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[Nome e cognome] CURRICULUM VITAE

INFORMAZIONI PERSONALI

COGNOME	ORLANDO
NOME	NICOLA
DATA DI NASCITA	[23, 05, 1986]

EDUCATION

2011-2014 Ph.D in Physics. • Physics Department (Salento University), Lecce, 15-07-2014. • Dissertation title: "The associated production of a Z gauge boson and b-jets at LHC with the ATLAS experiment: first differential cross section measurements". • Graduated with maximum evaluation ("Excellent"). • Ph.D thesis <http://cds.cern.ch/record/1755832>. • Main research activities: measurement of Z boson production in association with b-jets; studies of low-transverse-momentum muon reconstruction performance; software development for the Resistive-Plate-Chambers detectors; phenomenology of polarised cross sections at the Large Hadron Collider. ATLAS Experiment.

2008-2010 M.Sc. (Hons.) in Physics. • Physics Department (Salento University), Lecce, 20-10-2010. • Dissertation title: "Methods for muon reconstruction efficiency measurement in ATLAS at LHC". • Graduated with 110/110 cum laude (with honours). • Research activity: studies of low-transverse-momentum muon reconstruction performance. ATLAS Experiment.

2005-2008 B.Sc. (Hons.) in Physics. • Physics Department (Salento University), Lecce, 30-07-2008. • Dissertation title: Properties of single-mode solutions of the Fermi-Pasta-Ulam system. • Graduated with 110/110 cum laude (with honours). • Research activity: numerical and analytical solutions of Fermi-Pasta-Ulam system. Mathematical physics, statistical physics.

FELLOWSHIPS AND POSTDOCS

2018-present Marie Curie Fellow at Barcelona Institute of Science and Technology (BIST), Institut de Fisica d'Altes Energies (IFAE), Barcelona (Spain). • Current position. • Main research activities: search for heavy Higgs bosons in production modes and decay channels involving flavour violating interactions; search for heavy Higgs boson in experimental signatures featuring multiple third generation quarks; search for flavour changing neutral currents in top-quark decays; search for vector-like top-quarks in single and pair production modes; search for Standard Model production of four-top-quark; search for low mass charged Higgs boson; Level 1 topological trigger. ATLAS Experiment.

2015-2018 Research Staff at The University of Hong Kong, Hong Kong (SAR, China). • Main research activities: search for heavy Higgs boson in experimental signatures featuring multiple third generation quarks; search for flavour changing neutral currents in top-quark decays; search for vector-like top-quarks in pair production modes; search for Standard Model production of four-top-quark; search for low mass

charged Higgs boson. ATLAS Experiment.

2014-2015 Postdoctoral researcher at Aristotle University of Thessaloniki, Laboratory of Nuclear and Particle Physics, Thessaloniki (Greece). • Main research activities: search for new physics and measurements of four-leptons production; search for heavy Higgs boson and dark matter in an experimental topology with two opposite charge leptons and large missing transverse energy; measurements of reconstruction efficiency of forward muons. ATLAS Experiment.

2014 Fellowship at University College London, Department of Physics and Astronomy, London (United Kingdom). MCnet short-term studentship (<http://www.montecarlonet.org/>). • Employed during the third year of the Ph.D programme, from June to August 2014. • Research activity: studies of Monte Carlo event generators for heavy flavour production in association with a vector boson. ATLAS Experiment.

2012-2013 Fellowship at Conseil Européen pour la Recherche Nucléaire (CERN), Geneva area (Switzerland). INFN-CERN Associate position. • Employed during the second year of the Ph.D programme, from June 2012 to June 2013. • Main research activity: measurements of Z boson production in association with b-jets. ATLAS Experiment.

RESEARCH EXPERIENCE

LEADERSHIP ROLES IN ATLAS

Over the years I served as coordinator of several diverse efforts within the ATLAS research effort. Currently, my broader responsibility concerns the co-coordination of the Level 1 topological (L1Topo) trigger system in ATLAS, where I serve as trigger simulation expert; the L1Topo system is of paramount importance for a large set of physics signatures having acceptance limited by level 1 trigger rate, including many interesting B-physics channels, searches for low-mass resonances and precision Standard Model (SM) measurements. In the past I was co-coordinator of a physics forum, "H-to-Fermions", where I reviewed various searches for exotic Higgs bosons; this forum was covering about eight different analyses, involving about eighty physicists from many research institutes; in this role I led to publication four physics analyses.

Since the beginning of my Ph.D, I have been given the responsibility to coordinate physics analyses and performance measurements based on diverse experimental topologies and techniques.

A list of my leadership positions is given in the following.

2018-present Co-coordination of subgroup. L1Topo Commissioning group. I coordinate the simulation developments for the L1Topo system and I am the driving force of this effort. In this context I closely lead a small team of two Ph.D students and two senior physicists and I coordinate the L1Topo simulation effort in collaboration with trigger menu, trigger core software, L1Calo (level 1 calorimeter trigger) experts. I lead the main simulation developments, including design of new algorithms for Run 3, migration to multi-thread safe software, validation of the simulation incorporating new level 1 trigger subsystems within L1Topo. In this role I also serve as responsible for ATLAS abstracts preparation for the L1Topo talks and posters discussed at international conferences and I take part in their review. I am contact editor of an upcoming publication summarising the performance of the ATLAS topological trigger during Run 2 at the Large Hadron Collider (LHC).

2016-2017 Co-coordination of physics forum. H-to-fermions forum. This forum covered multiple kind of signatures including searches for heavy Higgs bosons into muons, tau-leptons, top-quarks and bottom-quarks in various production modes. In this role I guided the publication of four analyses taking a leading role in their internal ATLAS review. Besides, as part of my responsibilities, I regularly reviewed ATLAS talks and poster covering the analysis hosted under the H-to-fermions forum. While this forum has been inactive in the past year or so, it was of key importance at the beginning of Run 2 in order to reach a coordinated preparation of analyses interpretation and signal modelling during the first wave of publications in Run 2.

2016-present Analysis coordination and contact editor. Search for Higgs-mediated flavour-changing neutral-current (FCNC) from top-quark decays and search for low-mass charged Higgs boson. I lead this effort since 2016. In this role I made the major contribution to the first ATLAS search for Search for Higgs-mediated FCNC from top-quark decays in the $H \rightarrow b\bar{b}$ channel as well as the first combination of all ATLAS Run 2 searches, resulting in a recent publication and reporting the most stringent exclusion limits to date on these rare processes. I developed cutting-edge machine learning methods based upon Boosted Decision Trees (BDTs) and naive Bayes classifiers along with sophisticated profile-likelihood shape analysis to multiple search regions for the estimation of the backgrounds. The evolution of this project, currently under

development, focuses on Higgs-mediated FCNC from top-quark decays, with $H \rightarrow b\bar{b}$ decays, and search for low-mass charged Higgs boson; it exploits advanced machine learning methods (deep neural network with parametrised architecture) for event classification. This analysis has an unprecedented sensitivity to Beyond Standard Model (BSM) physics and will simultaneously probe excesses from previous searches at LEP 2 and CMS. As analysis coordinator I have been usually managing small teams consisting of three Ph.D students and three or four senior physicists.

2015-present Analysis coordination. Search for heavy neutral Higgs boson produced in association with third generation quarks and decaying into third generation quarks. Since 2015 I am coordinating a set of ATLAS searches for heavy neutral Higgs bosons that couple either to bottom quarks or to top quarks resulting in a final state with either two top quarks and two bottom quarks or four-top-quark. These signatures are compelling from a theoretical point of view and were uncovered by the Large Hadron Collider (LHC) search programme in 2015. The analyses make extensive use of state-of-the-art techniques at hadron colliders, including complex profile-likelihood fit to multiple search regions, advanced usage of BDTs, either for search region definition or for event classification, as well tagging of boosted hadronically decaying top quarks. The analysis teams I led over the years consisted usually of a few Ph.D students, typically two, and two senior physicists. Recently this effort has been restarted as an evolution of the ATLAS search for SM production of four-top-quark; since then, I coordinate a large group consisting in more than five Ph.D students and about ten senior physicists. This analysis has the ambitious goal of covering all possible experimental topologies with at least one charged lepton (either electron or muon), including multi-lepton topologies, makes substantial use of machine learning (for classification or background modelling), and covers a phase space which is largely unexplored by the current ATLAS searches for BSM physics.

2016 Search for pair production of up-type vector-like quarks in final states with multiple b-jets. In 2016 I was contact editor of a conference-note dedicated to a comprehensive search for phenomena beyond the SM in experimental topologies characterised by the production of multiple top and bottom quarks. In its original design, this research programme has effective coverage to multiple possible signatures of proposed SM extensions, including pair production of vector-like partners of the top-quark (vector-like T), contact interactions, models with extended space-time and offers a benchmark for searches of rare SM production of four-top-quark.

2013-2014 Analysis coordination. Measurement of differential production cross-sections for a Z boson in association with b-jets. Over the years I contributed to three ATLAS publications reporting measurements for vector boson production in association with b-jets. From 2013 to 2014 I coordinated and I was a driving researcher for a related project resulting in the most comprehensive and precise measurement available to date in the literature; it featured inclusive and differential cross section measurements for a Z boson produced in association to one or at least two b-jets. For this publication I coordinated a relatively large team consisting of about fifteen scientists, five of which being senior physicists.

2011-2012 Analysis coordination. Muon reconstruction performance at low transverse-momentum. In my early career as researcher I built a well-rounded experience concerning muon detectors and muon reconstruction performance. In 2011 I coordinated and performed a muon reconstruction efficiency measurements at low transverse momentum (p_T) with the full 2010 dataset collected by ATLAS; it was the first measurement of low p_T muon performance to appear in a journal publication by the ATLAS Collaboration. This analysis resulted in one of the first precision performance measurements in ATLAS, reaching per-mille level precision in a challenging kinematic regime characterised by muons having p_T as low as 2 GeV.

The publications associated with the relevant responsibility roles mentioned above are listed in the following.

OTHER MAJOR RESEARCH ACTIVITIES

2020-present search for heavy Higgs bosons in production modes and decay channels involving flavour violating interactions. Recently I started a new effort targeting a search for heavy Higgs boson in production modes and decay channels involving flavour violating interactions. These channels were fully uncovered by the ATLAS search programme. In this initial design phase, I am focusing on signal modelling studies.

2017-present Search for single and pair production of up-type vector-like quarks in final states with multiple b-jets. Since the end of 2015 I make important contributions to a comprehensive analysis programme dedicated to searches for phenomena beyond the SM in experimental topologies characterised

by the production of multiple top and bottom quarks. In its original design, this research programme has effective coverage to multiple possible signatures of proposed SM extensions, including pair production of vector-like partners of the top-quark (vector-like T), contact interactions, models with extended space-time and offers a benchmark for searches of rare SM production of four-top-quark. After an initial publication on partial Run 2 dataset occurred in 2018, the current efforts are dedicated towards a first search for singly produced vector-like T. Over the years I contributed mostly to software preparation and, more recently, to signal Monte Carlo production.

2015-present Search for four-top-quark production in the single-lepton, opposite-sign di-lepton and multi-lepton final states. Since 2015 I am involved in an ATLAS effort which targets the first observation of four-top-quark in ATLAS based on the full Run 2 dataset. Following a first publication on partial Run 2 dataset, the first observation of four-top-quark production offers a wide spectrum of challenges and represent a milestone in the ATLAS measurement programme for 2019. I contributed to this project by designing machine learning approaches used for signal to background discrimination and to obtain a refined model for the top-quark pair background at high jet multiplicity, which leads to the main source of SM background.

2015 Measurements of muon reconstruction performance in the "forward" region. In 2015 I was co-responsible for the muon reconstruction efficiency measurement for muons in the forward region of the ATLAS detector; this study was part of the first ATLAS muon performance publication in Run 2. Such muon candidates are extensively used in four-leptons analyses, including precision measurements of SM Higgs boson, in order to increase the analyses acceptance.

2015 Search for high-mass resonances decaying into a Z boson pair and dark matter produced in association with a Z boson in a final state with two charged leptons and missing transverse energy. In 2015 I focused on a search for a high-mass scalar as well as dark-matter production; my main contribution was the development of an analysis software framework that was used by my institute (other postdoctoral researcher and students).

2014-2015 Measurements of four-lepton production. I was a main author of a broadly designed cross section measurement of "four-leptons" production. This was an innovative measurement designed to probe a major background for searches of high-mass resonances decaying into gauge bosons, a common signature of many SM extensions, and it offered a ground to gain a deeper understanding of the Higgs sector and to test the presence of virtual degrees of freedom associated to new particles. One of the main goal of this project was to present a consistent overview of all fundamental four-leptons production mechanisms, from singly resonant, mediated by a Z or a Higgs boson, double resonant production, to non-resonant modes; the latter, at high invariant mass, is particularly interesting due to its sensitivity to the quantum properties of SM predictions such as interference between Higgs mediated scattering amplitudes and box-loop induced production modes which might hide new, yet unobserved, degrees of freedom.

2011-2012 Measurement of production cross-sections for a Z boson in association with b-jets. Between 2011 and 2012 I was involved in the first cross section measurement for a Z boson production in association with b-jets at the LHC; I made several contributions to this effort, including software preparation, signal extraction based binned or unbinned likelihood analysis and derivation of theoretical predictions based on several calculations available in literature. Besides contributing to my specific research project, I participated to broader discussions and strategy developments for the early ATLAS measurements of vector boson production in association with b-jets; for this reason I was also granted for internal ATLAS authorship for the first measurement of W boson production in association with b-jets at LHC.

2010-2012 Phenomenology of polarised cross sections in the SM and Minimal Supersymmetric Standard Model. Between 2011 and 2012, I was engaged in phenomenological studies of polarised cross sections as precision observables for measuring fundamental parameters of the SM and its extensions. For a first publication I calculated and implemented in a Monte Carlo (MC) event generator next-to-leading-order electroweak corrections to charged Higgs boson production in association to a top quark and performed phenomenological studies of a polarisation asymmetry as observable for measuring the ratio of vacuum expectation values of the Higgs fields in a class of beyond SM scenarios. In a later publication I focused on defining a polarisation asymmetry based upon the experimental signature involving the production of a Z boson and exactly a b-quark; the asymmetry proposed in my paper could be exploited at LHC for probing

precision measurements of electroweak observables at the Large Electron-Positron Collider. The corresponding publications derived from each research activity are listed in the following.

GRANTS APPLICATION

I prepared several projects for external funding requests to the European commission and I am fully committed to explore more of these opportunities in next years to come. I participated to five Horizon 2020 calls.

I submitted two individual-fellowships grant proposals, each of them amounting to about 175,000 Euros for two years, concerning dark-matter searches in ATLAS and I received high score for both of them (above 89/100). In 2017 I applied for an ERC Starting Grant having as central topic searches for heavy Higgs bosons with advanced machine learning methods and expecting 1,600,000 Euros as total budget for five years; although I was a junior applicant, my research proposal scored reasonably well (above 75/100).

I successfully submitted two projects for grants within the two European Marie Skłodowska-Curie COFUND programmes in France and Spain. The first was a project concerning dark matter searches in ATLAS and it was funded by the CEA Eurotalents programme (I rejected the final offer from the research institute, CEA Saclay); the second proposal was submitted to the PROBIST BIST (Barcelona Institute of Science and Technology) funding scheme and concerned a class of searches for new phenomena leading to flavour violating signatures involving heavy Higgs bosons. In both cases the obtained grants amounted to about 100,000 Euros.

- “Flavour violating signatures of heavy Higgs boson production in ATLAS”. Host institution: Instituto de Fisica de Altas Energias (IFAE). Submitted as PROBIST BIST fellowship programme (Eurotalents Marie Skłodowska-Curie Actions, COFUND programme). Funded (total budget of about 100,000 Euros). Submitted in 2017.

- “Uncovering the scalar sector from the Top”. Host institution: Instituto de Fisica de Altas Energias (IFAE). Submitted as ERC Starting Grant 2018. Not passed to “step 2” of the ERC grant evaluation (total budget of about 1,600,000 Euros). Submitted in 2017.

- “Search for Dark Matter particles produced in association with b quarks with the ATLAS detector. Tests and operation of Micro-Megas detectors”. Host institution: Commissariat a l’Energie Atomique (CEA), DSM/IRFU, Centre d’Etudes de Saclay, Paris (France). Submitted as Incoming CEA Fellowships (Eurotalents Marie Skłodowska-Curie Actions, COFUND programme). Evaluated as 118/135. Funded (total budget of about 96,000 Euros). Final offer rejected. Submitted in 2015.

- “bDarkM@LHC”. Submitted as Individual Fellowship (Marie Skłodowska-Curie Actions, Call: H2020-MSCA-IF-2015). Host institution: Commissariat a l’Energie Atomique (CEA), DSM/IRFU, Centre d’Etudes de Saclay, Paris (France). Evaluated as 89.20/100. Not funded (total budget of about 175,000 Euros). Submitted in 2015.

- “bDarkM@LHC”. Submitted as Individual Fellowship (Marie Skłodowska-Curie Actions, Call: H2020-MSCA-IF-2014). Host institution: Commissariat a l’Energie Atomique (CEA), DSM/IRFU, Centre d’Etudes de Saclay, Paris (France). Evaluated as 90.20/100.00. In reserve list for funding, not funded (total budget of about 175,000 Euros). Submitted in 2014.

STUDENTS SUPERVISION

As ATLAS physicist, I have been tutor of several Ph.D and undergraduate students. During the second year of my Ph.D I contributed to the supervision of a Ph.D student in particle physics phenomenology. As a postdoctoral researcher at Aristotle University of Thessaloniki, at The University of Hong Kong and at Institut de Fisica d’Altes Energies I have been substantially involved in mentoring students. In my current position of senior postdoctoral researcher I supervise informally and formally a large number of students (currently more than ten Ph.D students) in multiple research projects (either physics analysis or trigger), including students not enrolled in Ph.D programmes at my institute.

A selected list of students I supervised or which I am supervising is given in the following. This list doesn’t include all students not belonging to my same institute whom I still supervise based on daily meetings and substantial technical advices.

- Anil Sonay, graduate student at Autonomia University of Barcelona. Under supervision. Research topic: search for heavy Higgs boson, search for Standard Model production of four-top-quark, L1Topo trigger

simulation. Expected graduation in 2023.

- Kai Chung Tam, graduate student at The University of Hong Kong. Under supervision. Research topic: search for heavy Higgs boson. Expected graduation in 2021.
- Peng Chen, graduate student at The University of Hong Kong. Under supervision. Research topic: search for rare or BSM decays of the top-quark. Expected graduation in 2020.
- Ka Wai Patrick Na, undergraduate student at The University of Hong Kong. Research topic: search for heavy Higgs boson. Graduated in Summer 2018.
- Shu-yu Lee, undergraduate student at The University of Hong Kong. Research topic: search for heavy Higgs boson. Graduated in Summer 2018.
- Jia-shian Wang, undergraduate student at The University of Hong Kong. Research topic: flavour-changing neutral-current from top-quark decays with low-mass Higgs boson. Graduated in Summer 2017. Accepted for Ph.D programme at Oxford University.
- Paulo Irvin Chang, undergraduate student at The University of Hong Kong. Research topic: search for heavy Higgs boson. Graduated in Summer 2017.
- Yan Wing Wong, undergraduate student at The University of Hong Kong. Research topic: Monte Carlo event generation for Heavy Higgs boson search. Graduated in Summer 2017. Accepted for Ph.D programme at Brown University.
- Despoina Sampsonidou, graduate student at Aristotle University of Thessaloniki. Supervised in 2015. Research topic: search for heavy Higgs boson with two leptons and missing transverse energy and reconstruction efficiency of forward muons.
- Maria-evanthia Tsooulou, undergraduate student at Aristotle University of Thessaloniki. Supervised in 2015. Research topic: search for heavy Higgs boson with two leptons and missing transverse energy.

At the University of Hong Kong I have been partially supervising several other students working on searches for Supersymmetry.

OTHER ACTIVITIES

Over the years I have been involved in several technical tasks with limited time, about than 10% of my research time, with the exception of my ATLAS qualification task concerning software development for the Resistive-Plate-Chambers detectors (for which I worked with 50% of my research time for one year).

I participated to dissemination activities to both scientific audience and general public, including presenting a series of multidisciplinary seminars. I occasionally contribute as technical operator and speaker for Virtual Visits organised by the ATLAS-Outreach group.

Besides chairing regular meetings of research projects I coordinate, more than a few hundred meetings to date, and having occasionally chaired sessions at international workshops I was chair and organiser in occasion of two events

- Session chair for ATLAS workshop, HBSM+DBL ATLAS workshop, Annecy (France), November 13-16 2017.
- Scientific secretariat for workshop, QCD at Work, Lecce (Italy), June18-21 2012.

I participated to training sessions offered a part of personal development at my research institutes, including training in leadership practices (certification available on request).

I devote part of my free time to develop advanced analytics software based on state-of-the-art technologies (Panda dataframes, FensorFlow, Keras, ..) and I participate to Kaggle challenges, recent examples include:

- EDA of online purchases based on public dataset: https://github.com/nicola-orlando/ML-scripts/tree/master/simple_tutorials/simple_customers_analysis.
- Building ML models optimised for overfitting resilience: <https://github.com/nicola-orlando/ML->

scripts/tree/master/simple_tutorials/dont_overfit_comp_kaggle.

- EDA of the COVID19 pandemic: <https://www.kaggle.com/nicolaorlandowork/demographic-study-of-covid-19-cases-in-canada>.
- Definition of predictive models which can be used for short term predictions of the number of cases and fatalities from COVID19 in every country: <https://www.kaggle.com/nicolaorlandowork/covid19-global-forecasting-based-on-bayesianridge>.

In general, I am interested in all emerging big data technologies and their application to diverse problems.

PRESENTATIONS IN CONFERENCES OR WORKSHOPS

TALKS AT INTERNATIONAL CONFERENCES OR WORKSHOPS

Talks given at international conferences or workshops upon invitation of the ATLAS Speaker Committee.

- N. Orlando, “Searches for flavor-changing neutral currents in top quark events”, 30th Rencontres de Blois, Blois (France), June 3-8, 2018.
- N. Orlando, “Minimum bias measurement at 13 TeV”, Workshop on forward physics and high-energy scattering at zero degrees 2017, Nagoya (Japan), September 26-29, 2017.
- N. Orlando, “Beyond SM Searches at ATLAS”, The XXIII International Workshop High Energy Physics and Quantum Field Theory, Yaroslavl (Russia), June 26 - July 3, 2017.
- N. Orlando, “Early Run 2 Hard QCD Results from the ATLAS collaboration”, International Symposium on Multiparticle Dynamics, Wildbad Kreuth (Germany), October 4-9, 2015.
- N. Orlando, “Impact of ATLAS measurements on PDFs”, International Symposium on Multiparticle Dynamics, Bologna (Italy), September 8-12, 2014.
- N. Orlando, “ATLAS measurements of vector boson production, inclusive and with associated jets”, QCD 14, Montpellier (France), June 30 - July 2, 2014.
- N. Orlando, “QCD highlights from ATLAS and CMS”, LC13: Exploring QCD from the infrared regime to heavy flavour scales at B-factories, the LHC and a Linear Collider, Trento (Italy), September 16-20, 2013.
- N. Orlando, “QCD results from ATLAS”, LISHEP 2013, Rio de Janeiro (Brazil), March 17-24, 2013.

TALKS IN ATLAS WORKSHOPS

Talks given in ATLAS workshops upon invitation of the workshops organisers.

- N. Orlando, “Search for FCNC couplings between top quark and Higgs boson (single-top-quark production and top-quark decay)”, Top Working Group Workshop 2019, Frascati (Italy), May 21-23, 2019.
- N. Orlando, “L1Topo and CTP menu”, Trigger Workshop 2019, Elba (Italy), May 5-10, 2019.
- N. Orlando, “Top Working Group report”, ATLAS Collaboration Week, CERN (Switzerland), February 19-23, 2018.
- N. Orlando, “Search for flavour changing neutral current decays of the top-quark”, ATLAS DBL+HBSM workshop, Annecy (France), November 13-16, 2017.
- N. Orlando, “Search for heavy Higgs boson in top-quark pair decays in associated production with third

generation quarks”, HBSM mini-workshop, CERN (Switzerland), October 13-14, 2016.

TALKS IN NATIONAL CONFERENCES OR WORKSHOPS

Talks given in national conferences or workshops upon invitation from the organisers.

- N. Orlando, “EW+Top+Higgs in ATLAS and CMS”, XI CPAN DAYS, Oviedo (Spain), 21-23 October 2019.
- N. Orlando, “Search for new physics in the 4 lepton high mass spectrum”, ARISTEIA II Mini Workshop, ATLAS AUTH Group, Thessaloniki (Greece), October 30, 2015.
- N. Orlando, “Measurements of vector boson plus heavy flavours in ATLAS”, HEP 2015 - Conference on Recent Developments in High Energy Physics and Cosmology, Athens (Greece), April 15-18, 2015.
- N. Orlando, “Differential production cross section of a Z boson and b-jets in ATLAS”, Italian Physics Society (SIF) conference 2014, Pisa (Italy), September 22-26, 2014.
- N. Orlando, “Z and W production in association with b-quarks”, Italian ATLAS workshop, Bologna (Italy), January 14-16, 2014.
- N. Orlando and M. Musich, “W/Z boson production and measurements of their properties”, VI Italian Workshop on p-p physics at LHC, Genova (Italy), May 8-10, 2013.
- N. Orlando, “Z+b(b)”, Italian ATLAS workshop, Lecce (Italy), October 23-24, 2012.
- N. Orlando, “Measurements of associated production cross sections of a vector boson and heavy flavours in ATLAS”, Italian Physics Society (SIF) conference 2011, L’Aquila (Italy), September 26-30, 2011.

POSTERS

- N. Orlando, “The inclusive four-lepton line-shape measurement from proton-proton collisions at 8 TeV with the ATLAS detector”, XXVII International Symposium on Lepton Photon Interactions at High Energies, Ljubljana (Slovenia), August 17-22, 2015.
- N. Orlando, “Measurement of the muon reconstruction efficiency in ATLAS”, Hadron Collider Physics Symposium 2011, Paris (France), November 14-18, 2011.
- N. Orlando, “J/ψ production cross section and non-prompt fraction measurement with the ATLAS detector”, IFAE2011, Perugia (Italy), April 27-29, 2011.

SELECTED PUBLICATIONS

PHENOMENOLOGY JOURNAL ARTICLES

- M. Beccaria, N. Orlando, G. Panizzo, F. M. Renard and C. Verzegnassi, “The Relevance of polarized bZ production at LHC”, Phys. Lett. B 713 (2012) 457, doi:10.1016/j.physletb.2012.06.026, [arXiv:1204.5315 [hep-ph]].
- J. Baglio, M. Beccaria, A. Djouadi, G. Macorini, E. Mirabella, N. Orlando, F. M. Renard and C. Verzegnassi, “The Left-Right asymmetry of top quarks in associated top-charged Higgs bosons at the LHC as a probe of the tanβ parameter”, Phys. Lett. B 705 (2011) 212, doi:10.1016/j.physletb.2011.09.100, [arXiv:1109.2420 [hep-ph]].

SELECTED ATLAS JOURNAL ARTICLES

- ATLAS Collaboration “Performance of the ATLAS topological trigger in Run 2”. • In preparation.
- ATLAS Collaboration “Search for single production of up-type vector-like quarks in final states with multiple b-jets with the ATLAS detector”. • In preparation.
- ATLAS Collaboration “Search for top-quark decays $t \rightarrow Hq$ and $t \rightarrow H+b$ with 139 fb⁻¹ of pp collision data at

$\sqrt{s} = 13$ TeV with the ATLAS detector”. • In preparation.

◦ ATLAS Collaboration “Search for four-top-quark production in the single-lepton, opposite-sign dilepton and multi-lepton final states in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector”. • In preparation.

◦ ATLAS Collaboration “Search for heavy Higgs bosons in tt final states with additional heavy-flavour jets in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector”. • In preparation.

◦ Main reviewer as H-to-Fermions co-coordinator. ATLAS Collaboration, “Search for heavy neutral Higgs bosons produced in association with b-quarks and decaying to b-quarks at $\sqrt{s} = 13$ TeV with the ATLAS detector”, arXiv:1907.02749 [hep-ex].

◦ Main reviewer as H-to-Fermions co-coordinator. ATLAS Collaboration, “Search for scalar resonances decaying into $\mu^+\mu^-$ in events with and without b-tagged jets produced in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector”, JHEP 1907 (2019) 117 doi:10.1007/JHEP07(2019)117 [arXiv:1901.08144 [hep-ex]].

◦ ATLAS Collaboration “Search for top-quark decays $t \rightarrow Hq$ with 36 fb⁻¹ of pp collision data at $\sqrt{s} = 13$ TeV with the ATLAS detector”, JHEP 1905 (2019) 123, doi:10.1007/JHEP05(2019)123, [arXiv:1812.11568 [hep-ex]].

◦ ATLAS Collaboration “Search for four-top-quark production in the single-lepton and opposite-sign dilepton final states in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector”, Phys. Rev. D 99 (2019) no.5, 052009, doi:10.1103/PhysRevD.99.052009, [arXiv:1811.02305 [hep-ex]].

◦ Editorial board chair. ATLAS Collaboration, “Search for flavour-changing neutral current top-quark decays $t \rightarrow qZ$ in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector”, JHEP 1807 (2018) 176, doi:10.1007/JHEP07(2018)176, [arXiv:1803.09923 [hep-ex]].

◦ ATLAS Collaboration “Search for pair production of up-type vector-like quarks and for four-top-quark events in final states with multiple b-jets with the ATLAS detector”, JHEP 1807 (2018) 089, doi:10.1007/JHEP07(2018)089, [arXiv:1803.09678 [hep-ex]].

◦ Main reviewer as H-to-Fermions co-coordinator. ATLAS Collaboration, “Search for additional heavy neutral Higgs and gauge bosons in the ditau final state produced in 36 fb⁻¹ of pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector”, JHEP 1801 (2018) 055, doi:10.1007/JHEP01(2018)055, [arXiv:1709.07242 [hep-ex]].

◦ Main reviewer as H-to-Fermions co-coordinator. ATLAS Collaboration, “Search for Heavy Higgs Bosons A/H Decaying to a Top Quark Pair in pp Collisions at $\sqrt{s}=8$ TeV with the ATLAS Detector”, Phys. Rev. Lett. 119 (2017) no. 19, 191803, doi:10.1103/PhysRevLett.119.191803, [arXiv:1707.06025 [hep-ex]].

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Data

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