

Table of Contents

Giovanni Marchiori's web page.....	1
Introduction.....	2
Education and employment.....	7
Dissertations.....	8
Main scientific responsibilities.....	9
Other responsibilities.....	10
Supervision activities.....	11
Ph.D. students.....	11
Master and license students.....	11
Others.....	12
Reviewing activities.....	13
Invited talks and presentations at international conferences and workshops.....	14
Conference, meeting, thematic school organization.....	15
Publications.....	16

Giovanni Marchiori's web page

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Introduction

I am a **permanent researcher** (chargé de recherche) at **CNRS** (Centre National de la Recherche Scientifique) France. I work on **experimental high-energy physics since 2000**, when I started working on my undergraduate thesis at University of Pisa and Scuola Normale Superiore of Pisa. In my career I focused first on **CP violation** and **QCD** measurements in the B-meson system at the **BABAR** experiment at the PEP-II collider, and later on **Standard Model** photon cross sections, **Higgs boson** search, discovery and property measurements (in diphoton, Z+photon and bb final states) and **new physics** searches (for supersymmetry and new resonances) using data collected by the **ATLAS** experiment at the LHC accelerator. Throughout these



years I also worked on **detector performance** (photon identification efficiency measurements and energy calibration, b-jet identification efficiency measurements) and on **silicon detector** R&D, construction, operation and data quality, either on the BABAR vertex detector (**SVT**) or on the pixel detector of the ATLAS tracker (**ITk**) during the future high-luminosity phase of the LHC. The main scientific results of my research activities are the following:

- **first evidence of direct CP violation in charged B meson decays**, using B->D0K decays (Phys. Rev. D82, 072004 (2010))
- **first observation of direct CP violation in**

**charged
B meson
decays,**
combining
several
B→D(*)0K(*)
final states
(Phys.
Rev. D87,
052015
(2013) [↗](#))

- **first
measurements
of the
cross
sections
at the
LHC of
the main
background
processes
for the
Higgs to
diphoton
search**
(Phys.
Rev. D83,
052005
(2011) [↗](#),
Phys. Rev.
D85,
092014
(2012) [↗](#),
JHEP
1301, 086
(2013) [↗](#))

- **discovery
of the
Higgs
boson**
using
diphoton
decays
(Phys.
Lett.
B716,
1 29
(2012) [↗](#))

- **Higgs
boson
property
measurements**
with
diphoton

decays
(Phys.
Rev. D90,
112015
(2014) [↗](#)
Phys. Rev.
D98,
052005
(2018) [↗](#)
Phys. Lett.
B 784
(2018)
345 [↗](#))

- **first evidence**
(JHEP 12
(2017)
024 [↗](#))
and observation
(Phys.
Lett. B
786
(2018)
59 [↗](#)) **of Higgs boson decays to b-quarks**
and of associated Higgs boson production with vector bosons

I am currently working at the **Laboratoire de Physique des Hautes Energies** (LPNHE [↗](#)) in Paris, in the Jussieu campus of the Pierre and Marie Curie University (office 1222-2-15), where I am the responsible of the **ATLAS-tracking** team. My work

focuses at present
on the analysis of
the ATLAS data
for Higgs boson
property
measurements
(mass, couplings
and production
cross sections) in
the bb and
diphoton channels,
and the R&D on
the ITk.

Education and employment

- 1991-1996: high school at Liceo Scientifico Statale Annibale Calini, Brescia [↗](#) (Italy). Final mark: 60/60
- 1996-2001: undergraduate studies in Physics at Università degli Studi of Pisa [↗](#) (Italy) and at Scuola Normale Superiore of Pisa [↗](#) (Italy). Final marks: 110/110 cum laude (at University of Pisa) and 70/70 cum laude (at Scuola Normale Superiore)
- 2002-2005: Ph.D. in physics at the Galileo Galilei [↗](#) doctoral school of Pisa
- 2005-2008: post-doc in high-energy physics at Università degli Studi, Pisa
- 2008-2009: post-doc ("CDD haut-niveau") at LPNHE [↗](#), Paris
- since 2009: IN2P3 [↗](#)/CNRS [↗](#) researcher at LPNHE, Paris (2009-2013: "2nd class"; 2013-2017: "1st class"; since 2017: "normal class", after the distinction between 2nd and 1st class was abolished)

Dissertations

- 11/2013: **Habilitation à Diriger des Recherches**, Université Pierre et Marie Curie, Paris, France. Dissertation: Prompt photons at the LHC : selection, measurements of single- and di-photon production cross sections, and Higgs boson searches with the ATLAS detector (manuscript [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#))
- 06/2005: **Ph. D. in Physics** (Dottorato di Ricerca in Fisica), Università degli Studi di Pisa, Italy. Dissertation: Measurement of branching fraction ratios and CP asymmetries in $B \rightarrow D^0 K$ decays with the BABAR detector . thesis [1](#) publication [2](#). Supervisor: Prof. Giovanni Batignani.
- 11/2001: **Physics Diploma** (Diploma di licenza in fisica), Scuola Normale Superiore, and 07/2001: **Master Degree in Physics** (Laurea in Fisica), Università degli Studi di Pisa, Italy. Dissertation: Analysis of charged B meson decays to $K^0 h^\pm$ with the BABAR experiment (thesis [1](#)). Supervisor: Prof. Marcello Giorgi.

Main scientific responsibilities

- Leader of the ATLAS-tracking team in LPNHE, since 09/2017
- Co-convenor of the Higgs at LHC cross section working group 1, 10/2018-12/2020
- Co-convenor of the ATLAS Higgs/HGamma (Higgs to $\gamma\gamma$ and Z $\gamma\gamma$, and diHiggs to $\gamma\gamma + bb$, $\gamma\gamma + WW$) working subgroup of the ATLAS experiment, 10/2016-09/2017
- Local responsible for LPNHE of the ANR PhotonPortal project: "Shedding light on physics beyond the Standard Model at the LHC Run 2 using photons", since 2016
- Responsible of the "Higgs to bb " analysis team of the ATLAS LPNHE group since 08/2015
- Co-convenor of the egamma/Photon identification working subgroup of the ATLAS experiment, 10/2014-09/2016
- Convenor of the Standard Model/Direct Photons working subgroup of the ATLAS experiment, 10/2011-10/2012
- Co-convenor of the B to open charm decays working group of the BABAR experiment, 12/2007-11/2010
- Operation manager, on-call expert and data-quality responsible of the BABAR vertex detector during the BABAR data taking, 11/2003-03/2004

Other responsibilities

- since 12/2018: member of the council of Federation de Recherche Interactions Fondamentales (FRIF)
- 12/2015-08/2019: member of the council of the scientific representatives of LPNHE (Reunion des responsables scientifiques)
- 11/2014-11/2018: elected member of the council of LPNHE
- 12/2010-12/2012: organizer of the weekly scientific seminars at LPNHE

Supervision activities

Ph.D. students

- since 10/2019: supervision of the Ph.D. thesis of **Romain Bouquet** on the b-jet energy scale calibration and the measurement of VH , $H \rightarrow b\bar{b}$ cross sections.
- 10/2017-09/2019: direction of the Ph.D. thesis of **Ahmed Tarek** (initially co-direction with Dr. Sandrine Laplace (LPNHE)) on the measurements of fiducial integrated and differential Higgs boson cross sections in decays to diphotons, and the calibration of the energy scale of the presampler of the ATLAS electromagnetic calorimeter thesis [☞](#). This thesis was awarded the **ATLAS Thesis Award** as one of the best 5 Ph.D. theses defended within ATLAS in 2019.
- 10/2016-09/2019: co-direction of the Ph. D. thesis of **Ilaria Luise**, with Dr. Gregorio Bernardi (LPNHE), on the observation of $SM H \rightarrow b\bar{b}$ decays, and the calibration of low-energy electrons with J/ψ decays to dielectrons, using data collected by ATLAS at the LHC thesis [☞](#)
- 10/2015-11/2018: co-direction of the Ph. D. thesis of **Changqiao Li**, with Prof. Yanwen Liu (USTC Hefei, China), on the search of $SM H \rightarrow b\bar{b}$ decays in VH production, and the calibration of the b-jet tagging efficiency with $t\bar{t}$ events, using data collected by ATLAS at the LHC thesis [☞](#)
- 11/2014-12/2017: co-direction of the Ph. D. thesis of **Stefano Manzoni**, with Prof. Leonardo Carminati (University of Milan, Italy), on the search of supersymmetry in final states with two photons and missing transverse momentum in ATLAS; the optimisation of the energy calibration of electrons and photons reconstructed with the ATLAS electromagnetic calorimeter; the measurement of the Higgs boson mass in the diphoton final state with the ATLAS 2016 data thesis [☞](#). This thesis was awarded the **ATLAS Thesis Award** as one of the best 5 Ph.D. theses defended within ATLAS in 2018, and with the award "**Premio nazionale Conversi**" of INFN - Italy
- 09/2011-07/2014: co-direction of the Ph.D. thesis of **Kun Liu**, with Prof. Yanwen Liu (USTC Hefei, China), on the measurements of the photon identification efficiency and photon trigger efficiency, search for $H \rightarrow Z$ decays and observation of $H \rightarrow \gamma\gamma$. thesis [☞](#). This thesis was awarded the **ATLAS Thesis Award** as one of the best 5 Ph.D. theses defended within ATLAS in 2014, and the "**FCPPL Thesis Award**" as one of the best two theses defended in 2014 in the French-Chinese Particle Physics Laboratory (FCPPL).

Master and license students

- 2020: Alexis Maloizel, master-1 (ENS Paris Saclay), "Differential Higgs to diphoton cross section measurements with ATLAS".
- 2020: Simon Metayer, Theraa Tork, master-2 (NPAC, Paris), "Performance of Thin Planar November- n-on-p silicon pixels after HL- December LHC radiation fluences". With Dr. Marco Bomben.
- 2019: Romain Bouquet, master-2 (NPAC, Paris), "Data-driven calibration of the b-jet energy scale in ATLAS"
- 2019: Alexis Maloizel, license-3 (ENS Paris Saclay), "Higgs to diphoton cross-section and mass measurement in ATLAS"
- 2018: Yajun He, Malak Hoballah, master-2 (NPAC, Paris), "Active-edge silicon pixel sensor R&D for the ATLAS upgrade". With Dr. Marco Bomben.
- 2018: Kevin El Akkari, master-1 (UPD, Paris), "ATLAS b-tagging calibration"
- 2018: Romain Dirson, high school (Stage d'observation de 2nde), "Introduction to research in particle physics"
- 2018: Thomas Grammatico, Robin Caron, master-2 (NPAC, Paris). Mini stage for the detector physics course on "Active-edge silicon pixel sensor R&D for the ATLAS upgrade"
- 2017: Marianna Liberatore, master-2 (NPAC, Paris). Title: "Calibration of the ATLAS b-tagging efficiency"
- 2017: Yehudi Simon, license-3 (Ecole Normale Supérieure de Cachan). Title: "Étude de la désintégration $H \rightarrow \gamma\gamma$ dans l'expérience ATLAS du LHC par analyses de données simulées".

- 2016: Mykyta Haranko, master-2 (University of Kyev - Ukraine). Title: "Building an infrastructure for the development of the semi- conductor sensors: TCT system and FE-I4 based telescope setup". With Dr. Giovanni Calderini and Dr. Marco Bomben
- 2016: Ilaria Luise, master-2 (NPAC, Paris). Title: "Electron and photon reconstruction in ATLAS and CMS and measurement of the photon identification efficiency in ATLAS with radiative Z boson decays". Pre-thesis internship and italian tesi di laurea, with Dr. Gregorio Bernardi
- 2015: Changqiao Li, master-2 (USTC, China). Title: "Optimisation of the selection criteria for the V H (bb) search with the first ATLAS Run2 data". Pre-thesis internship
- 2015: Daniel Cuesta, master-1 (UPD, Paris). Title: "Sensitivity studies for the H $\mu\mu$ decay with 3000 fb⁻¹ of pp collisions in ATLAS"
- 2014: Charles Delporte, master-1 (UPMC, Paris). Title: "Prospects for the measurement of the H $\mu\mu$ decays with ATLAS at HL-LHC"
- Stefano Manzoni, master-2 (Università degli Studi, Milan). Title: "Search for Higgs boson decays to a photon and a Z boson in pp collisions at center-of-mass energies of 7 and 8 TeV with the ATLAS detector". Italian tesi di laurea, with Prof. Leonardo Carminati
- Thanyanan Phuphachong, master-1 (UPMC, Paris). Title: "Improving the sensitivity of the H Z search".
- Wei Xiang, master-2 (UPMC, Paris). Title: "Charge collection efficiency measurements and analysis of test beam data for the upgrade of the ATLAS pixel detector". With Prof. Jacques Chauveau.
- Kun Liu, master-2 (USTC, China). Title: "Measurement of the photon identification efficiency in ATLAS". Pre-thesis internship, with prof. Yanwen Liu.
- Anais Moeller, master-1 (Universidad des Andes, Mérida - Venezuela). Title: "Analysis of photon-jet events in ATLAS".
- Boris Garcia, master-1 (UPMC, Paris). Title: "Caractérisation des capteurs à pixels pour l' upgrade du détecteur de traces de l' expérience ATLAS du LHC"
- Linda Corucci, master-2 (Università degli Studi, Pisa). Title: "Search for the lepton-violating decay μ ". Italian tesi di laurea.

Others

As convener of various ATLAS and BABAR analysis working groups and team leader I have also supervised several other PhD students.

Reviewing activities

- since 2018: referee for **JHEP** and for **Phys. Lett. B**
- since 2006: referee for APS (**Physical Review D** and **Physical Review Letters**)
- 2020: referee and member of the jury of the Ph.D. thesis of Leonardo GIANNINI (Scuola Normale Superiore, Pisa) on "Deep Learning techniques for the observation of the Higgs boson decay to bottom quarks with the CMS experiment"
- 2019: rapporteur and member of the jury of the Ph.D. thesis of Hugues LATTAUD (Universite Claude Bernard Lyon) on "Photon et jets avec l' experience CMS du LHC : De la calibration a la mesure"
- 2019: referee of the Ph.D. thesis of Andrea MERLI (University of Milano) on "Search for CP violation in the angular distribution of $0b \rightarrow p \pi^- \pi^+ \pi^-$ baryon decays and a proposal for the search of heavy baryon EDM with bent crystal at LHCb"
- 2018-2019: rapporteur and member of the jury of the Ph.D. thesis of Tasneem SALEEM (LAL Orsay) on "Study of the Higgs boson properties in the bb decay channel with the ATLAS experiment at the LHC Run 2 and development of pixel sensors for the upgrade of the ATLAS detector at the HL-LHC"
- 2018: referee of the Ph.D. thesis of Leonor CERDA (Universitat de Valencia) on "Measurement of Higgs boson properties in the diphoton decay channel and a search for di-Higgs production in the bb final state with the ATLAS detector"
- 2018: rapporteur and member of the jury of the Ph.D. thesis of Charles DELPORTE (LAL Orsay) on "Study of the Higgs boson decay into b-quarks with the ATLAS experiment"
- 2017: referee of the Ph.D. thesis of Giuseppe CALLEA (Universit`a della Calabria) on "Measurement of isolated-photon plus jet production in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector at the LHC"
- 2015: rapporteur (referee) of the Ph.D. thesis of Jiawei FAN (IPN Lyon) on "search of new scalar, narrow resonances in the diphoton final state at CMS, in the mass range between 80 and 110 GeV"
- member / chair of various ATLAS and BABAR editorial boards reviewing internally the analyses (and corresponding publications) performed by the collaboration

Invited talks and presentations at international conferences and workshops

- 07/2019, EPS-HEP 2019 (Gent, Belgium): Rare and lepton-flavour-violating Higgs boson decays in ATLAS slides [☞](#) proceedings [☞](#)
- 09/2018, "LHC Days 2018" (Split, Croatia): Higgs boson studies in ATLAS slides [☞](#)
- 08/2016, ICHEP 2016, the XXXVIII International Conference on High Energy Physics" (Chicago, MI USA): Searches of high-mass Z+ resonances with 13 TeV pp collisions in ATLAS. slides [☞](#) proceedings [☞](#)
- 09/2015, Hellenic workshop on Elementary particle physics" (Corfu): Higgs boson studies in ATLAS slides [☞](#) proceedings [☞](#)
- 06/2015, PASCOS 2015, the 21st International Symposium on Particle, Strings and Cosmology" (Trieste, Italy): Probing the Standard Model with B-meson decays at BABAR slides [☞](#)
- 05/2015, Physics at the High Luminosity LHC workshop (CERN)": Experimental projections for rare Higgs decays slides [☞](#)
- 04/2015, 8th workshop of the France-Chine Particle Physics Laboratory (Hefei, China): Towards the LHC Run2 slides [☞](#)
- 06/2013, Higgs and Beyond the Standard Model Physics at the LHC (Trieste, Italy): Higgs results from ATLAS slides [☞](#)
- 05/2012, FPCP 2012, 10th International Conference on Flavor physics and CP violation (Hefei, China): CP violation in other B decays and rare B decays. slides [☞](#) proceedings [☞](#)
- 07/2011, RD11, 10th International Conference on Large Scale Applications and Radiation Hardness of Semiconductor Detectors (Firenze, Italy): Recent Results of the ATLAS Upgrade Planar Pixel Sensor R&D Project. slides [☞](#) proceedings [☞](#)
- 04/2011, DIS 2011, the XIX International Workshop on Deep-Inelastic Scattering and Related Subjects (Newport News, VA USA): Measurements of isolated prompt photons in ATLAS. slides [☞](#) proceedings [☞](#).
- 09/2010, CKM 2010, the 6th International Workshop on the CKM Unitarity Triangle (Warwick, UK): Time-integrated measurements of the CKM angle γ in BABAR. slides [☞](#) proceedings [☞](#)
- 06/2009, SUSY 2009, the 17th International Conference on Supersymmetry and the Unification of Fundamental Interactions (Boston, MS USA): Searches of lepton-flavor-violating decays at BABAR. slides [☞](#) proceedings [☞](#)
- 07/2008, ICHEP 2008, the XXXIV International Conference on High Energy Physics (Philadelphia, PA USA): Measurements of the CKM angle α at BABAR. slides [☞](#) proceedings [☞](#)
- 09/2006, Neutrino Oscillation Workshop 2006 (Otranto, Italy)": Lepton flavor violation in decays. slides [☞](#) proceedings [☞](#)
- 07/2006, ICHEP 2006, XXXIII International Conference on High Energy Physics (Moscow, Russia): Measurement of the CP angle β with the BABAR experiment. slides [☞](#) proceedings [☞](#)
- 07/2005, LEPTON-PHOTON 2005, the XXII International Symposium on Lepton-Photon Interactions at High Energy (Uppsala, Sweden): measurements using GLW and ADS approaches with BABAR poster [☞](#)
- 02/2005, LLWI05, Lake Louise Winter Institute 2005: Fundamental Interactions (Lake Louise, Canada): Measurements of β from BABAR slides [☞](#) proceedings [☞](#)
- 10/2004, IEEE 2004 Nuclear Science Symposium (Rome, Italy): Measurement of the Charge Collection Efficiency after Heavy Non-Uniform Irradiation in BABAR Silicon Detectors (poster [☞](#), awarded the Student Poster Award - Honorable Mention). proceedings [☞](#).

Conference, meeting, thematic school organization

- Co-chair of the LHCP2020 conference, <https://indico.cern.ch/event/856696/>
- Member of the local organising committee of the Joint ApPEC-NuPPEC-ECFA seminar (Orsay, October 2019), <https://jenas-2019.lal.in2p3.fr/>
- Member of the scientific committee of the Workshop on Photon Physics and Simulation at Hadron Colliders (Frascati, June 2019), <https://indico.cern.ch/event/783361/>
- Member of the scientific committee and of the local organizing committee of the IN2P3 Schools on silicon detector simulation (Paris, October 2018: <https://indico.in2p3.fr/event/17763/> ; Paris, September 2016: <https://indico.in2p3.fr/event/12967/>; Paris, September 2014: <https://indico.in2p3.fr/event/9786/>)
- Member of the International Advisory Committee and program committee of the XIII, XIV, XV, XVI Seminars on Software for Nuclear, Subnuclear and Applied Physics (Alghero, May/June 2016: <https://agenda.infn.it/event/10583/> ; 2017: <https://agenda.infn.it/event/12061/> ; 2018: <https://agenda.infn.it/event/14470/> ; 2019: <https://agenda.infn.it/event/17240/>)
- Member of the local organising committee of the 11th Trento workshop on advanced silicon radiation detectors (Paris, February 2016), <https://indico.cern.ch/event/452766/>
- Chairperson of the scientific and local organising committees of the Workshop on Photon Physics at the LHC (Paris, May 2015), <https://indico.in2p3.fr/event/11495/>
- Member of the local and scientific organising committees of the Workshop on Photon Physics and Simulation at Hadron Colliders (Paris, March 2012), <https://indico.in2p3.fr/event/5709/>
- Co-organizer and co-convenor of the flavour physics parallel sessions of the IFAE 2008 Italian conference on High energy physics (Bologna, 2008), <https://ifae2008.bo.infn.it/>

Publications

As member of the BABAR and ATLAS Collaborations I am co-author of **more than 1300 publications**, with overall **h-index greater than 150**. For more than 60 of them I have given significant contributions to the measurement (as analyser or as supervisor of the analysis working group) and/or the writing of the article. Here is a **selected short list** of publications with a significant contribution:

• Higgs boson physics

- ◆ ATLAS Collaboration, Measurement of VH , $H \rightarrow b\bar{b}$ production as a function of the vector-boson transverse momentum in 13 TeV pp collisions with the ATLAS detector, JHEP 1905, 141 (2019), arXiv:1903.04618 [↗](#)
- ◆ ATLAS Collaboration, "Observation of $H \rightarrow b\bar{b}$ decays and VH production with the ATLAS detector", Phys. Lett. B 786 (2018) 59, arXiv:1808.08238 [↗](#)
- ◆ ATLAS Collaboration, "Measurements of Higgs boson properties in the diphoton decay channel with 36.1 fb⁻¹ pp collision data at the center-of-mass energy of 13 TeV with the ATLAS detector", Phys. Rev. D98, 052005 (2018), arXiv:1802.04146 [↗](#)
- ◆ ATLAS Collaboration, "Measurement of the Higgs boson mass in the $H \rightarrow ZZ \rightarrow 4\ell$ and $H \rightarrow ZZ \rightarrow 2\ell 2\nu$ channels with $\sqrt{s}=13$ TeV pp collisions using the ATLAS detector", Phys. Lett. B 784 (2018) 345, arXiv:1806.00242 [↗](#)
- ◆ ATLAS Collaboration, "Evidence for the $H \rightarrow b\bar{b}$ decay with the ATLAS detector", JHEP 12 (2017) 024, arXiv:1708.03299 [↗](#)
- ◆ ATLAS Collaboration, "Searches for the $Z \rightarrow \nu\bar{\nu}$ decay mode of the Higgs boson and for new high-mass resonances in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector", JHEP 10 (2017) 112, arXiv:1708.00212 [↗](#)
- ◆ ATLAS Collaboration, Measurement of Higgs boson production in the diphoton decay channel in pp collisions at center-of-mass energies of 7 and 8 TeV with the ATLAS detector, Phys. Rev. D90, 112015 (2014), arXiv:1408.7084 [↗](#)
- ◆ ATLAS Collaboration, Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC, Phys. Lett. B716, 1–29 (2012), arXiv:1207.7214 [↗](#)

• Beyond Standard Model searches

- ◆ ATLAS Collaboration, "Search for photonic signatures of gauge-mediated supersymmetry in 13 TeV pp collisions with the ATLAS detector", Phys. Rev. D 97 (2018) 092006, arXiv:1802.03158 [↗](#)
- ◆ ATLAS Collaboration, "Search for new phenomena in high-mass diphoton final states using 37 fb⁻¹ of proton-proton collisions collected at $\sqrt{s}=13$ TeV with the ATLAS detector, arXiv:1707.04147 [↗](#)
- ◆ ATLAS Collaboration, "Search for supersymmetry in a final state containing two photons and missing transverse momentum in $\sqrt{s}=13$ TeV pp collisions at the LHC using the ATLAS detector, Eur. Phys. J. C76 (2016) 517, arXiv:1606.09150 [↗](#)
- ◆ Search for new phenomena with photon+jet events in proton-proton collisions at $\sqrt{s}=13$ TeV with the ATLAS detector, JHEP 1603 (2016) 041, arXiv:1512.05910 [↗](#)

• Standard Model photon cross section measurements

- ◆ ATLAS Collaboration, Measurement of isolated-photon pair production in pp collisions at $\sqrt{s}=7$ TeV with the ATLAS detector, JHEP 1301, 086 (2013), arXiv:1211.1913 [↗](#)
- ◆ ATLAS Collaboration, Measurement of the production cross section of an isolated photon associated with jets in proton-proton collisions at $\sqrt{s}=7$ TeV with the ATLAS detector, Phys. Rev. D85, 092014 (2012), arXiv:1203.3161 [↗](#)
- ◆ ATLAS Collaboration, Measurement of the inclusive isolated prompt photon cross section in pp collisions at $\sqrt{s}=7$ TeV with the ATLAS detector, Phys. Rev. D83, 052005 (2011), arXiv:1012.4389 [↗](#)
- ◆ L. Carminati, G. Costa, D. D'Enterria, I. Koletsou, G. Marchiori, et al., Sensitivity of the LHC isolated-photon+jet data to the parton distribution functions of the proton, EPL 101, 61002 (2013), arXiv:1212.5511 [↗](#)

- **Detector performance studies**

- ◆ A. Ducourthial et al., Performance of Thin Planar n-on-p silicon pixels after HL-LHC radiation fluences, Nucl. Instrum. Meth. Phys. Res. Sect. A 927, 219 (2018), arXiv:1810.07279 [↗](#)
- ◆ ATLAS Collaboration, Electron and photon energy calibration with the ATLAS detector using 2015-2016 LHC proton-proton collision data, JINST 14, P03017 (2019), arXiv:1812.03848 [↗](#)
- ◆ ATLAS Collaboration, Measurement of the photon identification efficiencies with the ATLAS detector using LHC Run 2 data collected in 2015 and 2016, Eur. Phys. J. C79, 205 (2019), arXiv:1810.05087 [↗](#)
- ◆ ATLAS Collaboration, "Measurements of b-jet tagging efficiency with the ATLAS detector using tt events at $\sqrt{s}=13$ TeV", JHEP 08 (2018) 89, arxiv:1805.01845 [↗](#)
- ◆ Measurement of the photon identification efficiencies with the ATLAS detector using LHC Run-1 data, Eur. Phys. J. C 76 (2016) 666, arXiv:1606.01813 [↗](#)

- **Flavour physics**

- ◆ J.P. Lees et al. (BABAR Collaboration), "Observation of direct CP violation in the measurement of the Cabibbo-Kobayashi-Maskawa angle with $B^\pm D(K)^\pm$ decays," Phys. Rev. D87, 052015 (2013), arXiv:1301.1029 [↗](#)
- ◆ P. del Amo Sanchez et al. (BABAR Collaboration), Measurement of CP observables in $B^\pm DCP K^\pm$ decays and constraints on the CKM angle γ , Phys. Rev. D82, 072004 (2010), arXiv:1007.0504 [↗](#)
- ◆ B. Aubert et al. (BABAR Collaboration), "Searches for Lepton Flavor Violation in the Decays $\pm e^\pm$ and $\pm \mu^\pm$," Phys. Rev. Lett. 104, 021802 (2010), arXiv:0908.2381 [↗](#)

- **Detector R&D**

- ◆ ATLAS IBL Collaboration, Production and Integration of the ATLAS Insertable B-Layer, JINST 13 T05008 (2018), <https://atlas.web.cern.ch/Atlas/GROUPS/PHYSICS/PLOTS/PIX-2018-001/> [↗](#)
- ◆ M. Bomben et al., Performance of active edge pixel sensors, JINST 12, P05006 (2017), arXiv:1702.01709 [physics.ins-det]
- ◆ M. Bomben et al., Development of edgeless n-on-p planar pixel sensors for future ATLAS upgrades, Nucl. Instrum. Meth. Phys. Res. Sect. A 712, 41 (2013), ISSN 0168-9002
- ◆ J. Weingarten et al., Planar Pixel Sensors for the ATLAS Upgrade: Beam Tests results, JINST 7, P10028 (2012), arXiv:1204.1266 [physics.ins-det]
- ◆ S. Bettarini et al., The SLIM5 low mass silicon tracker demonstrator, Nucl. Instrum. Meth. A623, 942-953 (2010)
- ◆ S. Bettarini et al., Measurement of the charge collection efficiency after heavy non-uniform irradiation in BABAR silicon detectors, IEEE Trans. Nucl. Sci. 52, 1054-1060 (2005)

-- GiovanniMarchiori - 2017-09-26

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