**Foreword**

Due to the large nature of experimental collaborations in particle physics, each publication relies on the results of a very large number of individual researchers and technicians. For this reason, the author list of each of the public documents by the ATLAS experiment includes all members of the collaboration, in alphabetical order. The following list of papers where I made a significant contribution has been selected according to the relevance to this. My bibliometric information (Inspire-HEP) can be found at this link: <https://inspirehep.net/author/profile/C.Doglioni.1>.

According to the inspire metrics, my h-hep index (<https://inspirehep.net/help/citation-metrics>) is 138, with 105 average citations per published paper, overall number of citations 82253.

**Most relevant peer-reviewed publications**

**(2018) “Search for low-mass dijet resonances using trigger-level jets with the ATLAS detector in pp collisions at sqrt(s)=13 TeV”.** G. Aad *et al.* [ATLAS Collaboration]. Phys. Rev. Lett. 121, 081801 (2018). *This paper describes the first search using the Trigger-object Level Analysis technique in ATLAS with the full 2016 LHC dataset. This technique, that I introduced and deployed with my colleagues in ATLAS, allows to record a much smaller event size directly from the ATLAS event selection (trigger) system and therefore increase the number of events recorded within the same storage resources. This is crucial in the search of resonances with very high-rate backgrounds, such as Dark Matter mediator particles decaying into dijets.*

***Journal impact factor (JCR 2017):8.839***

***Citations as of 2018/12/14: 24.***

***Link:*** [***https://arxiv.org/abs/1804.03496***](https://arxiv.org/abs/1804.03496)

***Link to bibliometric information:*** [***https://inspirehep.net/record/1667040***](https://inspirehep.net/record/1667040)

**(2017) “Search for dark matter at colliders”.** Oliver Buchmueller, Caterina Doglioni and Lian-Tao Wang. Published as a Nature Physics Progress Article, Nature Physics **13**, 217–223 (2017). *This article reviews the state of dark matter theory and searches at the Large Hadron Collider, concentrating on the for weakly interactive massive particle (WIMP) scenario. I am one of the three authors who have been invited by the journal for a special issue of Nature Physics and Nature Astronomy, focused on dark matter.*

***Journal impact factor (JCR 2017): 22.727***

***Citations as of 2018/12/14: 8***

***Link:*** [***https://www.nature.com/articles/nphys4054***](https://www.nature.com/articles/nphys4054)

***Link to bibliometric information:*** [***https://www.nature.com/articles/nphys4054/metrics***](https://www.nature.com/articles/nphys4054/metrics)

**(2018) “Dark Matter Searches at colliders”.** Antonio Boveia, Caterina. To be published on Annual Reviews of Nuclear and Particle Science Volume 68 on October 19, 2018 (at that point we will also release it on the arXiv for open access).

*This is an invited review of dark matter searches at colliders. This is a much broader and longer review than the 2017 one above, targeting a broad range of audiences (from PhD students to experts in the field). It describes the state of the art of collider searches for dark matter in terms of theoretical processes, their signatures in the detector and technical challenges, the connection to direct and indirect searches, and an outlook for the future.*

***Journal impact factor: 6.756***

***Citations as of 2018/12/14: 5***

***Link:*** [***https://www.annualreviews.org/doi/pdf/10.1146/annurev-nucl-101917-021008***](https://www.annualreviews.org/doi/pdf/10.1146/annurev-nucl-101917-021008)

***Link to bibliometric information:*** [***https://inspirehep.net/record/1700750***](https://inspirehep.net/record/1700750)

**(2017) “Performance of the ATLAS Trigger System in 2015”.** G. Aad *et al.* [ATLAS Collaboration]. Published in Eur. Phys. J. C 77 (2017) 317. *The performance of the ATLAS trigger system is described in this paper. I deployed a new analysis strategy in ATLAS in order to record unprecedented amounts of data, in order to gain sensitivity to Dark Matter mediator particles. This is the Trigger-object Level Analysis, described here for the first time with the performance of trigger jets.*

***Journal impact factor: 5.172***

***Citations as of 2018/12/14: 255***

***Link:*** [***https://arxiv.org/abs/1611.09661***](https://arxiv.org/abs/1611.09661)

***Link to bibliometric information:*** [***https://inspirehep.net/record/1500696***](https://inspirehep.net/record/1500696)

**(2016) “Search for new phenomena in the dijet mass and angular distribution from pp** **collisions at sqrt(s) = 13 TeV with the ATLAS detector”.** G. Aad *et al.* [ATLAS Collaboration]. Published in Phys. Let. B754 (2016) 302-322 *The dijet invariant mass spectrum and angular distributions are studied in search of new resonant phenomena. This is the first search publication for the LHC, for the 13 TeV run. In absence of any signal, the world’s strongest constraints at the time had been set on a number of benchmark models. I have contributed to many aspects of the analysis, focused both on the performance of the highest energy jets used for this search and on the preparation of the inputs for the analysis. I have supervised the work of the Lund PhD student who was the contact person for this analysis.****Journal impact factor: 4.254  
Citations as of 2018/12/14: 167  
Link to bibliometric information:*** [***https://inspirehep.net/record/1408292***](https://inspirehep.net/record/1408292) ***Link:*** [***https://arxiv.org/abs/1512.01530***](https://arxiv.org/abs/1512.01530)

**Question for the internal reviewers:** is it better to have a newer but less-widely-cited paper? Or a similarly old but higher impact factor paper?

**(2015) “‘Search for high-mass diboson resonances with boson-tagged jets in proton-proton collisions at sqrt(s) = 8** **TeV with the ATLAS detector”.** G. Aad *et al.* [ATLAS Collaboration]. Published in JHEP 1512 (2015) 055 *The invariant mass spectrum of boson-jets (hadronically decaying bosons, whose decay products are reconstructed as a single jet using substructure techniques) is studied for deviations from the Standard Model prediction. This analysis is one of the few that found an excess in the LHC Run-1, making it very interesting from the phenomenology point of view as well as from detector performance. I have been involved in the design and analysis code for this search, and I was the supervisor of the PhD student who was the contact person of this analysis.****Journal impact factor: 5.541  
Citations as of 2018/12/14: 312  
Link:*** [***https://arxiv.org/abs/1506.00962***](https://arxiv.org/abs/1506.00962) ***Link to bibliometric information:*** [***https://inspirehep.net/record/1374218***](https://inspirehep.net/record/1374218)

**(2013) “Jet energy measurement with the ATLAS detector in proton-proton collisions at sqrt(s)=7 TeV”.** G. Aad *et al.* [ATLAS Collaboration]. Published in Eur. Phys. J. C **73**, 2304 (2013). *This paper documents the calibration and performance of hadronic jets in the ATLAS detector for the full 2010 LHC dataset, and established the techniques that have been used for the ATLAS detector since then. Given that this was my thesis topic, I have been the leading author of the analysis and editor of the two public notes ATLAS-CONF-2011-032, ATLAS-CONF-2010-056 detailing the very first calibration and uncertainty of the jet energy scale and its improvements (Sections 8 and 9 in this paper). As a post-doc I have supervised the work on the jet energy scale uncertainties for jets originated from different parton flavours (Sections 18 and 20). This is one of the ten most cited papers for the ATLAS Collaboration.****Journal impact factor: 5.172  
Citations as of 2018/12/14: 972  
Link:*** [***https://arxiv.org/abs/1112.6426***](https://arxiv.org/abs/1112.6426)

***Link to bibliometric information:*** [***https://inspirehep.net/record/1082939***](https://inspirehep.net/record/1082939)

**Selected whitepapers from the Dark Matter Forum / Dark Matter Working Group**

The Dark Matter Working Group regularly publishes the result of the work coordinated within the LHC Dark Matter community. As one of the organizer I take a leading role in editing these results first-hand. Even though these are journal publications due to collaboration policies not allowing single-authored papers from such forums (note: we are actively taking steps so that we can publish those papers and they may be submitted/published by February 2019), we organize for at least 10 prominent senior scientists of the field to participate in an internal, detailed peer-review of this document prior to publication on the arXiv and CERN servers. Prior to publication, the documents are also circulated to the whole working group.

**(2015) “Dark Matter Benchmark Models for Early LHC Run-2 Searches: Report of the ATLAS/CMS Dark Matter Forum”.** A. Abercrombie et al. **arXiv:1507.00966 [hep-ex].** *This document is the final report of the ATLAS-CMS Dark Matter Forum, a forum organized by the ATLAS and CMS collaborations with the participation of experts on theories of Dark Matter. It contains the set of Dark Matter signal benchmarks for the design of the early LHC Run-2 searches, together with studies of the parameter space of these models and a repository of generator implementations. This report also addresses how to apply the Effective Field Theory formalism for collider searches and present the results of such interpretations. I have been one of the five organizers and editors of this paper.*

***Citations as of 2018/12/14: 277  
Link:*** [***https://arxiv.org/abs/1507.00966***](https://arxiv.org/abs/1507.00966) ***Link to bibliometric information:*** [***https://inspirehep.net/record/1381178***](https://inspirehep.net/record/1381178)

**(2016) Recommendations on presenting LHC searches for missing transverse energy signals using simplified s-channel models of dark matter.** A. Boveia et al. **arXiv:** **1603.04156 [hep-ex].** *This document contains a series of recommendations by the LHC Dark Matter Working Group (DMWG), on how to show results of LHC searches together with non-collider searches using the models from 1507.00966, and it is followed by a companion document on how to convey the complementarity of searches at the LHC that are looking for invisible Dark Matter particles and those looking for the visible decays mediators into SM particles. This is how the Dark Matter summary plots on dark matter searches with a mediator are presented particle by ATLAS and CMS, see e.g.* *https://atlas.web.cern.ch/Atlas/GROUPS/PHYSICS/CombinedSummaryPlots/EXOTICS. As a DMWG organizer, I have been one of the main editors of these documents.*

***Citations as of 2018/12/14: 114  
Link:*** [***https://arxiv.org/abs/1603.04156***](https://arxiv.org/abs/1603.04156) ***Link to bibliometric information:*** [***https://inspirehep.net/record/1427412***](https://inspirehep.net/record/1427412)

**High Energy Physics (HEP) Software Foundation whitepaper**

As a member of the HEP Software Foundation, I authored its initial whitepaper and its supporting documentation as input to the strategy for trigger and reconstruction for high energy physics for the next decade. As a result of this effort, I have been selected as convenor of the Trigger and Reconstruction Working Group of the HEP Software Foundation.

**(2017) “A roadmap for HEP software and computing R&D for the 2020s”**,A. Alves Jr et al. [HEP Software Foundation]. **arXiv:1712.06982 [hep-ex].** *This whitepaper details the R&D activities needed to prepare for the upgrades of the experimental programme of HEP in the coming decades. I have contributed to the main document and chapter on trigger and event reconstruction in terms of needs and perspectives for real-time and trigger-object level analyses.* *This whitepaper has been the stepping stone for the creation of the IRIS-HEP Institute for Research and Innovation in Software in High Energy Physics (*[*http://iris-hep.org)*](http://iris-hep.org))*.*

***Citations as of 2018/12/14: 11  
Link:*** [***https://arxiv.org/abs/1712.06982***](https://arxiv.org/abs/1712.06982) ***Link to bibliometric information:*** [***https://inspirehep.net/record/1644100***](https://inspirehep.net/record/1644100)