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Fred Blanc, Ben Couturier, Stephanie Hansmann-Menzemer, Patrick Robbe, Sascha Stahl, Eric Thomas, Ulrich Uwer, Vincenzo Vagnoni, Stefania Vecchi

LHCb related document classes not under Editorial Board Responsibility

This document is an update of the document *LHCb related paper classes not under Editorial Board Responsibility* from 24. Feb. 2022, released by the operations coordinator, the editorial board chair, spokesperson, deputy spokesperson, and physics coordinator at that time: Silvia Gambetta, Franz Muheim, Chris Parkes, Matteo Palutan, and Niels Tuning.

There are several classes of documents connected to LHCb that are not managed by the Editorial Board. We aim here to clarify the rules for the review of these documents. It is neither possible nor desirable to be too prescriptive. Relevant bodies like the Technical Board (TB) and Software and Computing Board (SCB) should be empowered in taking decisions upon discussion, with the spokesperson adjudicating whenever no large consensus can be achieved. The TB and SCB are encouraged to discuss within their bodies more specific guidelines for the categories of their concern, leaving the possibility of extended discussions in the presence of corner cases or when there's not enough consensus on how to proceed.

Open Data Papers:
Papers which analyse LHCb open data. The rules are given in the policy document LHCb-PUB-2013-003. These papers are neither reviewed nor approved by the collaboration and are not signed by LHCb members. The collaboration does not keep track of these papers.

Conference Proceedings:
Conference Proceedings follow the rules described here:
`https://lhcb.web.cern.ch/lhcb_page/collaboration/organization/editorial_board/conference_proceedings.html`.

Theoretical/Phenomenology Papers or Physics Review Papers:
These are physics papers that do not rely on the analysis of LHCb data nor simulation. They typically suggest new theoretical approaches or analysis techniques relevant to LHCb or review the state of a research field where LHCb is contributing. The rule is given in `https://lhcb.web.cern.ch/lhcb_page/collaboration/organization/editorial_board/PublicationProcedureNovember2011.pdf`: *Papers that include projections for LHCb performance or sensitivity, should be sent to the Physics Coordinator (PC) and EB chair for comments prior to being posted on arXiv or submitted to a journal.* These papers do not get any LHCb reference number.

R&D papers using no LHCb resources:
These are papers proposing or testing detector technologies or software algorithms that may have relevance to LHCb and are signed by LHCb members. Papers that do not rely on the analysis of LHCb data nor simulation, software nor technical infrastructure are published purely at the discretion of the authors. Papers that make a statement that a technology will be used in LHCb, should be sent to the relevant project leader(s) (PL), the Technical Coordinator (TC) and the Software and Computing Coordinator (SCC) for comments prior to being posted on the arXiv or submitted to the journal. Theses papers do not get any LHCb reference number. The collaboration is not keeping track of these papers.

R&D papers using LHCb resources:
These are papers proposing or testing detector technology or software algorithms that will, or may, have relevance to LHCb and utilise LHCb centrally taken data or simulation, software or significant amounts of technical infrastructure. If there are non-LHCb members on the planned author list, the CB has to approve the planned usage of LHCb resources upon its use. This can be made only once in the form of

a framework agreement in the case of externally funded projects.
The authors should inform the leader of the project within which the work is carried out. Once the first paper draft is ready the PL brings the case forward to the TB and the SCB. If the topic of the paper is such that it is not possible to assign it to a project, the authors should inform the TB and the SCB directly. The TC and SCC should take care of verifying that there's consensus on both content and proposed author list following recommendations from the TB and SCB. The TB and SCB assigns a body in charge of the review, which could be a project itself, or a TB or SCB subcommittee. The assigned body is in charge of the entire review process. Once the review body is satisfied with the paper, the TC and SCC signs off the paper.
The paper will get an LHCb-RD note number. It is uploaded to CDS upon submission to arXiv or to a journal. An EP approval is optional, which would result in an additional CERN-EP number for the document.

LHCb Detector or Software Performance Papers:
These are papers describing a sub-detector or software project (or substantial components thereof) or their performance. These may well be intended to be a reference in LHCb publications. The review process and the definition of the author list follow `https://lhcb.web.cern.ch/lhcb_page/collaboration/organization/editorial_board/DP.PDF` and `https://twiki.cern.ch/twiki/bin/viewauth/LHCb/LHCbDetectorPerformancePaper`. The TC and SCC should take care of verifying that there's consensus on both content and proposed author list following recommendations from the TB and SCB. The paper gets a LHCb-DP number assigned and is uploaded to CDS upon submission to arXiv or the journal. Furthermore, the papers are linked from the according LHCb web-page: `https://twiki.cern.ch/twiki/bin/viewauth/LHCb/LHCbDetectorPerformancePaper`. The LHCB-DP.bib file in the gitlab repository is updated by the EB chair accordingly.

LHCb Physics Related Performance Papers:
These are papers describing an analysis of LHCb data or simulation that provide the measurement of quantities of relevance to LHCb physics. The authors should inform the project leader, who brings the case forward to the TB and the SCB. If the topic of the paper is such that it is not possible to assign it to a project, the authors should inform the TB and the SCB directly. Depending on the topic of the paper, both boards decide in agreement with the PC or the OC if it is a paper with a full-author list or a limited author list. The decision of the TB and SCB is binding. For papers with the full collaboration author list, the review procedure is documented here `https://lhcb.web.cern.ch/lhcb_page/collaboration/organization/editorial_board/lhcbpubdp.pdf`. In case of a limited author list paper, the TB and SCB assign a body in charge of the review in agreement with the PC or OC, depending on the topic of the paper. The review body could be a project, a physics analysis, or a physics performance working group, and it is in charge of the entire review process. Once the review body is satisfied, TC and SCC together with the PC or OC give the final sign-off. These papers get a LHCb-DP number. They are uploaded to CDS upon submission to arXiv or the journal. The LHCB-DP.bib file in the gitlab repository is updated by the EB chair accordingly.
The EP approval is encouraged, which would result in an additional CERN-EP number for the document.

Figure Documents:
These documents describe performance figures or publicity plots to be shown at conferences. The documents are reviewed by the according detector and software projects, physics analysis or performance working groups. Approval is done case by case by the relevant project leader, OC or PC. These figures are only intended to be used for conference talks and in conference proceedings. At the moment a figure is supposed to enter a paper, it has to be approved together with the paper, and the figure document should be retired. The review and approval procedure is detailed at `https://twiki.cern.ch/twiki/bin/viewauth/LHCbInternal/OperationPlotApproval`. The figure document is uploaded to CDS and assigned an LHCb-Figure number.

LHCb public notes:
These documents are used to publish information of public interest which is not planned to be published anywhere else. This comprises e.g. computing resource requirements or sensitivity estimates. Public notes can as well be used to document technical guidelines or tools. They are mainly based on already published data or simulation. The use of a small fraction of data to demonstrate performances is possible as well. The author list of a public note can vary from a few individuals to the entire collaboration. Due to the very diverse nature of this document class, both the author list and the review process are case-by-case decisions of the spokesperson after consultation with the relevant bodies (TC, SCB, PC or OC depending on the content of the document). It is as well up to the spokesperson to recommend to publish the result in a different format. LHCb public notes are assigned an LHCb-PUB number and uploaded to CDS. The LHCB-PUB.bib file in the gitlab repository is updated by the EB chair accordingly.

LHC Working Group Publication:
These are joint publications among two or more LHC experiments (`https://lpcc.web.cern.ch/lhc-working-groups`). The following guidelines have been devised in collaboration with the other LHC experiments.

(1) Documents producing new measurements or data combinations should be signed by the full collaborations unless the collaboration decides that the topic is of limited interest and prefers not to submit it to a journal. Reinterpretations of published data are subject to the publication guidelines in place for individual members of the LHC Collaborations and are in any case allowed when the collaborations decide not to submit dedicated experimental papers on the topic.

(2) Documents reporting studies that are only using simulation without experimental data, and/or with usage of data being limited to comparisons of existing published results with theory predictions (that would not fall under the first case), can be signed by a limited number of authors. The publication committees of the related experiments have to be informed. When experimental internal tools (e.g. MC samples or software) or information are used, the collaboration should first approve the results and release a public note with the relevant plots which can be eventually added, properly referenced, in the limited authorship paper.

For limited-authorship papers, the responsibility of defining the authorship of any given document is with the LHC WG conveners.