Andrea Coccaro

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Personal Information

Born	XXxxx04xx1982
Nationality	Italian
Family status	XMarried, three children

Positions

since 2017	Staff researcher at INFN, Italy
2015 - 2017	Maître Assistant, University of Geneva, Switzerland
2012 - 2015	Research Associate, University of Washington, USA
2010 - 2012	Research Associate, Genoa University, Italy

Education

2010	Ph.D. in Physics, University of Genoa
	Thesis: Tracking and b-tagging for the ATLAS trigger system [CERN-THESIS-2010-035]
2006	Master degree in Physics, University of Genoa
	Thesis: Online selection of b-jets for the ATLAS experiment at LHC and its impact on the physics program (in italian)
	Grade: 110/110 *cum laude*
2004	Bachelor degree in Physics, University of Genoa
	Thesis: Calibration with paramagnetic and diamagnetic salts of the susceptometer for the measure of the iron's quantity in thalassemic patients (in italian)
	Grade: 110/110 *cum laude*

Teaching

2019 - 2020	Teaching professor
	Physics of Fundamental Interactions at Colliders, University of Genoa
2018 - 2020	Teaching professor
	Laboratory 2 (basics of microelectronics), University of Genoa
2016 - 2017	Teaching assistant
	Electromagnetism course for the Physics students, University of Geneva
2007 - 2009	Teaching assistant
	General physics course for Chemical Engineering students, University of Genoa

Mentoring of students

2019-2020	Co-supervisor of a master student at the University of Genoa
2016-2017	Co-supervisor of a master student at the University of Rome La Sapienza
Since 2016	Supervision of the projects of seventeen students for becoming members of the ATLAS collaboration
2015-2017	Supervision of day-to-day work of three doctoral students at the University of Geneva
Since 2015	Supervision of five summer students at CERN
2012-2015	Supervision of day-to-day work of three master students at the University of Washington

Research Activities

Since 2015	Searches for new heavy resonances decaying to b-jets
Since 2015	Flavour tagging improvements at high-transverse momentum
2015-2016	New proposal for a model-independent search program for long-lived particles
2015-2016	Studies for a vertex detector geometry for the FCC-hh collider
Since 2014	Application of deep-learning techniques to the reconstruction of physics objects
2012-2015	Searches for exotic decays of the Higgs boson
2012-2014	Development of dedicated triggers for long-lived particles
2012-2013	Measurement of the $t\bar{t}H$ cross section in the all-hadronic final state
2010-2012	Design of the trigger menu and developments of trigger algorithms
2010-2012	Measurement of the top cross section in the all-hadronic final state
2009-2010	Measurement of the first inclusive b-jet cross section measurement at the LHC
2007-2010	Track reconstruction and b-tagging algorithms for the ATLAS trigger system
2007-2009	Track reconstruction studies using cosmic muon rays and first collision data

Research Coordination

2016 - 2018	Convener of the ATLAS flavour tagging group
2015 - 2016	Trigger coordinator in the ATLAS exotics group
2015 - 2016	Convener of the ATLAS flavour tagging calibration group
2013 - 2015	Convener of the ATLAS "Unconventional signatures and Exotic Higgs" physics analysis group
2013 - 2015	Trigger coordinator in the ATLAS top group
2010 - 2012	Convener of the ATLAS b-jet trigger group
2010 - 2016	Member of the ATLAS trigger menu coordination group

Scientific Committees

2017	Organising committee of the ATLAS flavour tagging workshop
since 2015	Journal editor for Advances in High Energy Physics [link]
Oct 2014	Organising committee of the ATLAS workshop on BSM Higgs searches

Outreach

Oct 2016	Responsible of introducing visitors at *"Nuit de la Science"*, Geneva
Oct 2013	Public lecture on the role of the researcher at *"Festival della Scienza"*, Genova
Oct 2013	Guide at *CERN Open Days*, Geneva
Since 2011	CERN guide to various LHC experimental areas and control rooms

Research Outputs

As member of the ATLAS collaboration since 2007, I am author of $\sim$900 publications. Complete list of publications can be found on Inspire

Famous papers	citations > 250	80
Known papers	$100 <$ citations ≥ 250	220
Other papers	citations ≤ 100	600
h_{HEP} index		160

Ten Selected Research Outputs

1. ATLAS Collaboration, *"Measurements of b-jet tagging efficiency with the ATLAS detector using $t\bar{t}$ events at $\sqrt{s} = 13$ TeV"*, JHEP 08 (2018) 089

2. ATLAS Collaboration, *"Observation of $H \rightarrow b\bar{b}$ decays and VH production with the ATLAS detector"*, Phys.Lett. B786 (2018) 59-86

3. ATLAS Collaboration, *"Search for resonances in the mass distribution of jet pairs with one or two jets identified as b-jets in proton-proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector"*, Phys.Lett. B759 (2016) 229-246

4. A. Coccaro, D. Curtin, H. Lubatti, H. Russell, J. Shelton, *"Data-driven Model-independent Searches for Long-lived Particles at the LHC"*, Phys. Rev. D 94, 113003 (2016)

5. ATLAS Collaboration, *"Search for pair-produced long-lived neutral particles decaying to jets in the ATLAS hadronic calorimeter in pp collisions at $\sqrt{s} = 8$ TeV'*, Phys.Lett. B743 (2015) 15-34

6. ATLAS Collaboration, *"Search for long-lived, weakly interacting particles that decay to displaced hadronic jets in proton-proton collisions at $\sqrt{s} = 8$ TeV with the ATLAS detector*, Phys. Rev. D92 (2015) 012010

7. ATLAS Collaboration, *"Triggers for Displaced Decays of Long-lived Neutral Particles in the ATLAS Detector"*, JINST 8 (2013) P07015

8. ATLAS Collaboration, *"Performance of the ATLAS Trigger System in 2010"*, Eur.Phys.J. **C72**, 1849 (2012)

9. ATLAS Collaboration, *"Measurement of the inclusive and dijet cross-sections of b-jets in pp collisions at $\sqrt{s} = 7$ TeV with the ATLAS detector"*, EPJC 71 (2011) 1846

10. ATLAS Collaboration, *"The ATLAS Inner Detector commissioning and calibration"*, Eur. Phys. J. C70 (2010) 787-821

Contributions to Conferences

1. A. Coccaro, *Latest results from ATLAS on dark matter searches with Higgs tagging*, PPC 2019, Colombia

2. A. Coccaro, *Searches for new phenomena in di-jet events with the ATLAS detector*, ICHEP 2018, South Korea

3. A. Coccaro, *Qualification measurements of INFN-FBK 3D modules*, 13th Trento workshop on advanced silicon radiation detectors, Germany

4. A. Coccaro, *Searches for long-lived particles*, Dark Matter at LHC workshop 2017, University of California USA

5. A. Coccaro, *Decays to dark sector particles at ATLAS*, Dark Interactions 2016, Brookhaven National Laboratory USA

6. A. Coccaro, *Trigger Strategies for long-lived particles*, LHC searches for long-lived BSM particles, University of Massachusetts USA (2015)

7. A. Coccaro, *Exotic searches with ATLAS*, La Thuile 2015

8. A. Coccaro, *Looking for dark matter in exotic Higgs decays at the LHC*, From Higgs to Dark Matter 2014, Cogent Physics (2015), 2: 1054679

9. A. Coccaro, *Searches for long-lived particles and lepton-jets with the ATLAS detector* Pheno 2013

10. A. Coccaro, *Fully hadronic $t\bar{t}$ with the ATLAS detector*, TOP 2012, J.Phys.Conf.Ser. 452 (2013) 012045

11. A. Coccaro, *Track Reconstruction and b-Jet Identification for the ATLAS Trigger System*, ACAT 2011, J.Phys.Conf.Ser. 368 (2012) 012034

12. A. Coccaro (on behalf of the ALICE, ATLAS, CMS and LHCb Collaborations), *Review of LHC results on onia*, SM@LHC 2011

13. A. Coccaro, *Usage of vertex detectors in the ATLAS trigger software*, PoS VERTEX2009 (2009) 038

14. A. Coccaro, A. Lowe, F. Parodi, C. Schiavi, A. Schwartzman, *Performance and Strategies of the b-Jet Selection for the ATLAS High-Level Trigger*, IEEE Trans. Nucl. Sci. 56 (2009) 2549-2553

15. A. Coccaro, *Online track reconstruction for the ATLAS experiment: strategies and first results with cosmic rays*, SIF, Italian Society of Physics (2008)