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# The LHCb Constitution

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# 1 The General Organisational Structure

The organisational structure and the responsibilities associated with key elements in the LHCb Collaboration are described below.

## ***1.1 The Collaboration Board***

The Collaboration Board (CB) has the ultimate authority in the LHCb organisation. It is the body through which all major decisions of the LHCb Collaboration shall be approved. In the CB, the interests of all collaborating Institutes are represented.

### ***1.1.1 The Role of the Collaboration Board***

The CB approves all major decisions involving Collaboration structure and policies.

The CB decides on the application and termination of Institute membership.

The CB elects the Spokesperson and the CB Chairperson.

The CB ratifies the election of the Physics Coordinator.

The CB ratifies the appointments of the Technical Coordinator, the Deputy Spokespersons, the Resources Coordinator, as well as the Operations Coordinator, the Project Leaders and the Conveners of the Working Groups.

All managerial appointments can be terminated at any time by at least a 2/3 majority vote of all voting members of the CB, in consultation with the CERN Management.

The appointments of the Project Leaders, the Operations Coordinator and the Working Group Conveners can be terminated at any time by a simple majority vote of all voting members of the CB.

The CB approves the distribution of responsibilities for the LHCb detector among the participating Institutes, as proposed by the LHCb Management. The CB shall ratify all major decisions, in particular about possible detector changes or upgrades.

The CB approves the “LHCb Physics Analysis Review Procedure”, prepared by the Physics Coordinator and the “LHCb Publication Procedure” prepared by the Editorial Board.

The CB shall ratify the proposal for the LHCb budget and its sharing among the collaborating Institutes.

### ***1.1.2 Composition of the Collaboration Board***

Each Institute is represented by a single voting member in the CB.

In this regard, an Institute is one which contributes to the LHCb Maintenance and Operation budget, as defined in the Memorandum of Understanding for M&O. Hence a voting member of the CB may be the representative of a group of Institutes wishing to

act as a single entity and with a single vote in the CB (and *de facto* sharing M&O payments).

The Spokesperson, the Deputy Spokespersons, the Technical Coordinator and the Resources Coordinator are *ex-officio* (non-voting) members of the CB. They shall not be the representatives of their own Institutes.

The Chairperson of the CB is a non-voting member and does not represent his/her own Institute on the CB.

The Chairperson of the CB can invite non-voting guests to attend as appropriate.

### ***1.1.3 Working Procedures and Practices***

The CB shall strive to reach consensus whenever possible. The voting procedures are defined in section 4 of this constitution.

Each CB member has the right to propose a topic onto the agenda of a CB meeting, which the CB Chairperson shall then address.

The CB can submit proposals to be addressed by the Management.

Each voting member shall communicate the opinions and commitments of his/her Institute towards the Collaboration.

Each voting member can send another LHCb member of his/her Institute to represent that Institute at a CB meeting if he/she cannot participate. This shall be communicated in advance to the Chairperson of the CB.

The agenda for any CB meeting shall be distributed at least two weeks before the meeting to each CB member. The agenda shall also be made available to the Collaboration on the LHCb website.

Any major decision of the Management requiring ratification by the CB shall normally appear as a CB agenda item at least two weeks ahead of its meeting.

Major decisions taken by the CB shall be reported to the Plenary Meeting.

Minutes of the CB meetings shall be recorded and made available to the Collaboration on the LHCb website.

### ***1.1.4 The Chairperson of the Collaboration Board***

The Chairperson organises the meetings of the CB. He/she has no executive power.

The Chairperson shall ensure that any major decision taken by the LHCb Management appears as an agenda item for discussion in the CB.

The Chairperson shall communicate with the CERN Management in exceptional circumstances when desired by the CB (e.g. concerning matters of Spokesperson's election).

In the event of an urgent decision that cannot await a CB meeting, and which the Chairperson feels could be counter to the major interests of the experiment, the collaboration or any of the participating Institutes, he/she can instigate an Email vote of the CB.

The Chairperson is invited to attend the Technical Board, the Operations Planning Group and the Physics Planning Group meetings.

Together with the Management, he/she shall participate in the LHCb financial review by the Resources Review Board, to represent the interests of the Collaboration.

The Chairperson is elected by the CB. The procedure for the CB Chairperson election is described in Appendix 4.

The appointment of the Chairperson of the CB is for a two-year term with the possibility of one re-election. The appointment can be terminated at any time by at least a 2/3 majority vote of all voting members of the CB.

The Collaboration Board Chairperson shall not be an employee of CERN and is not required to be resident at CERN.

### ***1.2 The LHCb Management***

The LHCb Management is the executive body of the Collaboration. It has overall responsibility for managing the detector operation and upgrades as well as the physics analysis.

The LHCb Management represents the Collaboration towards outside bodies.

The LHCb Management is composed of the Spokesperson, the Deputy Spokespersons, the Technical Coordinator and the Resources Coordinator.

The LHCb Management, advised by the Technical Board, the Operations Planning Group and the Physics Planning Group, is in charge of all day-to-day decisions.

The LHCb Management shall bring relevant issues, as appropriate, to the attention of the CB.

All major decisions of the Management shall be reported to the Plenary Meeting, and then to the CB for endorsement.

If the LHCb Management must make an urgent decision, which affects the major interests of the experiment, the collaboration or any collaborating Institute, and which cannot await a meeting of the Collaboration Board, the Chairperson of the CB shall be consulted. The decision will be reviewed at the next CB.

The LHCb Management shall maintain a clear line of communication with the CERN Management.

The LHCb Management shall organise the resources (financial and manpower) and prepare the LHCb budget to present to the CB and to the Resources Review Board.

The LHCb Management shall nominate the Project Leaders and the Operations Coordinator and recommend them to the CB for approval.

The LHCb Management can create ad hoc Working Groups when necessary. They shall recommend the Working Group Conveners to the CB for approval.

### ***1.2.1 The Spokesperson***

The Spokesperson is the head of the LHCb Management and officially represents the Collaboration towards outside bodies.

The Spokesperson is the official contact person between LHCb, the CERN Management and the LHCC.

The Spokesperson is elected by the CB, in consultation with the CERN Management.

As the head of the LHCb Management, the Spokesperson has the ultimate responsibility of the LHCb Experiment and the ultimate authority for production and dissemination of physics results.

The Spokesperson reports to, and is an ex officio, non-voting member of, the CB.

He/she is an ex officio member of the Operations Planning Group, the Technical Board and the Physics Planning Group.

The Spokesperson holds regular Management meetings for monitoring progress and resolving technical and management issues.

The appointment of Spokesperson is for a three-year term, without possibility of reelection for a consecutive term. Although the term is nominally for three years, candidates will not be discounted if they can only commit to two years.

The election procedure for the Spokesperson is described in Appendix 4.

The Spokesperson shall be resident at CERN.

### ***1.2.2 The Deputy Spokespersons***

The Spokesperson nominates one or two Deputy Spokespersons for ratification by the CB.

The Deputy Spokespersons represent the Spokesperson in his/her absence.

The Deputy Spokespersons can take over well-defined responsibilities from the Spokesperson by mutual agreement; however, the CB shall be informed in the case of delegation of important responsibilities.

The Deputy Spokespersons are ex-officio, non-voting, members of the CB, ex officio members of the Operations Planning Group, the Technical Board and the Physics Planning Group.

The Deputy Spokespersons are nominated by the Spokesperson and ratified by the CB.

The appointment of the Deputy Spokespersons comes to an end when the term of office of the Spokesperson comes to an end.

The Deputy Spokespersons are not required to be resident at CERN.

### ***1.2.3 The Technical Coordinator***

The Technical Coordinator is responsible for coordinating all technical activities including construction, installation, financial and schedule planning.

The Technical Coordinator reports to the Spokesperson and the CB.

The Technical Coordinator chairs the Technical Board and is an ex officio member of the CB and the Operations Planning Group.

The Technical Coordinator is nominated by the Spokesperson, in agreement with the CERN Management. His/her nomination is ratified by the CB.

The appointment of Technical Coordinator is for a three-year term with the possibility of renewal.

The Technical Coordinator shall be a member of the CERN staff for the duration of his/her term of office.

### ***1.2.4 The Resources Coordinator***

The Technical Coordinator nominates, in agreement with the Spokesperson, a Resources Coordinator; his/her nomination will be ratified by the CB.

The Resources Coordinator is responsible for coordinating the financial planning of the collaboration.

The Resources Coordinator is in charge of establishing the annual budget and expenditure reports, which are presented to the CB and to the LHCb Resources Review Board.

The Resources Coordinator monitors the payment of the M&O share and initiates the Implementation procedure for handling late payers of the M&O funds for LHCb when required (see Annex 18 of the M&O MoU, CERN-RRB-2002-032\_rev\_2014).

The Resources Coordinator is responsible for coordinating the financial planning of the collaboration.

The Resources Coordinator reports to the Technical Coordinator and the CB.

The Resources Coordinator is an ex officio member of the Technical Board and the CB.

The appointment of Resources Coordinator is for a three-year term with possibility of renewal. His/her appointment comes to an end when the term of office of the Technical Coordinator comes to an end.

### ***1.3 LHCb Open Meetings***

Open Meetings, such as the Plenary Meetings during the LHCb Weeks, are the forum for discussion of physics and technical issues within the Collaboration. They have a prominent role with an aim to involve all members of the Collaboration in the decision making process. Physics and major technical issues shall first be openly discussed in open meetings before any major decision is taken.

Open Meetings shall be, in general, organised by the Spokesperson, who can also delegate this task.

### ***1.4 The Technical Board***

The Technical Board is the principal technical forum for the Collaboration.

#### ***1.4.1 Role of the Technical Board***

It serves as an advisory body to the Management, on all aspects of detector design, optimization, safety and cost. It is responsible for the maintenance and/or improvements of the detector for efficient data taking, along with overseeing shut-down activities.

#### ***1.4.2 Composition of the Technical Board***

The Technical Board is chaired by the Technical Coordinator.

Members of the Technical Board are the Spokesperson, the Deputy Spokespersons, the Resources Coordinator, the Operations Coordinator, the Subsystem Project Leaders, the Physics Coordinator and the GLIMOS. Membership can be extended at the discretion of the Technical Coordinator.

The Chairperson of the Collaboration Board is invited to attend the TB meetings.

The Technical Coordinator can invite any additional experts to attend a TB meeting if required by the agenda.

#### ***1.4.3 Working Procedures***

Technical decisions shall be taken in the subsystem groups wherever possible. Major technical decisions are prepared and proposed by the Projects for discussion in the Technical Board and shall be submitted to the CB for endorsement.

All decisions have to comply with the general rules and guidelines described in Appendix 1.

Meetings of the Technical Board are regularly scheduled and announced in advance to the Collaboration. Minutes of the meetings are recorded and made available to the Collaboration on the LHCb website.

The Technical Coordinator reports on Technical Board business at the Plenary Meeting and whenever necessary to the CB.



#### ***1.4.4 Project Leaders and Working Group Conveners***

The Project Leaders of major subsystems are the formal contact persons for communication between the LHCb Management and the people working on a given subsystem. They have the responsibility and authority to direct the work on that subsystem.

The Working Group Conveners are the formal contact persons for communication between the LHCb Management and the people working on a given task or working group. They have the responsibility and authority to direct work within their groups.

The Project Leaders and the Working Group Conveners are nominated by the LHCb Management and ratified by a simple majority vote in the CB. They are appointed for a two-year period, renewable. They may nominate a deputy, in consultation with the Spokesperson.

The Project Leaders and Working Group Conveners are not required to be resident at CERN.

### ***1.5 The Physics Planning Group***

The Physics Planning Group is an advisory body to the Management and provides recommendations to ensure the best quality of the physics output. For more details about the Physics analysis organisation see section 2 .

#### ***1.5.1 Role of the Physics Planning Group***

The Physics Planning Group ensures that the physics goals are being met, defines the strategy and priorities of data taking and data processing, bringing them to the attention of the Operation Planning Group, including the use of the computer resources for physics analysis.

The Physics Planning Group brings together those responsible for the physics analysis, physics software, trigger and computing aspects of the experiment.

Minutes of the meetings are recorded and made available to the Collaboration on the LHCb website.

#### ***1.5.2 Composition of the Physics Planning Group***

The Physics Planning Group is chaired by the Physics Coordinator.

Members of the Physics Planning Group are: the Spokesperson and Deputy Spokespersons, the Project Leaders, or Deputies, of the Real-Time Analysis and Computing projects and the Chairperson of the Editorial Board. Membership can be extended at the discretion of the Physics Coordinator.

The meetings can be open or closed, at the discretion of the Physics Coordinator.

The Chairperson of the CB is invited to attend the meetings.

### ***1.6 The Operations Planning Group***

The Operations Planning Group is an advisory body to the LHCb Management and ensures high quality data taking for physics analysis.

### ***1.6.1 Role of the Operations Planning Group***

The Operations Planning Group is the forum for the coordination of the Real-Time Analysis, Computing, and Online activities with the aim of providing the data necessary to the physics analyses, according to the priorities set by the Physics Planning Group.

The Operations Planning Group oversees the adequacy of the computing environment for data processing and online physics analysis and monitors the status of the data taking and the quality of the data.

The Operations Planning Group will ensure that the running scenario is properly matched to the plans of the LHC machine and will formulate the LHCb requests for the LHC machine operation.

The meetings of the Operations Planning Group can be open or closed, at the discretion of the Operations Coordinator. Minutes of the meetings are recorded and made available to the Collaboration on the LHCb website.

### ***1.6.2 Composition of the Operations Planning Group***

The Operations Planning Group is chaired by the Operations Coordinator, who is in charge of the overall LHCb detector Operation. The Operations Coordinator is nominated by the Management and ratified by a simple majority vote by the CB. He/she reports to the Spokesperson. His/her term of office is for two years, renewable.

Members of the Operations Planning Group are: the Spokesperson, his/her deputies, the Technical Coordinator, the Run Coordinator, the Radiation Safety Officer, the Project Leaders, or deputies, of the Online, Computing and Real-Time Analysis projects. Membership can be extended at the discretion of the Operations Coordinator.

The Chairperson can invite to the meetings experts on specific issues as required.

The Chairperson of the Collaboration Board is invited to attend the Operations Planning Group meetings.

## **2 Physics Analysis Organisation and Publication Policy**

### ***2.1 General Principles***

All physics results from LHCb are the property of the entire collaboration.

The complete and detailed information about any analysis should be made available to the collaboration. Any analysis or results using data from the LHCb experiment must be reviewed, understood and approved by the collaboration before being disclosed outside the collaboration.

All analysis efforts within LHCb are open and operate within Physics Working Groups, which report to the Physics Coordinator.

All physics results presented at conferences and to be prepared for publication, which involve use of LHCb raw data or LHCb software, must be submitted to a review process under the responsibility of the Physics Coordinator. The review process is described in the “LHCb Physics Analysis Review Procedure” prepared by the Physics Coordinator and approved by the CB. It is posted on the LHCb web site.

### ***2.2 The Physics Coordinator***

The Physics Coordinator coordinates the analysis efforts in order to ensure the best possible physics data quality and physics output. The Physics Coordinator reports to the Spokesperson.

He/She coordinates the physics analysis groups and proposes to the Spokesperson the Conveners of these groups. Through the Physics Planning Group and the physics analyses working groups the Physics Coordinator shall facilitate information exchange and ensure that all LHCb members can access the data and work on any physics analysis.

The Physics Coordinator ensures the scrutinizing of the physics results and their collaboration-wide discussion. The Physics Coordinator oversees the review and approval procedure necessary for any physics analysis result to proceed toward publication.

The Physics Coordinator shall be elected by everybody who are on the default author list, and are still members of the collaboration, following the procedure outlined in Appendix 4.

The appointment of Physics Coordinator is for a two-year term, without possibility of re-election for a consecutive term. Although the term is nominally for two years, candidates will not be discounted if they can only commit to one year.

### ***2.3 The Editorial Board***

The Editorial Board (EB) ensures that the basic publication principles of the collaboration are followed.

The Spokesperson nominates the Editorial Board Chairperson and membership. The appointments are ratified in the CB. The term of the Editorial Board is two years, renewable for a further term. In order to ensure continuity every year half of the members shall be renewed.

The Editorial Board Chairperson will organise the decision on the target journal of a publication and the collaboration-wide review process of an LHCb publication or conference result.

The Editorial Board organises the distribution of the draft to the collaboration and ensures that all comments from the collaboration have been appropriately addressed before final approval of the publication.

The Editorial Board will ensure that the proper Author List is used.

In case of a disagreement between authors and the internal referees or other members of the collaboration, the Chairperson of the Editorial Board, together with the Physics Coordinator and the Spokesperson, will make the final decision.

The Editorial Board will ensure that all official LHCb results are accessible to everybody and maintain a database with official plots and material to be shown at conferences.

The review process for LHCb publications and conference proceedings is described in the “LHCb Publication Procedure” prepared by the Editorial Board in consultation with the Management and approved by the CB. It can be consulted on the LHCb web site.

## ***2.4 LHCb Authorship***

Every member of the collaboration who has contributed to the experiment has the right to sign LHCb physics papers, subject to the following conditions.

LHCb collaborators are expected to have participated in the detector construction, the Real-Time Analysis, Online or Computing projects, or to contribute to data taking, calibration or data processing.

Institutes also have the obligation to participate in general service tasks, defined in a list of *Tasks of Common Interest* established by the Management.

Inclusion on the author list will normally begin 6 months after membership starts. This rule will be applied on the date when the paper is first circulated to the collaboration.

The presence on the author list will normally last, after membership terminates, for a period of 12 months.

Institute leaders are requested to provide a list of default signees from their Institute (once a year, before the autumn Resources Review Board). This “default” author list reflects the PhD equivalent share of the M&O category A budget. PhD student signees are not restricted by this guideline.

Retired persons who work on LHCb may be classified as LHCb Emeritus, and may sign papers without incurring the M&O and service tasks mentioned above. Emeritus status must be confirmed to the Spokesperson annually by the Institute leader, and must

include a supporting statement from the Operations Coordinator, Physics Coordinator, Technical Coordinator or Spokesperson, that the person is active in LHCb.

Individual authors may choose not to sign any particular paper by informing the Chairperson of the Editorial Board before the author list is finalised.

The author list may include collaborators who left but have contributed significantly to the experiment, as well as theorists for a paper to which they have made a significant contribution.

Exceptions to the guidelines will be decided by the Chairperson of the Editorial Board, in consultation with the Spokesperson and the concerned Institute leader. Appeals may be addressed to the Spokesperson who, in consultation with the EB and the CB Chairpersons, should reach the final decision. The Editorial Board Chairperson will report to the CB on the outcome of the requests for exceptions.

### ***2.5 The Speakers Bureau***

The role of the Speakers Bureau is to assist the Management in seeking optimal exposure of LHCb through a prominent presence in the programmes of relevant conferences, workshops, and schools. The Speakers Bureau shall ensure that presentations are shared in a fair way among the LHCb collaborators and organises rehearsal talks to maintain a high level of quality.

The Spokesperson nominates the Speakers Bureau Chairperson and membership. The appointments are ratified in the CB. The term of the Speakers Bureau is two years, renewable for a further term. In order to ensure continuity half of them will be renewed every year.

## **3 LHCb Membership**

### ***3.1 Admission Procedure***

The admission of an individual as a new member of the collaboration (from an existing LHCb Institute) is under the responsibility of the Institute leader. Likewise, it is the responsibility of the Institute leader to notify when members leave their group.

If an existing member institute of the collaboration significantly increases in size, the institute leader should inform the CB Chair and the Spokesperson in writing, providing the information needed to evaluate the effect on the collaboration's activities. This should include details of the planned changes to the available resources, detector operation activities and contributions to service tasks. This information will be transmitted to the Membership Committee and reported at the Collaboration Board.

The admission procedure of a new Institute as a member of the LHCb collaboration is as follows:

A Institutes declare their interest in joining the Collaboration in a letter to the CB Chairperson and the Spokesperson.

B Institute representatives shall meet with the Spokesperson and the CB Chairperson in order to prepare a realistic application proposal, including manpower, technical and financial contributions, and to develop a plan for an adequate service contribution to the experiment.

C After the review of the application by the Membership Committee (see below) and in agreement of the Spokesperson, the Institute representatives are invited by the CB Chairperson to a CB meeting to present their teams and planned contributions to LHCb. Following a question and answer session, the CB will discuss the candidature conditions and the expected contributions to Tasks of Common Interest.

D The admission of a new Institute requires the support of at least 2/3 of all the voting members of the CB.

E In the case of a positive vote for admission, the LHC Resource Review Board will be informed by the Spokesperson at its next meeting and the institute will be included in the M&O Category A and B sharing for the forthcoming fiscal year. For this RRB meeting, the following documents should be readied: (a) the Memorandum of Understanding for the Maintenance and Operation of the LHCb Detector, signed by the corresponding National Funding Agency or University and the Research Director of CERN; and (b) an addendum to this Memorandum of Understanding for each new collaborating institute, describing the basis of the cooperation, the initial personnel involved and the foreseen scientific contribution to the LHCb experiment, signed by the responsible head of the corresponding institute and the Research Director of CERN.

After that, the Institute becomes a full member of LHCb and has the right of vote in the CB.

Instead of becoming a full member, an Institute can be given the status of an Associated Member or as a Technical Associated Member, as described in Appendix 2 of this constitution.

### ***3.2 Membership Committee***

A Membership Committee is set up by the LHCb Collaboration Board, in agreement with the Management. Its tasks include in particular the review of new applications before submission to the CB and the commitments to participate in Tasks of Common Interest. The list of Tasks of Common Interest is prepared by the Management and endorsed by the CB.

The Membership Committee will be set up after every CB chair election. It reports to the CB.

### ***3.3 Code of Conduct***

Members of the LHCb collaboration are expected to act in an ethical and collaborative manner at all times, and abide by the CERN code of conduct. LHCb members shall not engage in harassment or bullying, or discriminate against each other in particular on the basis of sex, age, religion, beliefs, nationality, culture, ethnicity, sexual orientation, gender identity, career status, disability, or family situation. LHCb members are expected to work with the utmost scientific integrity, and respect the confidentiality of internal information as defined in the LHCb Publication Procedure document.

## **4 Voting procedures of the Collaboration Board**

The CB shall always strive to reach consensus in any decision it makes. However, if a situation shall arise when a consensus cannot be reached, the issue shall be decided by a vote.

### ***4.1 General working rules***

The general working rules apply to all voting procedures in the collaboration board. Exceptions to these rules are described in the next section on *Special Voting Procedures*.

For any decisions to be taken in a CB meeting, a quorum of at least 2/3 of the total number of voting members must be present, or represented by a proxy.

Each voting member of the CB has one vote.

A proxy vote, i.e. the delegation of a vote by a CB representative to another voting member of the CB, is allowed. Only one proxy vote can be held by a CB voting member at any CB meeting. The CB representative wishing to vote by proxy must inform the CB Chairperson in advance of the meeting.

Decisions will be taken with a simple majority vote of those voting members represented at the meeting. For a decision to be taken, the number of votes in favour must exceed the number against. Abstentions count neither in favour nor against.

Although the CB chairperson is a non voting member, he/she may use a casting vote in the event of a tie.

Voting in the CB will be open, unless any voting member asks for a secret vote.

A voting member of the CB, seconded by another, can request a vote on any issue of the agenda, if that member feels that consensus has not been reached.

In exceptional circumstances, i.e. the need to vote on an urgent issue, which cannot await a CB meeting, the CB Chairperson can instigate an Email vote.

### ***4.2 Special Voting Procedures***

#### ***4.2.1 Appointing the Management, the Physics Coordinator and the CB Chairperson***

The appointments of Management positions and of the Collaboration Board Chairperson are decided in secret votes of the CB.

The election of the Physics Coordinator is performed in secret votes with people eligible to vote defined in section 2.2 . The CB ratifies the election of the Physics Coordinator.

The procedures for election of the Spokesperson, the Physics Coordinator and the CB Chairperson are described in Appendix 4.



#### ***4.2.2 Admission of new Institutes in the Collaboration***

The admission of any new Institute requires the support of at least 2/3 of all voting members of the CB.

The participation of an Institute in the LHCb Collaboration can be terminated at any time by vote in the CB, with the support of at least 2/3 of all voting members.

#### ***4.2.3 Admission of an Institute as an Associated or Technical Associated Member***

The admission of an Associated Member or a Technical Associated Member requires the support of at least 2/3 of all voting members of the CB.

#### ***4.2.4 Changes to the LHCb Constitution***

Any change to this document shall be voted at a meeting of the CB. Such a change requires the support of at least 2/3 of all voting members of the CB.

## **Appendix 1: Review Procedures for Technical Decisions**

Decisions shall be taken in the subsystem groups wherever possible.

If a review is considered necessary by the subsystem group, the Technical Board, the Management, or the Collaboration Board, the review procedure shall be launched by the Management. Two referees (or more if necessary) are nominated by the Management, after discussion in the Technical Board. These referees shall come from outside the subsystem being reviewed.

A Review Panel is then appointed consisting of the Subsystem Project Leader and the referees. The Review Panel can invite any ad-hoc experts from inside LHCb. The Review Panel can invite experts from outside LHCb, in agreement with the Management.

The Spokesperson, Deputy Spokespersons, Technical Coordinator and Collaboration Board Chairperson may participate in the Review Panel discussions.

The recommendations of the Review Panel are discussed in the Technical Board, which will make a recommendation.

The recommendations made by the Technical Board are considered by the Management who make the final decision.

The decision is presented at the Plenary Meeting and passed to the CB for ratification. If this decision is not ratified, the Management shall prepare a new decision.

## **Appendix 2: LHCb Associated and Technical Associated Membership**

### **LHCb Associated Membership**

An Institute can be given the status of Associated Member if it wishes to bring in limited technical, financial or human resources to a particular project or working group.

An Associated Member must be hosted by an Institute of the LHCb Collaboration, called the Host Institute. The Host Institute will propose the Associated Member candidature to the Collaboration Board.

The Host Institute must take the long-term responsibility for the operation and maintenance of any hardware, or software, which the Associated Member would produce and which would become part of the experiment.

The Associated Members will not have a CB member or a vote in the CB, but will be represented in the CB through the Host Institute.

Associated Members are eligible to the LHCb authorship, under the conditions described in section 2.4 . The author list of an Associated Member is provided by the Host Institute leader.

## **LHCb Technical Associated Membership**

An Institute can be given the status of Technical Associated Member if it wishes to bring in technical, financial or human resources to a particular detector or computing related project. Technical Associate Members are not eligible to have LHCb authorship, nor have access to the LHCb data and internal physics results. Access to software for detector or software development is granted to Technical Associated Members.

A Technical Associated Member must be hosted by an Institute of the LHCb Collaboration, called the Host Institute. The Host Institute will propose the Technical Associated Member candidature to the Collaboration Board.

The Host Institute must take the responsibility to ensure the long-term operation and maintenance of any hardware, or software, which the Technical Associated Member would produce and which would become part of the experiment. Otherwise, the Technical Associates must apply for full membership.

The Technical Associated Members will not have a CB member or a vote in the CB, but will be represented in the CB through the Host Institute.

## **Appendix 3: Joint LHCb/Belle-II Membership**

A Member or Associate Member of the LHCb Collaboration is not allowed to be a concurrent member of the Belle-II Collaboration unless they have been admitted as part of an institutes Technical Associate Membership or were a member of both collaborations prior to July 1<sup>st</sup> 2017. Any requests for joint collaboration on physics topics that would substantially benefit from the combination of data from both experiments need to be approved prior to commencement by the LHCb Spokesperson and Physics Coordinator.

This amendment to the LHCb Constitution will be reconsidered at the end of Belle-II data-taking.

## **Appendix 4: LHCb Election Procedures**

Elections are prepared by a Search Committee, which is a body of the Collaboration Board. It has six members, each proposed by and representing a “region”.

The CB Chairperson chairs the Search Committees for the Spokesperson and Physics Coordinator elections, by default. The Chair of the Search Committee for the CB Chairperson election will be decided among its members.

The six regions are (France + Netherlands), (Germany + Poland), (Italy + Spain), (Switzerland, Cern + China + Romania), (UK + Brazil + US + Ireland), (Russia + Ukraine).

The regions can be redefined, if required.

The CB approves the constitution of the Search Committee.

If a member of the Search Committee is nominated and wishes to stand, he/she will resign from the Search Committee and be replaced.

#### ***A4.1 Procedure for the Spokesperson election***

##### ***A4.1.1 Mandate of the Search Committee for the Spokesperson election***

The mandate of the Search Committee (SC) is to establish a consensus within the collaboration over who should be the next Spokesperson. In order to establish this consensus, or the *short list* of the most consensual candidates, the Search Committee proceeds as follows:

- The SC solicits nominations from the collaboration; these can be made by individuals or Institutes. The SC then establishes a *list of all nominees*.
- The SC chair checks whether these are willing to stand. This results in a *first list of candidates*. The members of the SC will test the opinions within the region which they represent to establish the degree of support for each candidate on this first list. After discussion with the candidates the SC recommends a *short list of candidates* which the CB Chair communicates to the CB.
- These candidates are invited to prepare their manifestos, which will be distributed to the CB members. They are then invited to present and discuss their manifestos in the CB. At the end of this procedure the *short list of candidates* is made known to the full collaboration, together with the manifestos.

The election takes place during the next CB meeting.

##### ***A4.1.2 Timetable for the Spokesperson election***

An indicative timetable for the election of a Spokesperson is the following:

- Establish the SC in February,
- First list of candidates end of April,
- Second list of candidates end of June,
- Presentations by the candidates and establishment of the short list of candidates in the September CB
- Election of the Spokesperson in the November/December meeting of the CB.

The starting date of the Spokesperson elect's mandate will be in the following summer.

During the transition period between the Spokesperson-elect and the incumbent management, the Spokesperson-elect is invited to the LHCB management meetings, without executive power and no CERN residence requirement.

### ***A4.1.3 Voting procedure***

In case there is only a single candidate standing for election, a ratification vote is made at which a 2/3 majority is required.

The 2/3 majority is calculated with respect to the total number of all voting members of the CB (irrespective of whether they have voted).

In case of more than one candidate, say N, a vote is held in which each Institute votes for exactly (N-1) candidates out of N; the candidate with the least votes is dropped and this is repeated until a single candidate obtains the majority.

If the remaining candidate has not received a 2/3 majority, a final ratification vote is made at which a 2/3 majority is required.

If no candidate is selected by the procedure specified above then the discussion of the short list is reinitiated.

The CB Chairperson conducts the vote, unless he/she is a candidate, plus two CB members. The numbers of votes in the election will be known to the CB members, but will not be recorded.

## ***A4.2 Procedure for the Physics Coordinator election***

### ***A4.2.1 Mandate of the Search Committee for the Physics Coordinator***

The spokesperson is (ex officio) a member of the search committee.

For the Physics Coordinator the election procedure is:

- The SC solicits nominations from the collaboration; these can be made by individuals or Institutes. The SC then establishes a *list of nominees*.
- The SC chair checks whether these are willing to stand. This results in a *first list of candidates*. The members of the SC will test the opinions within the region which they represent to establish the degree of support for each candidate on this first list.
- After discussion with the candidates, the SC ensures that the candidates willing to stand and with the widest support participate in the election, aiming for between 2 and 4 candidates.

### ***A4.2.2 Timetable for the Physics Coordinator election***

An indicative timetable for the election of the Physics Coordinator is the following:

- Establish the Search Committee in January,
- First list of candidates end of February,
- Short list of candidates end of April,
- The list of voters will be defined according to the rules in section 2.2 as applied to May 1,
- Election of the Physics Coordinator before the June/July meeting of the CB,
- Ratification vote in the June/July meeting of the CB, and
- Announcement of the winner to the collaboration.

The starting date of the Physics Coordinator elect's mandate will be 1<sup>st</sup> of January.

### ***A4.2.3 Voting procedure for the election of the Physics Coordinator***

It is under the responsibility of the CB chair to conduct the vote. A single ballot is held, in which each voting member provides an ordered ranking of their preference for exactly all candidates. Based on these preferences, an iterative procedure is performed. In each iteration, the candidate ranked last by the largest number of voters is eliminated. Based on the initial rankings, new ordered lists from each voting member are then re-established using just the names of the remaining candidates. These lists serve as input for the next iteration. The only information made public is the total number of votes cast and the last remaining candidate who is declared winner of the election.

In case of a tie in any iteration, the candidate(s) who has fewer votes in the highest rank will be eliminated. If the tie persists, the next highest rank will be taken into account if applicable. In case of a tie that cannot be resolved in the final iteration, the election will be conducted by the Collaboration Board, based on the remaining candidates. Any other persistent tie should be broken by the CB chair.

A ratification vote in the CB is made at which a 2/3 majority is required. The numbers of votes in the ratification will be known to the CB members, but will not be recorded.

Should the ratification vote fail, the SC is tasked to come up with a new short list of candidates, subject to a new election.

## ***A4.3 Procedure for the Collaboration Board Chairperson election***

### ***A4.3.1 Mandate of the Search Committee for the CB Chairperson***

The search procedure is:

- The Search Committee proceeds to solicit nominations from the collaboration; these can be made by individuals or Institutes. The SC then establishes a *list of all nominees*.
- The SC chair checks whether these are willing to stand. This results in a *first list of candidates*. The members of the SC will test the opinions within the region which they represent to establish the degree of support for each candidate on this first list. After discussion with the candidates the SC recommends a *short list of candidates* which the CB Chair communicates to the CB.

### ***A4.3.2 Timetable for the CB Chairperson election***

An indicative timetable for the election of the CB Chairperson is the following:

- Establish the Search Committee end April,
- First list of candidates end May
- Short list of candidates in July,
- Election of the CB chair in September.

The mandate of the new CB Chairperson starts at the last CB of the year, which he/she will chair.

The voting procedure for the CB Chairperson is identical to the one of the Spokesperson election, given in section (A4.1.3).