientific Committee of the international conference *QCD@LHC 2024*
- Editorial Board of the Proceedings of Science of the 2023 Edition of *WIFAI - Workshop Italiano sulla Fisica ad Alta Intensità*
- Member of the Scientific Committee of the national conference *WIFAI - Workshop on status and perspectives of physics at high intensity* editions: 2023 (Rome), 2024 (Bologna)
- Member of *Collegio Fonda* Selection Board for exceptional students of the Master Degree Program at the University of Trieste (2021 and 2022)
- Referee of the PhD thesis by Andrea Piccinelli, Università di Perugia, XXXV Ciclo, 2023
- Principal Editor of more than 10 CMS Analysis Notes
- Selected Member of the CMS Analysis Review Committee (10 reviews)

TALKS AT INTERNATIONAL CONFERENCES

1. Sfântu Gheorghe, Romania, **invited plenary** talk “Standard Model results at the LHC” at *Trends2024: New Trends in High Energy Physics* International Conference — September 1st, 2024
2. Durham, UK, **invited plenary** talk “Vector Boson and Heavy Flavours” at the LHC” at *QCD @ LHC* International Conference — September 8th, 2023
3. Hamburg, Germany, **parallel** talk “Associated production of a vector boson and heavy flavours at CMS” at the *European Physical Society - EPS-HEP* International Conference, — August 24th, 2023
4. Manchester, UK, **invited plenary** talk “High Momentum QCD at the LHC” at *Lepton-Photon Interactions International Conference* — January 15, 2022

5. Manchester, UK, poster “potential for $H \rightarrow \mu\mu$ at a Muon Collider” at *Lepton-Photon Interaction International Conference* — January 15, 2022
6. Isola d’Elba, **plenary** talk “V+jets physics at CMS” at the *Low-x International Conference*, — September 27, 2021
7. Hamburg, poster “Prospect for the measurement of $H \rightarrow \mu\mu$ at a 3 TeV Muon Collider” at the 2021 edition of the *European Physical Society (EPS)* conference (virtual conference).
8. University of Edinburgh (Scotland): **invited plenary** talk “LHC experimental results on the associated production of electroweak bosons and jets” at the “*Resummation, Evolution, Factorization*” Conference at the Higgs Centre for Theoretical Physics (virtual conference). — December 7, 2020.
9. Italy: **invited plenary** “Electroweak bosons physics at the LHC” at *Italian Physical Society national meeting 2020* (virtual conference). —September 18, 2020.
10. University of Prague (Czech Republic): **plenary** talk “Monte Carlo Modeling and Tuning in CMS” at *MPI 2019 International Conference*. — May 4-8, 2019.
11. University of Pittsburgh (USA): **plenary** talk “Electroweak Physics with Single and Multiboson final states at CMS” at *Phenomenology 2019 International Conference*. — May 4-8, 2019.
12. Kobe University (Japan): **invited plenary** talk “Collider studies on jet and heavy flavour properties at ATLAS, CMS, ALICE and LHCb” at *XXVI International Workshop on Deep Inelastic Scattering and Related Subjects*. — April 16-20, 2018.
13. University of Alberta (Canada): **plenary** talk “Search for diboson resonances at CMS” at *Lake Louise 2017*. — February 19-26, 2017.
14. Tamkang University, Tamsui (Taiwan): **plenary** talk “Search for HH resonances at CMS” at PSROC 2017: Annual Meeting of the Physical Society of the Republic of China. — January 16-18, 2017.
15. Zurich (Switzerland): **plenary** talk “Search for New Resonances Decaying to Boosted Higgs Signatures at CMS” at BOOST 2016. — July 18-22, 2016.
16. Wildbad Kreuth, Munich (Germany): **plenary** talk “V+jets studies in ATLAS and CMS” at the XLV International Symposium on Multi Particle Dynamics (ISMD2015). — September 28 - October 5, 2015.
17. Saint Petersburg (Russia): **plenary** talk “V+jets at CMS” at LHCP2015. — August 31-September 5, 2015.
18. Birmingham (UK): **plenary** talk “Study of heavy flavour and vector bosons associated production at CMS” at BEACH2014. — July 21, 2014.
19. L’Aquila (Italy): **plenary** talk for the 2014 Incontri di Fisica delle Alte Energie (IFAE) National Congress, talk title: “Associated production of W,Z bosons and heavy flavours at CMS”. — April 9, 2014.
20. La Thuile, Aosta Valley (Italy): **plenary** talk “W and Z studies at CMS” at the 27`eme Rencontres de Physique de la Vall’ee d’Aoste. — February 24th, 2013.
21. L’Aquila, Italy: **plenary** talk “Misura della sezione d’urto inclusiva dei bosoni W e Z a

CMS” for the XCVII Italian Physics Society (SIF) National Congress.

22. Uppsala University. **Invited seminar** “Standard Model Physics with V+Jets in CMS” at the Uppsala University, —June 2020 (postponed due to pandemic emergency).
23. Stockholm University and KTH Royal Institute **Invited seminar** “Standard Model Physics with V+Jets in CMS” —June 2020 (postponed due to pandemic emergency).

ORGANIZATION OF CONFERENCES AND WORKSHOPS

1. Organizer, chair and convener of the 2024 edition of the *LHC Electroweak Working Group Workshop*, February 27th, 2024 (about 100 participants from the ATLAS, CMS, LHCb, ALICE Collaborations and the CERN Theory Division)
2. Convener of the “Perturbative QCD” Session of the QCD@LHC 2024 Conference, Freiburg University, Germany
3. Convener of the “Dark Sector” Session of the WIFAI 2024 Conference, Università di Bologna, Italy
4. Organizer, chair and convener of the first two editions of the LHC-Electroweak Topical Workshop on Vectors Boson plus Heavy Flavours physics, three-days workshop held at CERN — March-April 2020/2021 (more than 50 participants)
5. Convener of the “Rare Decays” Session of the WIFAI 2023 Conference, Università di Roma 3, Italy
6. Organizer, chair and convener of the first two editions of the Theory+Experiment Forum on V+jets physics, to be held at CERN — February-March 2022, March 2023 (more than 50 participants)
7. Organizer and chair of the Vector Bosons plus jets bi-weekly meetings within the Standard Model Physics group at CERN (more than 20 meetings)
8. Organizer and chair of the LHC-Electroweak Jets and Bosons theory-experiment cross meetings and workshops at CERN during the period 2019-2021 (more than 10 workshops)
9. Organizer and chair of the Physics Comparisons and Generator Tunes meetings within the Monte Carlo Generators group of the CMS experiment at CERN (more than 20 meetings)

TEACHING

Corso di Laurea Triennale

1. Titolare del Corso “Fisica I”, University of Trieste, Department of Engineering, CdL Ingegneria Civile, Ambientale, Biomedica, Elettronica e Informatica. AA: 2023/24. [average global student's evaluation \(question D12 “è complessivamente soddisfatto di come è stato svolto questo insegnamento?” from University of Trieste Evaluation System\): 7.96/10](#)
2. Co-Titolare del Corso “Introduzione alla Fisica Nucleare e Subnucleare”, CdL in Fisica, University of Trieste, Department of Physics. AA: 2023/24, 2022/23, 2021/22, 2020/21,

2019/20. average global student's evaluation (question D12 "*è complessivamente soddisfatto di come è stato svolto questo insegnamento?*" from University of Trieste Evaluation System): 7.3/10

3. Titolare del Corso "Fisica, Statistica e Informatica", University of Trieste, Department of Medicine. Academic Years: 2023/24, 2022/23, 2021/22, 2020/2021, 2019/2020, 2018/2019. average global student's evaluation (question D12 "*è complessivamente soddisfatto di come è stato svolto questo insegnamento?*" from University of Trieste Evaluation System): 7.7/10
4. Co-Titolare del corso "Laboratorio III", CdL in Fisica, University of Trieste, Department of Physics. Academic Years: 2020/2021, 2019/2020, 2018/2019, 2017/2018. average global student's evaluation (question D12 "*è complessivamente soddisfatto di come è stato svolto questo insegnamento?*" from University of Trieste Evaluation System): 8.9/10
5. Co-Titolare del corso "Fisica Biomedica", CdL in Medicina e Odontoiatria, University of Trieste, Department of Medicine, A.A 2022/23 average global student's evaluation (question D12 "*è complessivamente soddisfatto di come è stato svolto questo insegnamento?*" from University of Trieste Evaluation System): 7.5/10

Ph.D. Program in Physics

6. Titolare del Corso - "Statistical Methods and Phenomenology of New Physics Searches at LHC" Ph.D. Lectures, University of Trieste, Department of Physics. AA: 2023/24 (XXXIX Cycle) 2022/23 (XXXVIII Cycle) 2021/22 (XXXVII Cycle) 2020/21 (XXXVI Cycle) 2019/2020 (XXXV Cycle) 2018/2019 (XXXIV Cycle).

International Physics Schools

7. Titolare del corso - "Drell-Yan Processes in Monte Carlo Simulations" at the International School on data analysis DASia, organized by CERN at the National Central University of Taiwan in Taipei, Taiwan, 2016.

SUPERVISION OF THESIS AND MENTORING

Ph.D. in Physics

1. Supervisor of the Ph.D. of Raffaele Delli Gatti (University of Trieste, XXXIX Cycle) — 2023-2026 (ongoing)
2. Supervisor of the Ph.D. of Giulia Sorrentino (University of Trieste, XXXV Cycle) — 2019-2022 Defended in 2022 [<https://pubblicazioni.dsi.infn.it/tesi/gettesi.php?filename=532428.pdf>]
3. Co-Supervisor of the Ph.D. of Yu-Hsiang Chang (National Central University of Taiwan) — Defended in 2017
4. Co-Supervisor of the Ph.D. of Chiara La Licata, University of Trieste, Italy — Defended in 2015 [link: <https://pubblicazioni.dsi.infn.it/dettaglioTesi.php?tid=9014>]

Master Degree in Physics

5. Supervisor of the Master Thesis by Francesca Fiore (University of Trieste) — 2024/25 (ongoing)
6. Supervisor of the Master Thesis by Giulia Liberalato (University of Trieste) — 2024/25 (ongoing)
7. Supervisor of the Master Thesis by Tiziano Pauletto (University of Trieste) — 2024 [link: <https://pubblicazioni.dsi.infn.it/tesi/gettesi.php?filename=532264.pdf>]
8. Supervisor of the Master Thesis by Raffaele Delli Gatti (University of Trieste) — 2023 [link: <https://pubblicazioni.dsi.infn.it/tesi/gettesi.php?filename=533358.pdf>]
9. Supervisor of the Master Thesis by Alessandro Montella (University of Trieste) — 2021 [link: <https://pubblicazioni.dsi.infn.it/dettaglioTesi.php?tid=531188>]
10. Supervisor of the Master Thesis by Giulia Sorrentino (University of Trieste) now Ph.D. student at University of Trieste. — 2019 [link: <https://pubblicazioni.dsi.infn.it/dettaglioTesi.php?tid=13728>]
11. Supervisor of the Master Thesis by Ksenia de Leo (University of Trieste) now Ph.D. fellow at University of Hamburg. — 2018 [link: <https://pubblicazioni.dsi.infn.it/dettaglioTesi.php?tid=12852>]
12. Co-Supervisor of the Master Thesis by Andrea Turcati, Academic Year University of Trieste, Italy — 2013/14 [link: <https://pubblicazioni.dsi.infn.it/dettaglioTesi.php?tid=8983>]
13. Co-Supervisor of the Master Thesis by Francesco Peri, University of Trieste, Italy — 2014/15 [link: <https://pubblicazioni.dsi.infn.it/dettaglioTesi.php?tid=9970>]

Bachelor Degree in Physics

14. Supervisor of the Bachelor Thesis by Sebastiano Pian (University of Trieste) —2024 [link: <https://pubblicazioni.dsi.infn.it/tesi/dettaglioTesi.php?tid=10953>]
15. Supervisor of the Bachelor Thesis by Nicolò Piazza (University of Trieste) —2023 [link: <https://pubblicazioni.dsi.infn.it/tesi/dettaglioTesi.php?tid=10953>]
16. Supervisor of the Bachelor Thesis by Andrea Segalotti (University of Trieste) — 2022 [link: <https://pubblicazioni.dsi.infn.it/tesi/dettaglioTesi.php?tid=532263>]
17. Co-Supervisor of the Bachelor Thesis by Tiziano Pauletto (University of Trieste) — 2022 [link: <https://pubblicazioni.dsi.infn.it/tesi/dettaglioTesi.php?tid=532264>]
18. Supervisor of the Bachelor Thesis by Giulia Liberalato (University of Trieste) — 2021 [link: <https://pubblicazioni.dsi.infn.it/tesi/dettaglioTesi.php?tid=531214>]
19. Supervisor of the Bachelor Thesis by Alessandro Montella (University of Trieste) — 2019 [link: <https://pubblicazioni.dsi.infn.it/dettaglioTesi.php?tid=12857>]

20. Supervisor of the Bachelor Thesis by Samuele Pedrielli (University of Trieste) — 2021
[link: <https://pubblicazioni.dsi.infn.it/dettaglioTesi.php?tid=528936>]

21. Co-Supervisor of the Bachelor Thesis by Federico Vazzoler, University of Trieste, Italy — 2013/14
[link: <https://pubblicazioni.dsi.infn.it/dettaglioTesi.php?tid=9823>]

22. Co-Supervisor of the Bachelor Thesis by Alessandro Angioi, Academic Year University of Trieste, Italy —2012/13
[link: <https://pubblicazioni.dsi.infn.it/dettaglioTesi.php?tid=7008>]

Tirocini Formativi Triennali e Magistrali

I supervised more than 20 students at bachelor and master level.

OUTREACH AND SCIENCE COMMUNICATION

1. Speaker for the SUMO SCIENCE international event in Trieste for Trieste NEXT and Sharper 2024
2. Co-organizer of several events for Trieste NEXT and Sharper - Notte Europea dei Ricercatori, 2024
3. Co-organizer of several events for Trieste NEXT and Sharper - Notte Europea dei Ricercatori, 2023
4. PCTO project jointly with Liceo Vedramini di Pordenone, University of Trieste and INFN for a total 12 hours, Sept. 2023
5. Organizer of “Ludoteca delle Particelle” event for the 2023 edition of Researcher’s Night at Immaginario Scientifico, Trieste, Sept. 2023
6. Speaker for Sharper project “Verso l’Infinitamente Piccolo” for secondary schools in Trieste: Liceo Oberdan, Liceo Volta, Liceo Galilei (3h lessons each, total of 4 lectures)
7. Speaker at the the Sharper 2021 - European Researcher’s Night - Public Seminar
8. CERN Virtual Visit event for the public in Trieste, Casa Della Musica, 2021.
9. Organizer of the 2022 edition of the CERN Visit for master and bachelor students, University of Trieste and CERN.
10. Co-organizer of the 2018, 2022 editions of the CERN Visit for master and bachelor students, University of Trieste and CERN.
11. 8Lecturer and tutor for the 2012, 2018, 2022 edition of CERN-INFN Masterclass sessions for high school students. Tutor for the 2014, 2015 editions.
12. Local Coordinator for the European outreach project Pint Of Science in Trieste, from

2019 (ongoing).

13. Local Coordinator of the the Sharper 2020 - European Researcher's Night - CERN Virtual Visit event for the INFN Trieste and UniTS, 2020.
14. Invited Speaker for a public talk on particle physics at the Caffè dei Quanti outreach event in Trieste, 2020.
15. Finalist of the regional selection of FameLab 2020 international outreach competition, 2020.
16. Co-organizer of the 2018 edition of European Researcher's Night in Trieste within INFN and CERN, 2018.
17. Official guide for the INFN activities Open Days 2018 at Area di Ricerca, Padriciano, 2018.
18. Invited Speaker for a public talk on particle physics for the Pint Of Science European event in Trieste, Pub Grande Buffo, 2018.
19. Local Coordinator for the Particle Physics Stand in the 2013 edition of the European Researcher's Night in Trieste, Italy, 2013.
20. Official Underground Guide for public visits at the CMS experiment and CERN.

FULL LIST OF PUBLICATIONS AND BIBLIOMETRICS

As a member of the CMS Collaboration, I signed more than 900 publications.

- Indexed Publications:

total publications: 987 (from Web Of Science) - total citations: 38368 (from Web Of Science)

average citations: 45.27 (from Web Of Science) h-index: 90 (from Web Of Science)

Full list of publications: <http://inspirehep.net/search?&p=vieri+candelise>.

HepNames summary: <http://inspirehep.net/author/profile/V.Candelise.1>.

NON-ACADEMIC

Outside the walls of Academia, I'm a guitarist, flautist and drummer. I performed in live shows with several bands in Italy and Switzerland (*Laser Orchestra, Anna and the Lasers, The Sprawl, IMS Trieste end of the year shows*). I had a theater play experiences at the University of Geneva within the "Ghiribizzo" company (*I Giganti della Montagna, by L.Pirandello*). I am a post-punk, modern art, surrealism and abstract art lover. I am also deeply passionate about surrealism in cinema and old movies. I am engaged in a Science communication and outreach mission.

Appendix A: list of the publications where I was selected as member of the Analysis Review Committee by the CMS Collaboration at CERN

1. Upsilon (nS) in pp and pPb at 5.02 TeV
2. Search for W boson decays to three charged pions
3. High-pt jet measurements at HL-LHC (not accepted)
4. Precision measurement of the Z invisible width at 13 TeV
5. Zgamma vector boson scattering
6. Search for ZZ VBS in the $4l + 2j$ final state with full Run2
7. Differential jet production cross-section as a function of jet mass and p_T in Z+jet (not accepted)
8. Measurement of exclusive Upsilon photoproduction in pPb collision at 8.16 TeV (not accepted)
9. Search for a resonance around 28 GeV in events with 2 muons + b jet
10. Measurement of event shapes in minimum bias events` (not accepted)

Appendix B: year-by-year student evaluation from *SISValDidat* University System Database

question D12 (*Sei globalmente soddisfatto di come è stato svolto questo insegnamento?*)

2023/24 (RTDb - II anno)

INTRO FISICA NUCLEARE E SUBNUCLEARE	7.18
INGEGNERIA ELETTRONICA E INFORMATICA	7.34
INGEGNERIA CIVILE E AMBIENTALE	7.96

2022/23 (RTDb - I anno)

INTRO FISICA NUCLEARE E SUBNUCLEARE	7.14
FISICA, STATISTICA E INFORMATICA (CdS Igiene)	7.45
FISICA MEDICA (CdS Medicina)	7.55
FISICA APPLICATA (CdS Odontoiatria)	7.13

2021/22 (RTDa - IV anno)

INTRO FISICA NUCLEARE E SUBNUCLEARE	8.06
FISICA, STATISTICA E INFORMATICA (CdS Igiene)	7.22

2020/21 (RTDa - III anno)

INTRO FISICA NUCLEARE E SUBNUCLEARE	8.65
FISICA, STATISTICA E INFORMATICA (CdS Igiene)	7.01

2019/20 (RTDa - II anno)

INTRO FISICA NUCLEARE E SUBNUCLEARE	7.46
FISICA, STATISTICA E INFORMATICA (CdS Igiene)	7.72
LABORATORIO III	9.60

2018/19 (RTDa - I anno)

FISICA, STATISTICA E INFORMATICA (CdS Igiene)	7.26
LABORATORIO III	8.18