Prof Marcella Bona

Professor of Physics

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Academic Qualifications

2012 Postgraduate Certificate in Academic Practice (PGCAP), Queen Mary University of London (QMUL).

2001 Ph.D., Torino University, Italy.
Thesis Title: *Analysis of two-body charmless decays for branching fraction and CP-violating asymmetry measurements with the BaBar experiment.*

1998 MPhys. Physics, Torino University, Italy.
Full marks with honours: 110/110 *magna cum laude* and *honourable mention*.
Thesis title: *B and anti-B decay vertex reconstruction in the BaBar experiment.*

Employment History

Since 2025	Professor of Physics, School of Physics and Astronomy, QMUL.
2020-2025	Reader in Particle Physics, School of Physics and Astronomy, QMUL.
2021-2023	Royal Society Leverhulme Trust Senior Research Fellow.
2017-2020	Senior Lecturer in Particle Physics, School of Physics and Astronomy, QMUL.
2009-2017	Lecturer in Particle Physics, School of Physics and Astronomy, QMUL.
2007-2009	Research Fellow, CERN, Switzerland.
2005-2007	Research Associate, CNRS and *Laboratoire d'Annecy-le-Vieux de Physique des Particules* (LAPP), Annecy, France.
2001-2005	Research Associate, Torino University, Italy.
1998-1999	Teaching fellow, Torino University, Italy.

Research Topics.
I am currently leading or contributing to the following analyses:

ATLAS	Test of Lepton Flavour Universality in b to s$\ell\ell$ transitions in B mesons decaying in K*$\ell\ell$.
ATLAS	Anomaly Detection in hadronic di-jets.
HFLAV	Measurements of B-meson lifetimes and oscillation parameters: *ATLAS representative.*
UTfit	update of the global flavour fit within and beyond the Standard Model.
SAPIENS	Data collection, analysis and modelling of traffic data in Mexico City.

Research Roles, Professional Bodies, Peer-review Activities, Awards.

Since 2024	Evaluation expert for the Italian Evaluation of Research Quality exercise (VQR), 2020-2024.
Since 2022	ATLAS Analysis Contact for $R(K^*)$ analysis.

Since 2020	Principal Investigator of SAPIENS project for air quality monitoring in Mexico City, seed funding from the Challenge-Led Global Research Collaboration Initiative, QMUL–IPN (Instituto Politécnico Nacional).
Since 2018	Member of the Heavy Flavour Averaging Group (HFLAV).
Since 2016	CERN ATLAS Deputy Team Leader for QMUL.
Since 2016	ATLAS Level 1 Calorimeter Trigger and Upgrade Team Leader for QMUL.
Since 2014	Member of the International Advisory Committee of Interplay of Particle and Astroparticle Physics (IPA) conference.
Since 2014	Member of the STFC Particle Physics Users Advisory Committee.
Since 2003	Member and co-founder of the phenomenological collaboration UTfit.
2022-2025	ATLAS Analysis Contact for semi-visible jet searches.
2020-2025	CERN SPSC scientific committee member. Part of the SPSC ECN3 Task Force. Lead reviewer of NA62 experiment and MuonE proposal. Reviewer of experiments and proposals: NA61, NA64, and SHiP.
2024	Recipient of the Faculty Vice Principal's Award for overall excellence and collegiality across multiple areas, acknowledging leadership roles in research and education at QMUL.
2023-2024	Convener of the Weak Decay working group within the B and Light states ATLAS working group.
2022-2023	Convener of the Rare Decay working group within the B and Light states ATLAS working group.
2021-2023	Alan Turing Fellow.
2017-2023	UK delegate of Advisory Committee of CERN Users (ACCU).
2019-2021	Convener of the B Physics and Light States Working Group of the ATLAS collaboration.
2020	Recipient of the QMUL Faculty of Science and Engineering Award for Internationalisation 2020.
2017-2018	Member of STFC CERN Fellowship panel. In 2018, chair of the panel.
2012-2016	Analysis leader for the rare B decay $B^0_{(s)} \to \mu^+\mu^-$ study at ATLAS.
2015-2017	Convener of the B Physics Working Group of the ATLAS UK collaboration.
2012-2015	Sub-convener of the Rare B Decays Working Group of the ATLAS collaboration.
2010-2016	Atlas Semi-Conductor Tracker (SCT) institute representative.

Most Recent Conference Contributions

Convenerships and Organisation:

2025	Session Convener and Session Chair of the European Physical Society Conference on High Energy Physics (EPS25), in Marseille, France.
2025	Session Convener at "13th Edition of the Large Hadron Collider Physics Conference (LHCP 2025)", in Taipei.
2023	Organiser and Session Chair of the "21st Conference on Flavor Physics and CP Violation (FPCP 2023)", in Lyon, France.
2022	Part of the International Advisory Committee for "IPA2022: Interplay between Particle and Astroparticle physics 2022", in Vienna, Austria.
2021	Organiser and Session Chair of the "Flavour Anomaly Workshop", at CERN.
2020	Co-organiser of "GRADnet Machine Learning and AI Workshop", at QMUL.
2019	Parallel Session convener at the Large Hadron Collider Physics Conference, Puebla, Mexico.
2015	Co-organiser of the conference QCD@LHC, London, UK.
2014	Co-organiser of the conference "50 years of CP violation", London, UK.

2014 Co-founder and co-organiser of the conference series Interplay between Particle and Astroparticle Physics (IPA). Part of the International Advisory Committee.

Talks in Main Conferences:

2025 Plenary talk at "23rd Conference on Flavour Physics and CP Violation (FPCP 2025)", Cincinnati, USA.
2024 Parallel talks at "42nd International Conference on High Energy Physics (ICHEP 2024)", Prague, Czech Republic.
2024 Invited talk at "The Flavour Path to New Physics" workshop, Zurich, Switzerland.
2023 Parallel talk at the "12th International Workshop on the CKM Unitarity Triangle", Santiago de Compostela, Spain.
2023 Parallel talk at "21st Conference on Flavour Physics and CP Violation (FPCP 2023)", Lyon, France.
2022 Parallel talks at "41st International Conference on High Energy Physics (ICHEP 2022)", Bologna, Italy.
2022 Invited talk at "8th Workshop on Theory, Phenomenology and Experiments in Flavour Physics (FPCapri2022)", Anacapri, Italy.
2022 Invited talk at "Future flavours: Prospects for beauty, charm and tau physics", online.
2022 Parallel talk at "10th Annual Large Hadron Collider Physics (LHCP2022)", online.
2021 Parallel talk at "TeV Particle Astrophysics 2021 (TeVPA 2021)", online.
2021 Invited talk at the "Anomalies and Precision in the Belle II Era" workshop, online.
2021 Parallel talk at the European Physical Society Conference on High Energy Physics (EPS21), online.
2021 Parallel talk at the 19th Flavour Physics and CP Violation Conference (FPCP 2021), online.
2020 Parallel talk at the 40th International Conference of High Energy Physics (ICHEP20), online.
2020 Plenary talk at 26th Nordic Particle Physics Meeting (Spaatind 2020), Skeikampen, Norway.
2019 Invited talk at "Rare Semileptonic B decays, Theory and Experiment (bsll2019)", Lyon, France.
2019 Parallel talk at the 7th Annual Large Hadron Collider Physics conference (LHCP19), Puebla, Mexico.
2019 Invited talk at "Towards the Ultimate Precision in Flavour Physics" workshop, Durham, UK.

Selected Publications

I have authored more than 1800 peer-reviewed publications with 66 renowned papers (500+ citations) and 118 famous papers (250+ citations). My high-energy physics h-factor is 224. This is the complete list of publications: Marcella Bona's HepNames Profile.

See below the main peer-reviewed articles to which I have contributed in the recent years.

[1] ATLAS Collaboration, *Search for new physics in final states with semi-visible jets or anomalous signatures using the ATLAS detector*, Phys. Rev. D **112**, no.1, 012021 (2025) doi:10.1103/44zp-mh1q [arXiv:2505.01634 [hep-ex]].

[2] S. Banerjee *et al.* [Heavy Flavor Averaging Group (HFLAV)], *Averages of b-hadron, c-hadron, and τ-lepton properties as of 2023*, [arXiv:2411.18639 [hep-ex]].

[3] F. Betti, M. Bona, M. Ciuchini, D. Derkach, R. Di Palma, A. L. Kagan, V. Lubicz, G. Martinelli, M. Pierini and L. Silvestrini, *et al. Global analysis of charm mixing parameters and determination of the CKM angle gamma γ*, Phys. Rev. D **112**, no.1, 013004 (2025) doi:10.1103/pknz-r41n [arXiv:2409.06449 [hep-ph]].

[4] ATLAS Collaboration, *Electroweak, QCD and flavour physics studies with ATLAS data from Run 2 of the LHC*, Phys. Rept. **1116**, 57-126 (2025) doi:10.1016/j.physrep.2024.12.003 [arXiv:2404.06829 [hep-ex]].

[5] ATLAS Collaboration, *Search for resonant production of dark quarks in the dijet final state with the ATLAS detector*, JHEP **02**, 128 (2024) doi:10.1007/JHEP02(2024)128 [arXiv:2311.03944 [hep-ex]].

[6] ATLAS Collaboration, *Observation of an Excess of Dicharmonium Events in the Four-Muon Final State with the ATLAS Detector*, Phys. Rev. Lett. **131**, no.15, 151902 (2023) doi:10.1103/PhysRevLett.131.151902 [arXiv:2304.08962 [hep-ex]].

[7] M. Bona *et al.* [UTfit], *New UTfit Analysis of the Unitarity Triangle in the Cabibbo-Kobayashi-Maskawa scheme*, Rend. Lincei Sci. Fis. Nat. **34**, 37-57 (2023) doi:10.1007/s12210-023-01137-5 [arXiv:2212.03894 [hep-ph]].

[8] Y. S. Amhis *et al.* [Heavy Flavor Averaging Group and HFLAV], *Averages of b-hadron, c-hadron, and τ-lepton properties as of 2021*, Phys. Rev. D **107**, no.5, 052008 (2023) doi:10.1103/PhysRevD.107.052008 [arXiv:2206.07501 [hep-ex]].

[9] ATLAS Collaboration, *Search for new phenomena in final states with b-jets and missing transverse momentum in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector*, JHEP **05**, 093 (2021) doi:10.1007/JHEP05(2021)093 [arXiv:2101.12527 [hep-ex]].

[10] ATLAS Collaboration, *Measurement of the relative $B_c^{\pm}/B^{\pm}$ production cross section with the ATLAS detector at $\sqrt{s} = 8$ TeV*, Phys. Rev. D **104**, no.1, 012010 (2021) doi:10.1103/PhysRevD.104.012010 [arXiv:1912.02672 [hep-ex]].

[11] Y. S. Amhis *et al.* [HFLAV], *Averages of b-hadron, c-hadron, and τ-lepton properties as of 2018*, Eur. Phys. J. C **81**, no.3, 226 (2021) doi:10.1140/epjc/s10052-020-8156-7 [arXiv:1909.12524 [hep-ex]].

[12] E. Kou *et al.* [Belle-II Collaboration], *The Belle II Physics Book*, PTEP **2019**, no. 12, 123C01 (2019) doi:10.1093/ptep/ptz106 [arXiv:1808.10567 [hep-ex]].

[13] ATLAS Collaboration, *Search for dark matter produced in association with bottom or top quarks in $\sqrt{s} = 13$ TeV pp collisions with the ATLAS detector*, Eur. Phys. J. C **78**, no. 1, 18 (2018) doi:10.1140/epjc/s10052-017-5486-1 [arXiv:1710.11412 [hep-ex]].

[14] ATLAS Collaboration, *Study of the rare decays of B_s^0 and B^0 into muon pairs from data collected during the LHC Run 1 with the ATLAS detector*, Eur. Phys. J. C **76**, no. 9, 513 (2016) doi:10.1140/epjc/s10052-016-4338-8 [arXiv:1604.04263 [hep-ex]].