

# The CMS Constitution

CMS (Compact Muon Solenoid) is a collaboration of Institutions, which have joined together to build and run the CMS detector to exploit the physics potential of the Large Hadron Collider at CERN.

CMS is directed through a number of bodies, each having a well-defined role, most notably the Collaboration Board, the Management Board, the Executive Board and the Finance Board. Technical Coordination is jointly responsible to CERN and CMS for many technical aspects of the CMS detector.

The CMS Collaboration is led by the Spokesperson who is the Chairperson of the Management Board and the Executive Board and is responsible for the scientific and technical direction of the experiment, following the policies agreed by the Collaboration Board. The Spokesperson is the principal representative of CMS in interactions with CERN and its committees, with the wider physics community and with the general public. The Spokesperson is elected by the Collaboration Board.

In addition there are CMS-wide Coordination Areas<sup>1</sup>, each led by a Coordinator or co-Coordinators. In these Areas the Collaboration Board acts as the Institution Board.

In addition, there are groups responsible for maintaining and operating specific parts of the CMS detector called Detector Systems<sup>2</sup>, each led by a System Manager. The representatives of member Institutions of a Detector System constitute the Institution Board of that Detector System. These Institution Boards are separately responsible for drawing up the constitutions of their individual Detector Systems which are posted elsewhere: <https://cms.web.cern.ch/org/cms-constitution-rules-and-guidelines>

Guidelines for the internal organisation of the Detector Systems are given in Annex 9 of this document.

The present document describes the role and composition of the CMS-wide bodies and the way they interact with each other and with the Detector Systems. It also describes the general rules under which the Collaboration operates. It is the responsibility of the Collaboration Board Chairperson to ensure that this document, including the material referred to on web sites, is kept up to date in a timely fashion.

The organisational structure of all the different bodies may be found at: <https://cms-users.web.cern.ch/cms-users/management.html> or at links found there.

<sup>1</sup> At present the CMS Collaboration has defined the following Coordination Areas: Physics, Offline and Computing, Physics Performance and Datasets (PPD), Trigger-HLT, Run, and Upgrades.

<sup>2</sup> At present the CMS Collaboration has defined the following Detector Systems: Tracker, Electromagnetic Calorimeter, Hadron Calorimeter, Muon Detector, L1 Trigger, Data Acquisition, Beam Radiation Instrumentation and Luminosity (BRIL) and CMS TOTEM Precision Proton Spectrometer (CTPPS).

# The CMS Constitution

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# **1. The CMS Constitution**

## **1.1 Membership of CMS**

CMS is a collaboration between Institutions. The list of Institutions forming the collaboration, as well as the detailed membership of each Institution in CMS is recorded in the CMS Database administered by the CMS Secretariat. The classifications of individual CMS members are given in Annex 1. Most CMS Institutions are full members, committed to maintaining, operating and exploiting the physics potential of the detector. A second category of membership, Associated Institution, has been defined to recognize the contribution of Institutions which provide mainly technical support as defined in Annex A3.3. The specific case of CMS Tier1 Computing Centres is also covered in Annex A3.3. For a limited period of time, new Institutions may first join CMS with the status of Cooperating Institute, as defined in Annex A3.4.

The information contained in the CMS Database is the basis for determining the rights and obligations within CMS of each Institution and individual member of CMS (Annex 1). These include qualification of an Institution for representation in the Collaboration Board (Article 2.2), its obligations to contribute to the costs and effort needed to maintain, operate and upgrade the CMS detector and to analyse the data, as well as the qualification for authorship of CMS publications of individuals (Annex 6).

## **1.2 CMS Weeks and Collaboration Meetings**

An important occasion for the Collaboration to meet, to be informed of the status of the experiment and to exchange ideas is provided by the CMS Week. At present six CMS Weeks are held each year, usually at CERN but they may be hosted by a CMS Institution outside CERN. A number of these meetings may be declared to have specific focusses such as a CMS Physics Week or a CMS Upgrades Week. The venue of a CMS Week outside CERN will be chosen by the Collaboration Board, normally at least one year in advance.

A CMS Week that has not been designated as a Physics Week or as an Upgrades Week should normally follow a standard format, although departures from this timetable are possible, particularly when the meeting takes place away from CERN. The dates for CMS Weeks are normally proposed by the Spokesperson in the middle of the preceding year and the CMS calendar, which defines the schedule for all major CMS meetings, is normally approved by the Collaboration Board at the CMS Week held in the autumn of that year.

Open Plenary meetings, which are open to all members of the Collaboration, will be held at frequent intervals, typically as Weekly General Meetings. The purpose of these meetings is to disseminate information on the status of the experiment and to inform the Collaboration of all major developments and decisions concerning scientific, technical and organisational matters. In addition a CMS Week will open normally with such a meeting.

## **1.3 Organisation of CMS Meetings**

### **1.3.1 Language**

The working language of CMS meetings is English, unless otherwise explicitly agreed, and documents should normally be written in English. If for some reason an important document is prepared in another language, an English translation must be made available.

### 1.3.2 Agenda and Minutes

For the Collaboration, Management and Finance Boards, the preliminary agenda for the meeting is prepared by the Chairperson assisted by the Secretary. Normally it will be circulated to the members of the Board at least one week in advance of the meeting. Any member of the Board can suggest additional topics to the Chairperson either before the meeting or as items of 'Any other Business' at the meeting. The agenda must be formally approved at the beginning of the meeting and will be available to all CMS members. Transparencies and material presented at the meetings of the Collaboration and Management Boards will normally be available to all CMS members.

The proceedings of the Board meetings are recorded in minutes. The minutes are distributed to all members of the corresponding Board in draft form for approval at the following Board meeting.

The draft and the approved minutes of the Management and Collaboration Boards are promptly made available to all members of the Collaboration.

In the case of the Executive Board, a meeting summary will promptly be made available to all CMS members.

### 1.3.3 Meetings

Collaboration Board Meetings are to be held at least five times each year, normally on the Friday of the CMS Weeks, including CMS Physics Weeks and CMS Upgrades Weeks.

Approximately ten Management Board meetings per year are foreseen.

The Executive Board normally meets weekly.

The Finance Board decides its meeting schedule on an annual basis, coupled where possible to the meeting dates of the Management Board.

In addition, a Chairperson of a CMS Board may call for an extraordinary meeting to deal with specific or urgent topics. In such a case the members of the corresponding Board must be informed well in advance of the meeting (normally at least two weeks before).

## 1.4 Validity and Modifications

CERN must be notified of any proposed major modifications to this Constitution.

All modifications of the Constitution must be ratified in a Collaboration Board meeting either by consensus or by two-thirds majority of those present at the meeting who are qualified to vote. Changes must be proposed in writing at least two weeks in advance of the meeting. A quorum of the Collaboration Board of at least one half of the voting members or their delegates is required for the vote. In case a quorum is not reached the proposals are tabled at a later meeting of the Collaboration Board held during a CMS Week. The meeting and foreseen vote will be announced normally at least two weeks in advance.

The original of this document and all the amendments are kept in the office of the CMS Resources Manager. Copies will be held in the CMS Secretariat. The document will be posted on the Web at: <https://cms.web.cern.ch/org/cms-constitution-rules-and-guidelines>

## 1.5 Ratification

The CMS Collaboration Board, the CMS Management Board, the CMS Finance Board, and the CMS Technical Coordination Group declare that they agree on the present CMS Constitution.

For the CMS Collaboration Board, Done at CERN, October 2015  
Jorgen D'Hondt, Chairperson of the CMS Collaboration Board

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For the CMS Management Board, Done at CERN, October 2015  
Tiziano Camporesi, CMS Spokesperson

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For the CMS Finance Board, Done at CERN, October 2015  
Andrzej Charkiewicz, CMS Resources Manager

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For the CMS Technical Coordination Group, Done at CERN, October 2015  
Austin Ball, CMS Technical Coordinator

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## 2. The CMS Collaboration Board

### 2.1 Role

The CMS Collaboration Board is the governing body of the experiment and makes all major decisions within the Collaboration. CMS Institutions are represented on the Collaboration Board.

The Collaboration Board is represented by the Chairperson in all CMS Boards and Committees. The Chairperson is responsible for bringing any issue that requires discussion, decision or approval to the Collaboration Board.

Particularly important responsibilities of the Collaboration Board are the election of the Spokesperson and of the Chairperson of the Collaboration Board. General procedures for decision taking and voting are described in Article A2.10 and in Annex 2.

The Collaboration Board considers applications from Institutes wishing to participate in the CMS experiment and reaches decisions following the procedure described in Annexes 3 and 4. As an alternative to full membership, an Institute may apply for Associated or Cooperating status as defined in Annex 3.

The Collaboration Board has created standing committees and other bodies to carry out specific functions (Article 2.6) and which report regularly to the board. The Search Committee works with the Spokesperson in the search for the best candidates for important scientific and technical positions (Article 2.8).

### 2.2 Membership

The definitions of Institution Representatives and their Deputies are given in Annex 1.

The membership of the Collaboration Board comprises Institution Representatives and, ex-officio, all members of the Management Board. The Chairperson of each Standing Committee and other body listed in Article 2.6, members of the Collaboration Board Advisory Group and the Detector System Institution Board Chairs are also ex-officio members of the Collaboration Board.

- To qualify for membership of the Collaboration Board an Institution must have a total of at least three physicists paying M&O in the current year, and have contributed to the obligations for Experimental Physics Responsibilities for the running of CMS at the commensurate level, as specified in the Memorandum of Agreement.
- An Institution joining CMS which has at least three physicists qualifies for membership of the Collaboration Board, but may not vote for one year and until the requirements of having three M&O paying physicists and for providing the commensurate Experimental Physics Responsibilities are satisfied. If these requirements are not satisfied after two years of membership of CMS, the Institution ceases to have its own individual representative in the Collaboration Board.
- Institutions with too few M&O paying physicists to qualify for their own representative, may share one or two common representatives with other Institutions from the same country, if together they have enough M&O paying physicists to qualify for one or more representatives, and the commensurate Experimental Physics Responsibilities have been

carried out. Two or three such Institutions are allowed one representative; four or more Institutions are allowed two representatives.

- Each country participating in CMS, paying M&O, has the right to at least one representative provided that the country has also contributed the obligations for Experimental Physics Responsibilities.
- An Institution whose number of qualifying persons falls below that required for direct representation in the Collaboration Board remains a member of the Collaboration Board for one year.
- Responsibility for selecting a representative lies with the Institution or Institutions concerned.
- A representative who is unable to be present at a meeting may nominate a delegate to attend. The delegate may be from a different Institution to that of the usual representative, but must be a member of the CMS Collaboration. If the delegate is not the Deputy Institute Representative, the Chairperson and Secretary of the Collaboration Board must be informed. When there is an election with voter registration, the Secretary of the Election Committee must be informed of a delegation in all cases (Annex 2).
- Associated Institutions are represented at Collaboration Board meetings, but are not permitted to vote.
- Cooperating Institutions are represented at Collaboration Board meetings, but are not permitted to vote.
- Ex-officio members of the Collaboration Board do not have the right to vote. However, they may also fulfil the role of an Institution Representative with the right to vote in the Collaboration Board.

The structure of the Collaboration Board is posted at:

<https://cms.web.cern.ch/org/collaboration-board>

## **2.3 Responsibilities of Institution Representatives**

Institution Representatives are responsible for keeping their 'constituents' fully informed of Collaboration Board matters and for presenting the opinions and wishes of their constituents in meetings. The definition of the Institution Representative is given in Annex 1.

Institution Representatives are responsible for ensuring that the information in the CMS Database listing the members of CMS from their institute is correct and up-to-date, by informing the CMS Secretariat of any changes. Where a Collaboration Board member represents more than one Institution, the leader of each Institution is separately responsible for this. Similarly, each Institution Representative is responsible for ensuring that each member of CMS in that Institution is aware of the rules contained in this document and the CMS and CERN guidelines of conduct published elsewhere: <https://cms.web.cern.ch/org/cms-constitution-rules-and-guidelines>

And <http://hr-dep.web.cern.ch/document/cern-code-conduct>

## **2.4 Chairperson**

The Chairperson of the Collaboration Board is elected by the members according to the



procedure set out in Annex 2. Institution Representatives or their delegates are allowed one and only one vote each.

The Chairperson nominates a Deputy. The nomination is made after consultation with the Search Committee. The nomination must be approved by the Collaboration Board. The Chairperson also appoints a Secretary to the Collaboration Board who is approved by the Collaboration Board.

The Chairperson and the Deputy should normally be based at an Institution other than CERN although it is not excluded that they spend extended periods at CERN.

The Chairperson should not hold any other significant position of responsibility within CMS.

The term of office of the Chairperson and the Deputy is two years. Re-election of the Chairperson is not allowed.

## **2.5 Collaboration Board Advisory Group**

The Chairperson should form a team to assist in the preparation and management of Collaboration Board business. The composition of the Advisory Group is at the discretion of the Chairperson of the Collaboration Board. The membership will always include the Deputy Chairperson and the Secretary of the Collaboration Board. The membership does not require approval but the Collaboration Board will be informed of it. The current composition is listed at: <https://cms.web.cern.ch/org/collaboration-board>

## **2.6 Standing Committees and other Bodies .**

Members of these bodies should in all cases remove themselves from discussions in which they directly or indirectly have a conflict of interest, unless the Chair of that body requests otherwise.

### **2.6.1 Conference Committee**

The Collaboration Board has created a Committee responsible for proposing rules or amendments to rules concerning contributions to conferences, which must be approved by the Collaboration Board, and for considering nominations and selecting speakers for conferences. The Conference Committee is a Standing Committee of the Collaboration Board. The Chairperson is elected by the Collaboration Board for a term of two years (Annex 2). The other members of the Committee are nominated by the Chairperson of the Collaboration Board, in consultation with the Conference Committee Chairperson or incoming Chairperson when newly elected, and the Spokesperson, for terms of two years and must be approved by the Collaboration Board. The tasks and the composition of the Committee are given in Annex 7. The current membership is kept at: <https://cms.web.cern.ch/org/conference-committee>

The Chairperson reports regularly to the Collaboration Board.

### **2.6.2 Publications Committee**

The Collaboration Board has created a Committee to oversee the publication of CMS papers, including Notes, and to ensure their high quality. It proposes rules and guidelines, or amendments to these, for CMS publications, which must be approved by the Collaboration Board. The Publications Committee is a Standing Committee of the Collaboration Board. The Chairperson of the Committee has a term of two years and is proposed by the Spokesperson, or the Spokesperson-elect in the case that the start of the terms coincide, in agreement with

the Chairperson of the Collaboration Board and in consultation with the Search Committee, and must be endorsed by the Management Board and approved by the Collaboration Board. The other members of the Committee are proposed by the Spokesperson (-elect), in consultation with the Publications Committee Chairperson (-elect) and the Chairperson of the Collaboration Board, for terms of two years and must be approved by the Collaboration Board. From among their number the Chairperson of the Publications Committee proposes a Deputy, or Deputies, who must be endorsed by the Management Board and approved by the Collaboration Board. The Spokesperson, both Physics co-Coordimators, the Collaboration Board Chairperson or a Deputy, and the Authorship Committee Chairperson are ex-officio members. The current membership is kept at: <https://twiki.cern.ch/twiki/bin/viewauth/CMS/CMSPubComm>

The Spokesperson is responsible for overseeing the work of the Publications Committee, but the rules concerning publications must be approved by the Collaboration Board. The tasks of the Committee and the rules on Publications are posted on a link defined in Annex 5.

The Chairperson reports regularly to the Collaboration Board.

### 2.6.3 Authorship Committee

The Collaboration Board has created a Committee responsible for overseeing the application of rules on Authorship, and for proposing rules or amendments to rules on Authorship, which must be approved by the Collaboration Board. The Authorship Committee is a Standing Committee of the Collaboration Board. The Chairperson is elected by the Collaboration Board for a term of two years (Annex 2). The other members of the Committee are nominated by the Chairperson of the Collaboration Board, in consultation with the Authorship Committee Chairperson and the Spokesperson, for terms of two years and must be approved by the Collaboration Board. The tasks of the Committee and the rules on Authorship are shown in Annex 6. The current membership is kept at:

<https://cms.web.cern.ch/org/authorship-committee>

The Chairperson reports regularly to the Collaboration Board.

### 2.6.4 Thesis Committee

The Collaboration Board has created a Thesis Committee to propose the granting of an Award to the author of the Thesis concerning work conducted in association with CMS which is judged to be the best of the previous year. The members and Chairperson of the Thesis Committee are nominated by the Chairperson of the Collaboration Board and must be approved by the Collaboration Board. The current membership and the procedures for submitting theses for consideration and the criteria for judging the theses are given at:

<https://cmsthesisawards.web.cern.ch/cmsthesisawards/>

The Chairperson of the Thesis Committee may propose making multiple Thesis Awards in any given year, which must be agreed by the Collaboration Board.

### 2.6.5 Industrial Awards Committee

The Collaboration Board has created an Industrial Awards Committee to propose the granting of Industrial Awards to industrial partners who have made exceptional contributions to the construction or upgrades of CMS.

The members and Chairperson of the Industrial Awards Committee are nominated by the Chairperson of the Collaboration Board in consultation with the Spokesperson and must be

approved by the Collaboration Board. The current membership and the procedures for nominating award candidates as well as the criteria for judging them are given at:

<http://cms.web.cern.ch/content/cms-awards>

#### 2.6.6 CMS Achievement Awards

The Collaboration Board has created a “CMS Achievement Award” which is awarded to young members of CMS, doctoral students, postdoctoral researchers or engineers from Detector Systems and Coordination Areas. Awards are given typically annually with nominees chosen by System Managers and Coordinators and the respective Institution Boards. The Collaboration Board Chairperson and Deputy are responsible for organizing these awards.

#### 2.6.7 Communications Group

The Collaboration Board has created a Communications Group to assist the Spokesperson in improving the internal communications of the CMS Collaboration and the external interactions with media organizations, press offices and the general public. The Communications Group takes also care of the (1) Communications Infrastructure, (2) Information Systems, and (3) Education and Outreach activities. The group is led by a Head of Communications who is appointed by the Spokesperson for a term of two years in consultation with the Collaboration Board Chairperson. This appointment is to be approved by the Collaboration Board. The Head may be assisted by a Deputy who must be approved by the Collaboration. The Head of the Communications Group is an ex-officio member of the Management and Collaboration Boards and reports regularly to the Collaboration Board.

#### 2.6.8 International Committee

The Collaboration Board has created an International Committee, whose mandate is to encourage expanded membership of CMS, to explore opportunities for prospective Institutions, and to foster relations between existing and incoming Institutions. The membership of the Committee is proposed by the Collaboration Board Chair in agreement with the Spokesperson and is approved by the Collaboration Board. Its membership will be reviewed every two years.

#### 2.6.9 Data Preservation and Open Access Group

The Collaboration Board has created a Data Preservation and Open Access Group responsible for managing the implementation of the data preservation and open access policy. The policy can be found at: <https://cms.web.cern.ch/org/cms-constitution-rules-and-guidelines> together with specific rules for the use of open access CMS data by individual members of CMS.

The group is led by a coordinator who is nominated by the Collaboration Board Chairperson in consultation with the Spokesperson and approved by the Collaboration Board. The coordinator is responsible for delivery of the policy and reports regularly to the CMS Collaboration Board. The activities are carried out together with relevant Coordination Areas each of which will identify a contact person. The coordinator may be assisted by a deputy who must be approved by the Collaboration Board.

#### 2.6.10 Career Committee

The Collaboration Board has created a Career Committee to support collaborators in their career development. It monitors and advises the career path of young members in particular. The membership of the Committee is proposed by the Collaboration Board Chair and is approved by

the Collaboration Board. Its membership will be reviewed every two years.  
The current composition can be found at: <https://cms.web.cern.ch/org/career-committee>

#### 2.6.11 Schools Committee

The Collaboration Board has created a Schools Committee to overview the schools organized by the CMS Collaboration. It advises the local organization of the schools and pro-actively formulates proposals for additional and future schools. The membership of the Committee is proposed by the Collaboration Board Chair and is approved by the Collaboration Board. Its membership will be reviewed every two years. The current composition can be found at: <https://cms.web.cern.ch/org/schools-committee>

#### 2.6.12 Young Scientists Committee

The Collaboration Board has created a Young Scientists Committee to deal with issues of newcomers and untenured CMS members. The Committee establishes its governance autonomously. The membership of the Committee is reported to the Collaboration Board.

#### 2.6.13 Other

The Collaboration Board Chairperson may propose the creation of temporary bodies to assist in the preparation of specific items of Collaboration Board business. The Collaboration Board must approve the creation and membership of such bodies.

### **2.7 The Collaboration Board as Institution Board**

The Collaboration Board is the Institution Board for the CMS-wide Coordination Areas, excluding Technical Coordination, and for any other CMS-wide body which does not have its own Institution Board. In these Areas, the internal organization and operational procedures, for example the scheduling of important meetings and all strategic or otherwise important decisions must be brought to the Management Board for endorsement and to the Collaboration Board for approval. Financial matters must be approved either by a representative body set up to oversee financial matters in the Area, or, if no such body exists, by the CMS Finance Board, and brought to the Collaboration Board for information, or for final approval if of a wider nature. Other matters, from Physics Coordination in particular, are regularly reported to the Collaboration Board for information.

### **2.8 The Search Committee**

The Search Committee is a temporary Committee of the Collaboration Board, which assists in the search for the best candidates for appointments which must be endorsed by the Management Board and approved by the Collaboration Board, actively seeks out nominations, and facilitates consultation. These appointments include the Deputy Spokesperson, the Coordinators and their Deputies if any, the Conveners in the Coordination Areas, the Chairperson of the Publications Committee and any Deputy, and the Coordinators or Managers and any Deputies or Conveners of any CMS body for which the Collaboration Board is the Institution Board. The Search Committee also assists the Collaboration Board Chairperson-elect to seek a Deputy.

The Search Committee is formed by the Collaboration Board Chair normally around the time of the annual call for nominations for the renewal of Coordinator and Convenor positions. It is dissolved after the appointments for which it is formed to assist are complete, and at the latest

before the next election of the Spokesperson or Collaboration Board Chair; it may be reconvened if necessary. Its members include the Collaboration Board Chair and Deputy, the Spokesperson and the Regional Representatives of the Management Board or persons delegated by them. The latter members are responsible for soliciting proposals from their constituent Institutions and providing wide consultation within the Collaboration. The Chair of the Search Committee is the Collaboration Board Chair. The Chair will invite non-members who are responsible for proposing nominees to the Management and Collaboration Boards to participate in its meetings when these are discussed, and may also invite consultants to attend.

The Regional Representatives, or their delegates, together with the Collaboration Board Chair and Deputy represent the Collaboration Board in the Search Committee discussions, and the chairperson of the Search Committee reports frequently to the Collaboration Board.

If any member of the Search Committee ends their term of office while the Committee is considering nominations, the new incumbent of that office will normally replace that member on the Search Committee.

Any member of the Search Committee who wishes to be considered for any of the positions to be discussed, or who has any other conflict of interest, must remove themselves from the Committee when it is formed or as soon as the conflict of interest arises. In the case of a Regional Representative, the person should be replaced by a member of their own Region, chosen by that community.

The person(s) responsible for nominating a candidate to the Management and Collaboration Boards for a position will, together with the Chair of the Search Committee, assemble a list of nominations received for the position considered. These will be submitted to the Search Committee for discussion. Taking into account the deliberations of the Search Committee the resulting proposal is presented to the Management Board and Collaboration Board for endorsement and approval by the person(s) making the nomination.

## **2.9 Communications with other CMS Boards**

The Chairperson of the Collaboration Board is a member of the Management, Finance and Executive Boards. The Chairperson represents the Collaboration Board at the meetings of these Boards. The Deputy Chairperson of the Collaboration Board is also a member of the Management Board.

The Chairperson of the Collaboration Board shall decide whether a matter brought before any CMS Board or Committee merits being put before the Collaboration Board.

The Technical Coordinator and the Resources Manager report regularly to the Collaboration Board on matters from their respective areas of responsibility that are of interest to the Collaboration as a whole.

The Spokesperson will report regularly to the Collaboration Board on important matters concerning the Collaboration, including discussions in Executive and Management Board meetings, meetings of the LHCC or of its referees, and meetings between CMS representatives and the CERN Management and meetings of the Resources Review Boards.

## **2.10 Decisions**

Decisions are to be agreed by consensus wherever possible. If a situation should arise where a consensus cannot be reached, a time scale shall be set for the decision to be reached at a later date. The relevant arguments will be documented and distributed to the Collaboration Board. The matter will then be decided at a subsequent meeting of the Collaboration Board, by a vote if necessary. Usually a simple majority (i.e. the option receiving the most votes) of those present who are eligible to vote will decide the issue, except as specified in Article 1.4, Annex A2.2, Annex A2.3 and Annex A2.4. In cases where the Collaboration Board disagrees with a recommendation of the Management Board, the issue will be returned to the Management Board for further discussion, together with a statement expressing the concerns of the Collaboration Board. The issue will finally be decided by the Collaboration Board.

## **3. The CMS Management Board**

### **3.1 Role**

The CMS Management Board is chaired by the CMS Spokesperson. The Management Board through the Spokesperson is responsible for directing the CMS experiment and for drawing up policy. The organisation of the individual Detector Systems and Coordination Areas has to be endorsed by the Management Board. It has the mandate to resolve controversies - within or between the various Detector Systems and Coordination Areas. All important Management Board decisions must be submitted to the Collaboration Board for discussion and final approval.

All important matters relating to the experiment including safety, organisation and finance shall be discussed in the Management Board, either through its own initiative or upon request.

The Management Board is assisted in fulfilling its role by the Executive Board, whose composition is defined by the Management Board and approved by the Collaboration Board and which is chaired by the Spokesperson. The Executive Board is concerned with day to day tactical and technical operation of CMS, as discussed in Article 4.

The Management Board through the Spokesperson represents the Collaboration in dealing with other organisations and committees external to CMS, for example CERN as the host laboratory, the CERN Resources Review Board and the LHC Committee.

The documents prepared by CMS for scientific reviews conducted by or on behalf of CERN, which are required to monitor the progress of the experiment, should be made available to the members of the Management Board and Collaboration Board for comment before submission to the review body.

### **3.2 Members and Functions**

At present, the members of the Management Board are:

- the Spokesperson
- the Deputy Spokesperson(s)
- the Collaboration Board Chairperson
- the Collaboration Board Deputy Chairperson
- the Physics Coordinators (2 members)
- the Publications Committee Chairperson
- the Resources Manager
- the Deputy Resources Manager (if appointed)
- the Technical Coordinator
- the Deputy Technical Coordinator
- the Large Experiment Group Leader in Matters of Safety (LEXGLIMOS)
- the Electronics Coordinator
- the Head of the Communications Group
- the Regional Representatives (Annex 8).
- the Coordinators:
  - Run (2 members)
  - Trigger-HLT (2 members)
  - Offline and Computing (2 members)
  - Physics Performance and Dataset (2 members)
  - Upgrades (2 members)
- the System Managers and Deputies:

- Tracker (2 members)
- Electromagnetic Calorimeter (2 members)
- Hadron Calorimeter (2 members)
- Muon Detector (2 members)
- L1 Trigger (2 members)
- DAQ (2 members)
- BRIL (2 members)
- CTPPS (1 member)
- the Conference Committee Chairperson
- the Management Board Secretary
- the Collaboration Board Secretary
- the previous Spokesperson
- the previous Technical Coordinator
- the previous Resources Manager
- the Advisors to the Spokesperson and to the Technical Coordinator

The structure and the present composition of the Management Board are kept at:

<https://cms.web.cern.ch/org/management-board>

The Spokesperson is elected for a period of two years by the Collaboration Board according to the procedures specified in Annex 2. Consultation with the CERN Directorate will be part of the procedure for appointing the Spokesperson. Re-election of the Spokesperson is not allowed. Following the election, the Spokesperson-elect attends, ex-officio, the Management Board and the Executive Board in the period before taking up office.

The Spokesperson(-elect), in consultation with the Search Committee, nominates a Deputy or two Deputies who will assist the Spokesperson during their term in office. The nomination(s) must be endorsed by the Management Board and approved by the Collaboration Board. The Spokesperson and at least one Deputy must be resident at CERN. The Spokesperson and Deputy(-ies) should not hold any other significant position of responsibility within CMS.

The Resources Manager and the Technical Coordinator are appointed by the Spokesperson(-elect) in agreement with CERN, and will be (or temporarily become, if exceptionally seconded from elsewhere) CERN staff members. The Resources Manager and Technical Coordinator have responsibilities both to the experiment and to CERN. Their appointments must be endorsed by the Management Board and approved by the Collaboration Board. The Deputy Technical Coordinator is nominated by the Technical Coordinator, in agreement with the Spokesperson(-elect) and must be endorsed by the Management Board and approved by the Collaboration Board. The Deputy Resources Manager is nominated by the Resources Manager, in agreement with the Spokesperson(-elect) and must be endorsed by the Management Board and approved by the Collaboration Board. The functions of the Resources Manager and Deputy, and the Technical Coordinator and Deputy are described in Articles 5.3.1, 6.1 and 6.2 respectively. All must be resident at CERN, and should not hold any other significant position of responsibility within CMS.

The LEXGLIMOS is appointed by the Technical Coordinator in consultation with the Spokesperson(-elect), the PH Department Head and the Head of the CERN Safety Unit, and must be endorsed by the Management Board and approved by the Collaboration Board.

The Electronics Coordinator is appointed by the Spokesperson(-elect) in consultation with the Technical Coordinator for a two year term and must be endorsed by the Management Board and approved by the Collaboration Board.

The other CMS-wide Coordinators are nominated by the Spokesperson(-elect) in consultation



with the Search Committee. Consultation with the continuing co-Coordinator should also be part of the search process. Nominations must be endorsed by the Management Board and approved by the Collaboration Board. The normal term is two years. Normally two Coordinators per Coordination Area are appointed, whose terms are staggered by one year. The Physics Coordinators cannot be reappointed. The Coordinators may have a Deputy or Deputies nominated by the Coordinators in consultation with the Spokesperson and the Search Committee. Deputy Coordinators must also be endorsed by the Management Board and approved by the Collaboration Board. In each Coordination Area, at least one of the Coordinators, must be normally resident at CERN. Neither the Coordinators nor the Deputies should hold another significant position of responsibility within CMS. The functions of these Coordinators and the organisation of their areas may be found under “Coordination Areas” at: <https://cms.web.cern.ch/org/cms-collaboration>

The System Managers are nominated by the Spokesperson(-elect) in consultation with the relevant Institution Board. The normal term is two years. These nominations must be endorsed by the Management Board and approved by the Collaboration Board. The System Managers are responsible for all matters related to the commissioning, maintenance, upgrade and operation including detector performance of their particular Detector System. Each of these System Managers must have a Deputy or Deputies nominated by the System Manager in agreement with the Spokesperson and approved by the relevant Institution Board. The Deputies must be approved by the Management Board and reported to the Collaboration Board. The term of the Deputies will normally match that of the respective System Manager. Each of the Managers, or a respective Deputy, should be resident at CERN. Neither the System Managers nor the Deputies should hold another significant position of responsibility within CMS.

Where a System Manager has more than one Deputy, the Deputy who is a member of the Management Board is defined by the Spokesperson in consultation with the relevant System Manager. The Management and Collaboration Boards must be informed. In a Coordination Area with a single Coordinator but with more than one Deputy, a second member of the Management Board is similarly defined.

The Chairperson of the Conference Committee, the Chairperson of the Publications Committee, and the Collaboration Board Secretary are members of the Management Board.

The Spokesperson appoints a Secretary of the Management Board who must be approved by the Management Board.

The Regional Representatives are selected by the Institution Representatives of the corresponding Regions as defined in Annex 8. The selection procedure and the term of office in Regions are defined individually by agreement between the corresponding Institution Representatives. However, for the Regional Representatives of Other CERN Member and Associated Member States Countries and Other Non-CERN Member States Countries the term of office is two years. In these cases a new Representative must not be from a country that has provided a previous Representative within the past four years. Regional Representatives may define a Deputy in agreement with their constituent institutes who may replace them in meetings. All Regional Representatives should consult regularly the groups of their Region and should convey the views of these groups to the Management Board.

Advisors may be invited to serve on the Management Board to provide specialist expertise in important areas. Technical advisors are nominated by the Technical Coordinator, in agreement with the Spokesperson; other advisors may be nominated by the Spokesperson. The nominations must be endorsed by the Management Board and approved by the Collaboration Board. They are advisory to the Spokesperson and are not part of the lines of responsibility of the Management Board.

The Spokesperson may propose modification of the composition of the Management Board in order to reflect new developments. The Spokesperson may propose the creation of a Management Board Task Force or other body to address a specific problem within CMS. These proposals are to be endorsed by the Management Board and approved by the Collaboration Board. The activities of Task Forces or similar bodies will be reported regularly to the Management Board.

### **3.3 Interactions with other CMS Boards**

The Management Board interacts with the other CMS Boards on scientific, technical, organisational and financial matters.

The Spokesperson reports to the Collaboration Board regularly on the business of the Management Board.

The Resources Manager and the Technical Coordinator report regularly to the Management Board and Collaboration Board, and in turn report back to their respective bodies on matters discussed by, and recommendations and decisions of, the Management Board.

Recommendations from the Finance Board, the Executive Board (Article 4) or Detector System Institution Boards on important matters are discussed at Management Board meetings. All important matters that are accepted by the Management Board are forwarded to the Collaboration Board for final approval, following the procedure outlined in Article 2.10. Matters that are not accepted by the Management Board are returned to the respective Board for further consideration and possible modification.

The Chairperson of the Collaboration Board shall decide whether a matter brought before the Management Board merits being put before the Collaboration Board.

### **3.4 Reviews**

The Spokesperson may organize reviews of any aspect of CMS. The reviewers are selected by the Spokesperson and the Deputy Spokesperson(s), in consultation with the appropriate Detector System Managers or Coordinators.

The Review Committee shall produce a written report of its findings, which after discussion with the appropriate Detector System Managers or Coordinators and the Spokesperson and Deputy(s), will be distributed to the members of the Management Board and presented at a meeting of the Management Board, followed by a presentation at the next Collaboration Board meeting if requested by the Collaboration Board Chair or the Spokesperson.

### **3.5 Decisions**

The Management Board will seek to reach decisions by consensus.

In a case where such a consensus cannot be reached, the Spokesperson shall propose a compromise to the Management Board. Should such a compromise not be acceptable by consensus, the Spokesperson will make the decision, which, as for all important matters, will be forwarded to the Collaboration Board for final approval.

### **3.6 Communication with the CERN Management**

Certain members of the CMS Management Board meet regularly with the CERN Director of Research. CMS is presently represented by:

- the CMS Spokesperson
- the CMS Deputy Spokesperson(s)
- the CMS Collaboration Board Chairperson
- the CMS Resources Manager
- the CMS Technical Coordinator

Other members of CMS may be invited to attend such meetings as appropriate.

Members of CERN management may be invited to meetings of the CMS Management Board, as well as to the Opening Plenary Session of the CMS Weeks held at CERN.

### **3.7 Meetings**

Approximately ten Management Board meetings per year are foreseen. In addition, should urgent matters arise, additional meetings may be called by the Spokesperson. In such a case the members of the Management Board should be informed at least two weeks prior to the meeting. Only in exceptional circumstances should this requirement be relaxed.

## **4. The Executive Board**

### **4.1 Role**

The Executive Board is chaired by the Spokesperson and its composition is defined by the Management Board and approved by the Collaboration Board. It meets more often than the Management Board and is concerned primarily with the day-to-day operation of CMS. The Executive Board executes decisions of the Management Board. Its actions are reported regularly to the Management Board by the Spokesperson.

Issues raised which may have major impact on the operation of CMS must be referred to the Management Board. Similarly any substantive change to operational procedures proposed by the Executive Board must be brought to the Management Board for approval. This includes technical decisions that affect the detector performance. If appropriate such matters will also be brought to the Collaboration Board for information or approval.

### **4.2 Members**

The members of the Executive Board are:

- the Spokesperson
- the Deputy Spokesperson(s)
- the Collaboration Board Chairperson (ex officio)
- the Technical Coordinator and Deputy
- the Coordination Area Coordinators
- the Detector System Managers and Deputies

Other members of the Collaboration may be invited by the Spokesperson to attend as needed.

Additional members of the Executive Board may be appointed by the Spokesperson to provide advice and are to be endorsed by the Management Board and approved by the Collaboration Board. Their role is advisory to the Spokesperson and is not part of the lines of authority of the Executive Board.

The current composition of the Executive Board can be found at:

<https://cms.web.cern.ch/org/executive-board>

### **4.3 Meetings**

The agenda will be published on the web or otherwise made available to the full CMS collaboration. Members of the Executive Board must send a Deputy or other representative and inform the Spokesperson should they be unable to attend a given meeting, prior to the meeting. A summary of the meeting will promptly be made available to all members of CMS.

## 5. The CMS Finance Board

The CMS Finance Board is chaired by the CMS Resources Manager. The Resources Manager has responsibilities which are necessary to fulfil CMS and CERN obligations to the funding agencies and exercise oversight.

### 5.1 Role

The CMS Finance Board, through the Resources Manager as Chairperson, is responsible for dealing with all matters related to the costs and resources of CMS (financial, personnel, etc.), evaluation of contributions, relations with funding agencies (drawing up of the relevant agreements), contract policy, and all administrative matters.

The Finance Board discusses and decides on all important issues related to CMS finances. This includes funding, and distribution of charges, income and expenditure, adjudication of large contracts, major decisions with financial implications made by the Detector Systems, annual budgets and subjects related to the CMS Resources Review Board. The Finance Board monitors overall performance of any agreement with funding agencies and/or Institutions where resources (financial, personnel, etc.) are involved.

The Finance Board is considered to be a representative body in its own right. It reports its decisions to the Management Board and the Collaboration Board. Final approval for all matters affecting the scientific life of CMS rests with the Collaboration Board.

### 5.2 Members

The Finance Board consists of the:

- Resources Manager (Chairperson)
- Deputy Resources Manager (if appointed)
- Linkpersons to CMS funding agencies
- Detector System Resources Managers (one per Detector System)
- Common Project Resources Managers
  - Offline, Computing and PPD Resources Manager
  - Infrastructure Resources Manager
- Spokesperson and Deputies (ex-officio members)
- Chairperson of the Collaboration Board (ex-officio member)
- Technical Coordinator and Deputy (ex-officio members)
- The previous CMS Resources Manager
- Finance Board Secretary.

The Chairperson of the Finance Board can invite Detector System Managers and Coordinators to meetings of the Board, as needed.

The structure and present composition of the Finance Board is kept at:

<https://cms.web.cern.ch/org/finance-board>

## 5.3 Functions of Members

### 5.3.1 The Resources Manager

The Resources Manager is (or temporarily becomes if exceptionally seconded from elsewhere) a CERN staff member appointed by the Spokesperson in agreement with CERN, and approved by the Collaboration Board.

The Resources Manager keeps the Finance Board up to date on the financial situation of the Collaboration. The Resources Manager consults the Finance Board on all major non - technical decisions concerning CMS and in particular the Common Projects.

The CMS Resources Manager is in charge of all matters related to the resources for CMS, except those which naturally fall under the direct jurisdiction of the Institutions and is concerned, together with the Linkpersons to CMS funding agencies, with establishing and maintaining relations with the funding agencies, with drawing up relevant agreements and with obtaining approval for these and any other agreements to which the Institutions of CMS are party. The Resources Manager also presents the annual budget and expenditures report to the CMS Resources Review Board.

The CMS Resources Manager may appoint a Deputy.

The CMS Resources Manager appoints a Secretary of the Finance Board.

The CMS Resources Manager links the Collaboration with CERN's administrative services.

The Resources Manager is an ex-officio member of the Collaboration Board, the Management Board and the Detector System Institution Boards.

### 5.3.2 Linkpersons to CMS Funding Agencies

The Linkpersons keep the Resources Manager informed about funding and resources status for the CMS Collaboration. They coordinate negotiations on funding and budget profiles with their respective funding agencies, where the Resources Manager may assist them.

The Linkpersons are responsible for keeping good working relations with the officials in their respective funding agencies and for keeping the Resources Manager informed about any potential change of the funding situation.

A Linkperson is nominated by the representatives of the Institutions supported by the relevant CMS funding agency.

### 5.3.3 Detector System Resources Managers

The Detector System Resources Managers are nominated by the respective System Manager in agreement with the CMS Resources Manager. Their appointments are approved by the respective Institution Boards.

The Detector System Resources Managers deal with all matters related to the costs and resources of their Detector System. They regularly inform the Resources Manager and report to the Finance Board on the resource aspects of their Detector System and on any major changes to the planning. They must inform the Finance Board when large contracts or groups of related contracts are placed.

## **5.4 Meetings**

Members of the Finance Board may send a replacement should they be unable to attend a meeting. The Resources Manager should be informed of this prior to the meeting.

The Resources Manager may call for extraordinary meetings to deal with specific or urgent topics. In such a case the members of the Finance Board should be informed at least two weeks prior to the meeting.

The outcome of all Finance Board meetings is summarised in minutes, which are made available to the members of the Finance Board and, on request, to any member of the Collaboration Board.

## **5.5 Relations with other CMS Boards**

The Resources Manager reports regularly to the Management Board and to the Collaboration Board.

## **5.6 Decision Taking**

The Finance Board will seek decisions by consensus. In cases where consensus cannot be reached, the Resources Manager will propose a compromise to the Finance Board. Should this compromise not be acceptable by consensus, the Resources Manager will make a proposal which will be forwarded to the Management Board for resolution, with the final decision taken by the Collaboration Board.

## 6. CMS Technical Coordination

Technical Coordination is carried out under the responsibility of the CMS Technical Coordinator. The Technical Coordinator is assisted by the Deputy Technical Coordinator, the LEXGLIMOS and the CMS Technical Coordination Team.

### 6.1 The Technical Coordinator

The Technical Coordinator leads the technical coordination of the CMS experiment, reporting to the Spokesperson. The Technical Coordinator is (or temporarily becomes, if exceptionally seconded from elsewhere) a CERN staff member appointed by the Spokesperson, in agreement with CERN, in consultation with the Management Board and approved by the Collaboration Board.

The Technical Coordinator undertakes the following tasks:

- Ensuring that CMS is always operated, maintained or upgraded in a safe manner. The Technical Coordinator holds overall responsibility for the safety of the experiment, as described in the CERN Safety Organisation (document SR-SO) and the General Safety Instruction GSI-SO-04.
- Assuring the technical coherence, integration and operating procedures of the Detector Systems, magnet, infrastructure and machine interface needed to operate CMS successfully.
- Overseeing the installation, documentation, maintenance and upgrade of the experimental equipment.
- Providing input to the Executive Board, the Management Board and the Collaboration Board on the technical progress and performance of CMS.
- Organising periodic reviews of Detector Systems (see Article 6.7), especially addressing the performance and operating procedures of existing equipment, or the engineering design of new devices prior to the launch of full scale procurement and construction.
- Ensuring that the technical duties of CERN in its capacity as host laboratory are fulfilled and linking the Collaboration with CERN's technical services and with the LHC.
- Directing the activities of the CMS Technical Coordination Team, which includes the various CERN-CMS technical teams. The objective is to provide the framework, and specific support, needed for the effective participation of CMS Institutions and collaboration members in the activities of operating, maintaining, and upgrading the detector.

The Technical Implementation Group (TIG) is chaired by the Technical Coordinator or deputy and provides him/her with advice, assistance and a forum for exchange of information amongst the CMS Technical Coordination Team and the Detector Systems. The scope of discussion covers safety, technical planning and work-flow at Point 5, provision of facilities, infrastructure and support personnel for CMS activities on CERN sites, as well as the oversight of maintenance, technical operation and upgrade plans and operations. Through the participation of the Detector Field Coordinators, infrastructure coordinators and the mechanical & electronics integration teams, the Technical Implementation Group ensures coherent activity and mutual



support amongst the Detector Systems and gives them access to collaboration and host laboratory assistance when required, as resources allow. In matters of implementation of approved technical activities on CERN sites, the establishment of technical priorities and the allocation of common CMS resources, the TIG shall be the usual forum for pragmatic discussion and agreement. The Spokesperson and the Resources Coordinator are ex-officio members of the TIG, along with the System Technical Coordinators.

The Technical Coordinator is an ex-officio member of the Collaboration Board, Finance Board and a member of the Management Board and Executive Board. The Technical Coordinator reports regularly in the Open CMS Plenary Sessions and in meetings of, the Collaboration Board, Management Board and the Executive Board.

## **6.2 The Deputy Technical Coordinator**

The Deputy Technical Coordinator assists the Technical Coordinator. The Deputy Technical Coordinator is an ex - officio member of the Collaboration Board, Finance Board and a member of the Management Board.

## **6.3 The Electronics Coordinator**

The selection and term of office of the Electronics Coordinator are specified in Article 3. Under the overall oversight of Technical Coordination, the Electronics Coordinator coordinates, monitors and supports the development, procurement and installation of electronics systems for the CMS experiment.

Particular responsibilities include:

- Coordinating the integration, installation, commissioning and operation of electrical and electronics systems in the experiment.
- Acting as liaison with the individual Detector Systems, with CERN groups and with industry.
- Promoting information exchange between Detector Systems and creating and maintaining a knowledge base.
- Ensuring compatibility between Detector Systems with the objective of coherent operation of the CMS experiment.
- Encouraging common solutions, where appropriate.
- Organising periodic reviews of electrical and electronics systems.

The Electronics Coordinator is an ex - officio member of the Collaboration Board, and a member of the Management Board. The Electronics Coordinator reports regularly to the Management Board.

## **6.4 The LEXGLIMOS (Large Experiment Group Leader In Matters Of Safety)**

The Technical Coordinator holds the overall responsibility in terms of safety during installation and operation of the experiment up to its dismantling (CERN Safety Organisation SR-SO).

The CMS collaboration is represented in safety matters by a Large Experiment Group Leader in Matters of Safety (LEXGLIMOS). The LEXGLIMOS has executive authority to ensure the safety of the experiment by delegation from the CMS Technical Coordinator. Full authority over personnel and equipment in all matters that concern safety of the experiment, irrespective of the Institutional affiliation of personnel or the ownership of equipment is delegated to the LEXGLIMOS.

The LEXGLIMOS is appointed by the Technical Coordinator in consultation with the Spokesperson, the PH Department Head and the Head of the CERN Safety Unit. The appointment is confirmed by the Management Board and the Collaboration Board. The LEXGLIMOS is a member of the Management Board.

The LEXGLIMOS may appoint a deputy, with the agreement of the Technical Coordinator, Spokesperson, PH Department Head and the Head of the CERN Safety Unit.

To ensure continuous safety oversight during shift work, the LEXGLIMOS shall appoint Shift Leaders in Matters of Safety (SLIMOS) and ensure that they are appropriately trained for their duties.

All Systems and Projects in CMS shall appoint a safety link person, responsible for liaising with the LEXGLIMOS and ensuring that all their equipment, activities and personnel comply with CERN safety regulations and any supplementary safety instructions which may be issued by the Technical Coordinator or the LEXGLIMOS. In particular, members of the CERN personnel, fellows, associates, registered visitors, students, apprentices, contractors and temporary labour personnel, are accountable for the observance of the safety rules to their immediate supervisors or to other persons specifically appointed to be responsible for safety issues relating to their work.

Each institute collaborating with CERN is obliged by CERN Safety Policy to appoint a Safety Correspondent to provide a focal point for communication between CERN and the institute in matters of safety.

The LEXGLIMOS chairs the CMS safety committee, which includes the Safety Link Persons and the Safety Correspondents, as well as other personnel with defined safety roles (according to CERN Safety policy and instructions) within the experiment.

The CMS policy in terms of safety is described and updated in the safety website of the experiment: <http://cms-safety.web.cern.ch/cms-safety/>

## **6.5 Technical Coordination Team**

The CMS Technical Coordination Team is led by the CMS Technical Coordinator. It supports the work of the Technical Coordinator. Through the participation of the Detector System Technical Coordinators, the Technical Coordination Team plans and ensures coherent activity and mutual support amongst the Detector Systems and provides them with collaboration and host laboratory assistance when required, as resources allow.

The CMS Technical Coordination Team consists of personnel provided by CERN in its host lab function as well as personnel provided by, or supported by, the Collaboration. The composition includes the Technical Coordinator and deputy, assistant Technical Coordinator(s), the Machine Interface Coordinator, the safety team led by the LEXGLIMOS, the experimental area

management (EAM) team led by the Experimental Area Manager, the engineering integration team led by the Engineering Integration Coordinator, the electronics and electrical systems team led by the Electronics Coordinator and other common systems teams, each led by a coordinator, covering (at a minimum) cooling systems, dry gas systems, magnet systems, common monitoring systems, mechanical design/simulation and beam radiation monitoring/ simulation. The various coordinators not previously described are appointed by the Technical Coordinator, in agreement with CERN (where appropriate) and with the approval of the Management Board.

Prior to the launch of major construction of detector elements, or a major refit involving removing a detector system from LHC Point 5, the System Manager appoints (in consultation with the CMS Technical Coordinator) a system Technical Coordinator, who is responsible for overseeing procurement, construction, assembly and testing activities of new detector elements, according to approved designs, up to the point of presentation at Point5 in a “ready to install” condition. The system Technical Coordinator liaises with the CMS Technical Coordinator and the Technical Coordination team to ensure compliance with safety rules and overall coherence of the new equipment with the approved design and with existing CMS equipment.

For each Detector System involved in installation, maintenance or upgrade work at LHC Point 5, the System Manager, in agreement with the Technical Coordinator, appoints a Detector Field Coordinator who represents the Detector System in planning and coordination meetings and is responsible for overseeing, and reporting on, agreed Detector System activities. The appointment of the System Technical Coordinator and Detector Field Coordinator must be approved by the relevant Institution Board and endorsed by the CMS Management Board.

The organizational structure and detailed current composition of the Technical Coordination team and technical implementation groups is available at:  
<https://cms.web.cern.ch/org/technical-coordination>

## 6.6 Meetings

Technical Coordination Meetings are held regularly. The meetings are chaired by the Technical Coordinator and are open to all CMS members with technical responsibilities or with relevant expertise or interest in the topics being discussed. They are intended to inform the Collaboration about matters related to the CMS technical assembly and safety and to provide a forum for discussion and exchange of relevant information between Detector Systems and the Technical Coordination Team. The provisional dates of these meetings will be fixed in advance for every calendar year. All Detector Systems should be represented. In particular the Detector System Technical Coordinators are expected to attend. The agenda shall include general assembly schedule and milestones, issues of integration and services, reports on machine interface, general services and infrastructure, safety matters and interim reports from technical task forces mandated by the Management Board. Following discussion in the Technical Coordination Meetings, the Technical Coordinator may recommend actions for approval by the Management and Collaboration Boards.

## 6.7 Reviews

Before launching the construction of major parts or upgrades of any Detector System, or engaging in major related expenditures, the Technical Coordinator, with the agreement of the relevant Detector System Manager, organizes reviews to confirm the soundness and completeness of the retained design, including the coherence of all interfaces with respect to neighbouring sub-detectors or other parts of CMS. The aim is to minimize risks in cost and schedule.

An EDR (Engineering Design Review) or ESR (Electronic Systems Review) is thus held prior to the start of construction or upgrade of a large item or important procurement. Adherence to safety requirements is an inherent part of an EDR.

A PRR (Procurement Readiness Review) may be held in anticipation of an EDR or an ESR, to authorize significant pre-production or pre-procurement, or where parts of the system are well understood and factorize from the overall design. Such parts can, for schedule reasons, be considered for approval to proceed, providing there is no risk to the satisfactory completion of the overall design needed for the EDR.

Each Detector System will undergo one or more MPRs (Manufacturing Progress Reviews) at strategic moments of the production process. The Technical Coordinator will decide which production processes merit MPRs. The MPR committee will ascertain whether the manufacture is going as planned, whether the milestones are likely to be met and whether the resources (financial and human) required to complete the production are available.

The written reports of the findings and recommendations from these reviews are sent to the appropriate System Manager(s) with copies to the Spokesperson and the members of the CMS Management Board. Any follow-up is the responsibility of the appropriate System Manager and the Chairperson of the Review Committee.

## **6.8 Task Forces**

The Technical Coordinator may request the Management Board to approve the creation of a technical task force, comprising representatives of several Detector Systems, the Technical Coordination Group and others as necessary, to study specific technical aspects of CMS and to direct related activities. Such Task Forces are of limited duration and the chairpersons report to the CMS Management Board and then the Collaboration Board.

In the event of any major incident impinging on the safety of personnel or equipment a task force will be set up to investigate the occurrence which will report on findings and mitigation to the CMS Spokesperson and the Management and Collaboration Boards.

## **7. CMS-wide Coordination Areas except Upgrades**

### **7.1 Scope and general structure**

These areas are Physics, Offline and Computing, Physics Performance and Dataset, Run, and Trigger-HLT.

The Coordinators are nominated by the Spokesperson in consultation with the Search Committee, endorsed by the Management Board and approved by the Collaboration Board. There are two co-Coordinators with two year terms staggered by one year. Both are members of the Management and Executive Boards. A Deputy or Deputies may be appointed; these are nominated by the Coordinators with whom their terms overlap for terms of two years, and must be endorsed by the Management Board and approved by the Collaboration Board. Deputies are not normally members of the Management or Executive Boards.

These Coordination Areas typically have second level positions called Conveners, who coordinate the work of groups addressing specific tasks. Normally there are two co-Conveners with terms staggered by one year. They are appointed by the current Coordinators in consultation with the Search Committee and in agreement with the Spokesperson, for terms of two years, and must be endorsed by the Management Board and approved by the Collaboration Board. For the Conveners in Physics Coordination consultation with the Search Committee is mandatory except in exceptional circumstances; for Conveners in the other areas it is recommended. In all cases a decision not to involve the Search Committee must be agreed by the Spokesperson and the Collaboration Board Chair and explained to the Management and Collaboration Boards. For all these positions the current Conveners will normally be consulted about the proposed appointment, and opinions within the relevant community also considered.

In each area a Project Office may be set up to assist the Coordinators. Its membership must be endorsed by the Management Board and approved by the Collaboration Board. The lines of authority are from the Coordinators and any Deputy(s) to the Conveners.

The organisation of each Coordination Area and its operational procedures, as well as strategic and otherwise important decisions must be brought to the Management Board for endorsement and to the Collaboration Board for approval. The organisation and operational procedure as well as the minutes of important meetings must be posted on the web and be available to all members of CMS. In the case that procedures need prompt but significant adjustment the Management and Collaboration Boards must be informed, and their approval sought at their next meetings.

### **7.2 Physics Coordination**

The responsibility of the Physics Coordinators is to coordinate the timely extraction of publishable physics results. Physics topics should be covered without unnecessary duplication, and priorities assigned where needed. The Physics Coordinators achieve these goals through Physics Coordination which meets regularly and often.

Physics Coordination consists of the Physics Coordinators and any Deputies, and the Conveners of the Physics Groups. The Collaboration Board Chairperson, the Spokesperson, the Deputy Spokesperson(s), the Chairperson of the Publications Committee and the Offline and Computing Coordinators are ex-officio members.

The Conveners coordinate the work in the Physics Groups and have primary responsibility for the results arising from their respective groups. They are responsible for ensuring that the documentation required for approval is made available in an appropriate form and be of a

suitably high quality to enable approval to proceed. The present Physics Groups may be found at: <https://cms.web.cern.ch/org/physics>

The Physics Coordinators will bring all matters of substance concerning physics to the Collaboration Board, for information or, if a decision is needed, for approval. Such matters should previously have been discussed in a Physics Coordination meeting and presented at a Plenary Session of CMS, either in a CMS Week or at a Weekly General Meeting.

In exceptional circumstances where prompt action is needed prior to major public announcements on physics results, a special meeting of the Collaboration Board may be called to approve a course of action more quickly than the normal minimum two weeks (Art 1.3.3), or if necessary and with the agreement of the Collaboration Board Chair, the Board may be asked to agree by email; however the full Collaboration must be also informed.

### **7.3 Offline and Computing, Physics Performance and Dataset Coordination**

The Offline and Computing and Physics Performance and Dataset Coordinators are responsible for the full scope of software in CMS, including data quality monitoring, analysis tools, core software, workflow, simulation for Physics and Upgrades, reconstruction, calibration, alignment and database operation.

The Offline and Computing Coordinators are responsible for the full scope of computing in CMS, including data operations, facilities operations, computing commissioning, computing sites, user support and grid operation.

Details for Offline and Computing and Physics Performance and Dataset Coordination are available here:

<https://cms.web.cern.ch/org/offline>

<https://cms.web.cern.ch/org/computing>

<https://cms.web.cern.ch/org/physics-performance-and-dataset>

### **7.4 Run Coordination, Trigger-HLT Coordination**

The Run Coordinators are responsible for the full scope of operations needed for the successful running of CMS. Strong cooperation with the Technical, Offline and Computing and Trigger Coordinators is required. Common areas of work occur in calibration and alignment, online database and trigger performance. Run is also responsible for monitoring aspects of data analysis coordination and the interaction with commissioning efforts in the Tracking, ECAL, HCAL and Muon Detector Systems.

The Trigger-HLT Coordinators are responsible for the full scope of work needed for optimized High Level triggering of the CMS experiment. Strong Cooperation with the Run Coordinators and the L1-Trigger and Data Acquisition System Managers is required. The Trigger-HLT Coordinators are responsible for providing an operational trigger “menu”, proposed by Physics Coordination, which is implemented for each LHC running condition and for the emulation of and monitoring of the triggers used.

Details for both Run and Trigger-HLT Coordination are available here:

<https://cms.web.cern.ch/org/run-coordination>

<https://cms.web.cern.ch/org/trigger-coordination>

## 8. Upgrades Coordination

The purpose of the Upgrades Coordination is to oversee and plan the phase 2 improvements to be made to CMS to maintain and extend the physics potential of the detector at the High Luminosity LHC.

The work is led by the Upgrades Coordinator and two Deputy Coordinators, who are appointed for terms of two years renewable, with a limit of three mandates or up to the delivery of the Phase 2 TDRs. The Coordinator is nominated (also for a possible renewal) by the Spokesperson in consultation with the Search Committee, endorsed by the Management Board and approved by the Collaboration Board. The Deputy Coordinators are nominated by the Spokesperson in consultation with the Coordinator with whom their terms coincide, and must be endorsed by the Management Board and approved by the Collaboration Board. The Coordinator and both Deputies are members of the Management and Executive Boards. The Coordinator reports to the Spokesperson.

The organisation of the Upgrades and its operational procedures, including the calendar and agendas of important meetings are posted on the web. They are proposed jointly by the Spokesperson and the Upgrades Coordinator, and must be endorsed by the Management Board and approved by the Collaboration Board.

A Project Office may be set up to assist the Coordinator. Its membership must be endorsed by the Management Board and approved by the Collaboration Board.

The guiding principles for the management of the Upgrades are:

- The Upgrades should be managed in a similar way to the construction of CMS, with the work for the individual sub-detectors carried out by the responsible Detector System.
- The CMS Collaboration, Management and Finance Boards of CMS, are, respectively, the Institution, Management, and Finance Boards of Upgrades.
- The resources needed for the Upgrades of CMS are managed by the corresponding System Managers and Coordinators. The use of Common Funds is supervised by the Finance Board in consultation with Technical Coordination.

Details for Upgrades Coordination are available here:  
<https://cms.web.cern.ch/org/Upgrades>

## **Annex 1: CMS Membership and Classifications**

Current and past membership of CMS is recorded in the CMS Database administered by the CMS Secretariat. It may be consulted via <http://cms.cern.ch/iCMS/>.

### **A1.1 Institute Representative and Deputies**

The Institute Representative is the person registered at the CERN Users' Office as the Team Leader. For qualifying institutes (see Article 2.2) this person is a member of the CMS Collaboration Board.

An institute may nominate one or two Deputy Team Leaders at the CERN Users' Office. However, in the case that two Deputy Team Leaders are nominated, only the first named is taken as the Deputy to the Institute Representative within CMS.

All Institute Representatives, whether or not qualifying for Collaboration Board membership, receive all mails sent to the Collaboration Board. The Deputy(-ies) also receives these mails.

### **A1.2 Individuals in CMS**

Individuals in CMS must be members of, or formally attached to, a CMS member Institute, under which they are listed in the Database. For persons with joint appointments at more than one Institute, and for persons on temporary leave at another CMS Institute, the Institutes must decide themselves under which the person is listed.

Individuals are entered into the CMS Database in one of the following classifications:

- Physicist
- Engineer
  - Engineer Electronics
  - Engineer Mechanical
  - Engineer Software
- Doctoral Student
- Non-doctoral Student
- Technician
- Administrative Personnel

Membership of an individual in CMS is taken to start on the date when the person is registered with the CMS Secretariat, or, for the longest serving members, at the date of the first official CMS publication signed by that person (eg Letter of Intent or Technical Proposal). This date is registered in the CMS Database and is generally that used to define the length of membership when applying the Authorship rules.

All members of CMS must comply with the rules of CMS, in particular those defined in the CMS Constitution and those on safety, and their behaviour should conform to the CMS and CERN codes of conduct and guidelines including rules for publications posted at:

<https://cms.web.cern.ch/org/cms-constitution-rules-and-guidelines> and at <http://hr-dep.web.cern.ch/document/cern-code-conduct>

It is the responsibility of the Team Leader of the Institute under which the person is listed to ensure this. See also Annex A3.2.



### **A1.3 CMS Emeritus**

Retired persons who work on CMS may be classified as CMS Emeritus, and may sign papers without incurring the obligations for M&O and Experimental Physics Responsibilities referred to in Annex 6. Emeritus status must be confirmed annually by the Institute Representative, who must accompany the confirmation by the agreement of the relevant Detector System Manager or Coordinator, or by the Spokesperson that the person is active in CMS. Final approval is by the Collaboration Board Chair. Persons with Emeritus status may not have a formal relationship with another LHC experiment.

### **A1.4 CMS Extended**

Retired persons who wish to remain informed about progress in CMS, or need to have access to internal CMS information, may, with the agreement of the Team Leader, be classified as CMS Extended. This status does not prolong the person's authorship rights beyond those specified in Annex A6.5. Persons with Extended status must comply with the rules and guidelines for CMS members, in particular those on confidentiality, and may not have a formal relationship with another LHC experiment.

### **A1.5 CMS Affiliates**

A CMS Affiliate is a person who contributes to some aspect of CMS, for example a theorist. They are on the CMS mailing list and may be added to the author list of a paper to which they have made a significant contribution, with the agreement of the Authorship Board. An Affiliate must be formally affiliated to a CMS member Institution. The team leader from that Institution will have responsibility for ensuring that all CMS rules are observed by the Affiliate and in particular that the ability to gain access to CMS data is not abused. Affiliates may not have a similar relationship with another major LHC experiment.

Being a CMS Affiliate does not automatically grant the right to sign a CMS paper nor is it a requirement for a non-CMS member to sign a paper to which they have significantly contributed (Annex 6).

## Annex 2: Election Rules

### A2.1 Elections / Nominations – Terms

#### Collaboration Board

Position	Elected by	Nominated by	Regular Term	Next Term Starts
Chairperson of Collaboration Board	Collaboration Board		2 years	1/9/2017
Deputy Chairperson of Collaboration Board		Chairperson of Collaboration Board <sup>(1)</sup>	2 years	1/9/2017
Secretary of Collaboration Board		Chairperson of Collaboration Board <sup>(1)</sup>	2 years	1/9/2017
Chairperson of the Conference Committee	Collaboration Board		2 years	1/9/2016
Chairperson of the Authorship Committee	Collaboration Board		2 years	1/9/2017
Chairperson of the Publications Committee		Spokesperson <sup>(2)</sup>	2 years	1/9/2017
Thesis Award Committee		Chairperson of Collaboration Board <sup>(3)</sup>	2 years	1/9/2016
Industrial Awards Committee		Chairperson of Collaboration Board <sup>(4)</sup>		
Head of the Communications Group		Spokesperson <sup>(5)</sup>	2 years	1/9/2016
Data Preservation and Open Access Coordinator		Chairperson of Collaboration Board <sup>(4)</sup>	2 years	1/9/2016
International Committee		Chairperson of Collaboration Board <sup>(6)</sup>	2 years	1/9/2016
Career Committee		Chairperson of Collaboration Board <sup>(3)</sup>	2 years	1/9/2016
Schools Committee		Chairperson of Collaboration Board <sup>(3)</sup>	2 years	1/9/2017

- 1 Proposed by the Chairperson-elect of the Collaboration Board and approved by the Collaboration Board. (Art. 2.4)
- 2 Proposed by the Spokesperson, or the Spokesperson-elect in the case that the start of the terms coincide, in agreement with the Chairperson of the Collaboration Board, endorsed by the Management Board and approved by the Collaboration Board. (Art. 2.6.2)
- 3 Proposed by the Collaboration Board Chair and approved by the Collaboration Board. (Arts. 2.6.4, 2.6.10, 2.6.11)
- 4 Proposed by the Collaboration Board Chair in consultation with the Spokesperson and approved by the Collaboration Board. (Arts. 2.6.5, 2.6.9)

- 5 Proposed by the Spokesperson in consultation with the Collaboration Board Chair and approved by the Collaboration Board. (Art. 2.6.7)
- 6 Proposed by the Collaboration Board Chair in agreement with the Spokesperson and approved by the Collaboration Board. (Art. 2.6.8)

## Management Board and Managerial Positions

Position	Elected by	Nominated by	Regular Term	Next Term Starts
Spokesperson	Collaboration Board <sup>(1)</sup>		2 years	1/9/2016
Deputy Spokesperson(s)		Spokesperson <sup>(0,2)</sup>	2 years	1/9/2016
CMS Resources Manager		Spokesperson <sup>(0,3)</sup>	2 years	1/9/2016
CMS Deputy Resources Manager		Resources Manager <sup>(0,4)</sup>	2 years	1/9/2016
CMS Technical Coordinator		Spokesperson <sup>(0,3)</sup>	2 years	1/9/2016
CMS Deputy Technical Coordinator		Technical Coordinator <sup>(0,5)</sup>	2 years	1/9/2016
LEXGLIMOS		Technical Coordinator <sup>(0,6)</sup>	2 years	1/9/2016
Electronics Coordinator		Spokesperson <sup>(0,7)</sup>	2 years	1/9/2016
Management Board Secretary		Spokesperson <sup>(0,8)</sup>	2 years	1/9/2016
Other CMS-wide Coordinators		Spokesperson <sup>(0,9)</sup>	2 years	1/9/2016 and 1/9/2017
Deputy Upgrades Coordinators		Spokesperson <sup>(0,10)</sup>	2 years	1/9/2017
Other Deputy CMS-wide Coordinators		Coordinators <sup>(11)</sup>	2 years	1/9/2016 and 1/9/2017
Conveners in CMS-wide Coordination Areas		Coordinators <sup>(12)</sup>	2 years <sup>(10)</sup>	1/9/2016 and 1/9/2017
Other Executive Board Members		Spokesperson <sup>(0,2)</sup>		1/9/2016
Regional Representatives	Region <sup>(13)</sup>		2 years (suggested)	
System Managers		Spokesperson <sup>(14)</sup>	2 years	1/9/2016 or 1/9/2017
Deputy System Managers		System Manager <sup>(15)</sup>	2 years	1/9/2016 or 1/9/2017

- 0 If the start of a term coincides with that of a Spokesperson-elect, it is the Spokesperson-elect who makes or agrees to the nomination.
- 1 Consultation with the CERN Directorate is part of the procedure for appointing the Spokesperson. (Art. 3.2)
- 2 Proposed by the Spokesperson in consultation with the Search Committee, endorsed by the Management Board and approved by the Collaboration Board. (Art. 3.2)
- 3 Proposed by the Spokesperson in consultation with CERN to be endorsed by the Management Board and approved by the Collaboration Board. (Art. 3.2)
- 4 The CMS Resources Manager may appoint a Deputy if necessary. This will be done in agreement with the Spokesperson, to be endorsed by the Management Board and approved by the Collaboration Board. (Art. 3.2)
- 5 Proposed by the Technical Coordinator in agreement with the Spokesperson, to be

- endorsed by the Management Board and approved by the Collaboration Board. (Art. 3.2)
- 6 Appointed by the Technical Coordinator in consultation with the Spokesperson, the PH Department Head and the Head of the CERN Safety Unit, to be endorsed by the Management Board and approved by the Collaboration Board. (Arts. 3.2, 6.4)
  - 7 Proposed by the Spokesperson in consultation with the Technical Coordinator, endorsed by the Management Board and approved by the Collaboration Board. (Arts. 3.2, 6.3)
  - 8 Proposed by the Spokesperson and approved by the Management Board. (Art. 3.2)
  - 9 The other CMS-wide (co-)Coordinators (Run, Trigger-HLT, Offline and Computing, Physics, PPD and Upgrades) are appointed by the Spokesperson in consultation with the continuing co-Coordinator if any and with the Search Committee, to be endorsed by the Management Board and approved by the Collaboration Board. The Coordinator whose term is ending should normally be consulted. (Art. 3.2)
  - 10 Proposed by the Spokesperson in consultation with the Coordinator with whose term the Deputy's coincides, to be endorsed by the Management Board and approved by the Collaboration Board. (Art. 3.2, Art 8)
  - 11 Proposed by the co-Coordinators in consultation with the Spokesperson and the Search Committee, to be endorsed by the Management Board and approved by the Collaboration Board. In the case that a Deputy's term starts at the same time as a new co-Coordinator, it is the new co-Coordinator together with any continuing co-Coordinator who jointly make the proposal. (Art. 3.2)
  - 12 Nominated by the current co-Coordinators after seeking wide input from the relevant communities, the Search Committee and the current Conveners and in agreement with the Spokesperson. The Management Board endorses and the Collaboration Board approves the nominations. Spokesperson and co-Coordinator refer to the incumbents. Where there are two Conveners, their terms start in alternate years. (Arts. 2.8, 7.1)
  - 13 "Regional" Representatives are reviewed on a regular basis (suggestion: every two years) by the institutes within a given Region (Art. 3.2, Annex 8).
  - 14 System Managers are nominated by the Spokesperson in consultation with the appropriate Institution Board towards the end of the current term, to be endorsed by the Management Board and approved by the Collaboration Board. (Art. 3.2)
  - 15 Proposed by the System Managers in consultation with the Spokesperson, to be endorsed by the Management Board and approved by the respective Institution Board. (Art. 3.2)

## Detector System Positions (see Annex 9)

Position	Elected by	Nominated by	Regular Term	Next Term Starts
Chairpersons of Institution Boards	Institutes in System		2 years	
System Resource Managers		System Manager <sup>(1)</sup>	2 years	
System Technical Coordinators		System Manager <sup>(2)</sup>	2 years	
Detector Field Coordinators		System Manager <sup>(2)</sup>	2 years	
Data Performance Group Conveners		System Manager <sup>(3)</sup>	2 years	
System Run Coordinators		System Manager <sup>(3)</sup>	2 years	
System Upgrades Coordinators		System Manager <sup>(4)</sup>	2 years	
System Safety Link Person		System Manager <sup>(5)</sup>		

- 1 Appointed by the System Manager in agreement with the CMS Resource Manager, to be approved by the Institution Board. (Art. 5.3.3, Annex 9)
- 2 Appointed by the System Manager in agreement with the CMS Technical Coordinator, to be endorsed by the respective Institution and the CMS Management Board. (Art. 6.5, Annex 9)
- 3 Nominated by the System Manager, in consultation with the CMS Run Coordinators, to be endorsed by the respective Institution Board and approved by the CMS Management Board. (Annex 9)
- 4 Nominated by the System Manager, in consultation with the CMS Upgrades Coordinator(s) and Spokesperson, and endorsed by the respective Institution Board and approved by the CMS Management Board. (Annex 9)
- 5 Appointed by the System Manager in agreement with the CMS Technical Coordinator, to be approved by the respective Institution Board. (Art. 6.4, Annex 9)

## A2.2 General Conditions

The renewal of a position - either elected or nominated - at the end of the term of office is allowed unless explicitly forbidden.

All regular votes, except for those for the election of the Spokesperson and the Chairperson of the Collaboration Board, shall be held about three months before the start of term.

The responsibility for the performance of the System Managers lies primarily with the Spokesperson and the respective Institution Board. If shortcomings are found, either the Institution Board may recommend to the Spokesperson that a change be made, or the Spokesperson after consultation with the members of the Institution Board, may propose that a change be made. A decision of the Spokesperson for a change will be explained in a meeting of the Institution Board and reported to the CMS Management and Collaboration Boards.

The responsibility for monitoring the performance of the Coordinators lies primarily with the Spokesperson and the Collaboration Board. If shortcomings are found, either the Collaboration Board may recommend to the Spokesperson that a change be made, or the Spokesperson after consultation with the members of the Collaboration Board, may propose that a change be made. A decision of the Spokesperson for a change will be reported to the Management and Collaboration Boards.

Similarly, the Collaboration Board and Management Board are responsible for monitoring the actions of the Spokesperson and Collaboration Board Chairperson. Should problems arise concerning the Spokesperson, the recommendation for change should be made to the Chairperson of the Collaboration Board. Should problems arise concerning the Collaboration Board Chairperson the recommendation for change should be made to the Spokesperson. The decision whether or not to hold a vote on such an issue will be taken by the Chairperson of the Collaboration Board, or if the issue concerns the Chairperson of the Collaboration Board, by the Spokesperson. Should a vote be held adequate notice must be given. A decision for change will require a two-thirds majority of votes cast by the Collaboration Board. A quorum of the Collaboration Board of at least one half of the voting Institutions is required for the vote. In case a quorum is not reached the proposals are tabled at a later meeting of the Collaboration Board held during a CMS Week. The meeting and foreseen vote will be announced well in advance.

## **A2.3 General procedures for elections and votes by ballot of the Collaboration Board**

Each member of the Collaboration Board representing an Institution or group of Institutions has one vote, to cast on behalf of their Institution(s).

A vote may only be cast on behalf of an Institution after it has been a member of CMS for one year.

The ballot is secret.

- In case of absence, a member of the Collaboration Board may nominate a delegate who may vote on behalf of the Institution(s). The delegate must be a member of the CMS Collaboration, but could come from an Institution different to that of the usual representative. A delegate may not represent more than one absent Institution Representative nor be a voting member of the Collaboration Board; a delegate may therefore cast no more than one vote. The Secretary of the Collaboration Board, or where applicable the Election Committee, must be informed in advance about the delegation of the vote, normally through the web-based vote delegation system provided, or in writing.
- The rules on how delegations are made may be relaxed at the discretion of the Collaboration Board Chair, for example for votes on admissions of new members of CMS, or for the venue of a CMS Week away from CERN, or for the election of a Standing Committee Chair, but not for the election of the Spokesperson or Collaboration Board Chair; however, the rules that a delegate must be a member of CMS and may cast only one vote must always be followed.
- The member or delegate casting the vote should be present during the discussions immediately preceding the vote, and during the explanation of the detailed voting procedures given at the time of the vote.

Voting by mail, fax, e-mail or other means will not be accepted.

A vote is generally won by a simple majority of the votes cast (i.e. the person or proposal receiving the most votes), except in the cases of the elections of the Spokesperson and the Chairperson of the Collaboration Board (see Annex A2.4). In the case of a tied vote, the Chairperson shall define an appropriate procedure to resolve it. However, for important matters, the Collaboration Board may decide before a vote that over 50% of the votes cast may be required to achieve a result, according to the procedures described in Annex A2.4.

Blank and spoiled voting slips count as cast votes. A valid voting slip contains a mark in one and only one of the boxes on the paper for recording the vote, and has no other mark or comment on the paper.



## **A2.4 Procedures for Election of the CMS Spokesperson, and the Chairperson of the CMS Collaboration Board**

The election is carried out within the general procedures described in Annex A2.3.

- All members of the CMS Collaboration are eligible to stand for election to the position.
- The organisation and management of the elections will be carried out by an Election Committee. In preparing the election, the Committee shall invite nominations from all CMS institutes, consider these nominations and prepare a list of candidates for election to the Collaboration Board. Any member of CMS may propose a nomination to their Institution Representative, but the nomination can only be made by the Institution Representative.

Proposals for significant changes to the organization of the election may only be made under exceptional circumstances and must be made before the call for nominations of candidates has been opened and must be agreed by the Collaboration Board. No significant modifications may be made after that date.

For the election of the Spokesperson, the Chairperson of the Collaboration Board will be a member of the Election Committee. For the election of the Chairperson of the Collaboration Board, the Spokesperson will be a member of the Election Committee.

Each Regional Representative in the Management Board shall nominate one representative of their region for the Election Committee. Members of the Election Committee must be members of the CMS Collaboration. The nominations for the Election Committee are to be approved by the Collaboration Board.

In the case that the term of a member expires during the election procedure, normally the person is then replaced by the elected successor.

The CMS Resources Manager is responsible for organizing the establishment of the Election Committee, and acts as its Secretary. The Committee members designate one member of the Committee as Chairperson.

- All regular elections should be announced to the Collaboration Board about five months before the election and in all cases at least six weeks in advance of the election.
- The regular votes shall be held on the Wednesday of a CMS Week at CERN at a special Collaboration Board Meeting, normally at least six months before the regular term expires.
- The candidates may be invited to present themselves to either the whole Collaboration or to the Collaboration Board on the previous day. Otherwise, the candidates will present themselves to the Collaboration Board at the special election meeting just before the voting takes place.
- The candidate who has received at least 50% of all cast votes is elected. If no candidate receives this majority, the two candidates with the largest number of votes will participate in a runoff election, which will take place on the same day.
- In the case that there is a tie for the second place, the Collaboration Board will hold a

second vote to determine which of the two tied candidates will go forward to the runoff election. If this second vote is also tied, the tie will be resolved randomly (e.g. by tossing a coin).

- In the case when there are only two candidates in the first round, or in the runoff, if there is a tie, the Election Committee will decide who should be elected, or propose a procedure to break the tie, in a timely manner.
- In the case when there are only two candidates in the first round, or in the runoff, the requirement that the winning candidate receives at least 50% of the votes is dropped. However, if blank and spoiled ballots exceed 20% of the votes cast the matter must be referred to the Election Committee who may recommend to the Collaboration Board that a new election be organized.

If there is only one candidate who accepts nomination, the election will proceed and the choice offered will be to vote for or against the one single candidate. The candidate will be declared elected if the 'Yes' votes amount to at least 50% of the votes cast. (It should be noted that in this situation, namely where there is only one candidate on the ballot sheet, an abstention counts as a 'No' vote.) If there is a single candidate who fails to receive at least 50% of the votes cast, or if there is no candidate willing to stand, a new election will be scheduled for the following Collaboration Board meeting.

In exceptional cases, the Chairperson or Secretary of the most recent Election Committee may ask the Collaboration Board to fix the date for a non-regular election and agree to the schedule. Also these non-regular elections must be held at Collaboration Board meetings and in all cases must be announced at least six weeks in advance.

The Spokesperson-elect will nominate a Deputy Spokesperson(s) at least two weeks before the Management Board meeting which precedes the next regular meeting of the Collaboration Board after the week in which the election is held. The nomination will be in consultation with the Search Committee and must be endorsed by the Management Board and approved by the Collaboration Board.

The Chairperson of the Collaboration Board will nominate a Deputy at least two weeks before the Management Board meeting which precedes the next regular meeting of the Collaboration Board after the week in which the election is held. The nomination will be in consultation with the Search Committee. The Management Board will take note and the nomination will be approved by the Collaboration Board.

During the period between the election and the start of the term the Spokesperson-elect and the Chairperson-elect of the Collaboration Board have the right to attend all CMS Board, Committee and Coordination meetings.

### **Suggested timetable for election of the Spokesperson and Collaboration Board Chairperson**

At a Management Board meeting before a Collaboration Board meeting which is held about five months before the election:

- The Management Board proposes the date and time of the election. The Regional Representatives are requested to nominate a CMS member to represent their region on the Election Committee. Nominations are made to the Secretary of the Election Committee, the CMS Resources Manager.

- The Collaboration Board is promptly informed by mail that an election is being prepared and is asked to agree to the date and time. In the case that objections are raised a special meeting of the Collaboration Board may be scheduled to resolve the issue. Two weeks' notice of this meeting is required.

By four months before the election:

- The Secretary of the Election Committee informs the Management Board of the proposed membership of the Election Committee.
- The Management Board agrees to the membership of the Election Committee and recommends it to the Collaboration Board.
- The Election Committee provisionally elects a Chairperson who organizes its business.
- The Collaboration Board approves the membership of the Election Committee.
- The Election Committee invites all members of CMS to nominate candidates via their Institute Representative on the Collaboration Board.

Three months before the election:

- The Election Committee has the list of nominated candidates. These are then asked about their willingness to stand, and in the case of the election of the Spokesperson, CERN's agreement to the candidates must be secured.

Two months before the election:

- The Chairperson of the Election Committee reports by mail to the Management and Collaboration Boards, presenting the list of candidates who have agreed to stand. Candidates are invited to make written statements.

One month before the election:

- The Chairperson of the Election Committee mails information on the candidates to the whole Collaboration.

Tuesday of the CMS Week in which the election is held:

- The candidates are invited to make statements and are available for discussion. This may be in a Special Collaboration Board meeting or at a meeting open to all members of CMS.

Wednesday of the CMS Week:

- The election, organised by the Chairperson of the Election Committee, is carried out.

## **A2.5 Procedures for Election of Chairpersons of Standing Committees of the CMS Collaboration Board**

There are Standing Committees of the Collaboration Board whose Chairpersons are elected by the Collaboration Board. Nominations for these elections may be made by any member of CMS through their Institute Representative on the Collaboration Board. The announcement of these elections and the call for nominations will normally be made at the previous regular meeting of the Collaboration Board and in all cases at least six weeks before the election, with a dead-line for submission of two weeks before the election.

The procedures for these elections are the same as those for the election of the Spokesperson and the Collaboration Board Chairperson except that:

- The suggested timetable given in Annex A2.4 does not apply.
- The election is normally held during a normal Collaboration Board meeting, about three months before the start of the term.
- The election will be overseen by an Election Committee. The Collaboration Board Chairperson, the Collaboration Board Deputy Chairperson, the Spokesperson, and the outgoing Committee Chairperson, if not a candidate, will serve on the Election Committee and can appoint additional members. The Election Committee membership must be approved by the Collaboration Board.
- The Collaboration Board Chairperson verifies the willingness of candidates to stand.
- The notice of delegation of a vote should follow the procedure for normal Collaboration Board meetings.
- In the case where there is only one or two candidates, and also in a runoff vote with only two candidates, the requirement to receive more than 50% of the vote to be elected is not applied. However, if abstentions and spoiled ballots exceed 20% of the votes cast, the result is void and a new election must be held at the next Collaboration Board meeting
- In the case of a tie, either for second place, or in the run-off election, or when there are only two candidates, the tie will be resolved randomly (e.g. by tossing a coin).

In the case that a large number of persons are nominated and express their willingness to stand, the Election Committee may undertake to reduce the number of candidates based on the number of nominations received from different Institutions. However any candidate with five or more nominations from different Institutions would normally take part in the election.

## **Annex 3: Participation in the Collaboration**

### **A3.1 Procedure for Considering New Collaborators**

- A group wishing to join CMS should contact the Spokesperson expressing its interest. (A 'group' is understood to be a unit from an academic / research institute or a formal collaboration of such units.)
- The Spokesperson will bring the matter to the attention of the Management Board, and in particular will invite comments from the System Managers and the Coordinators on how the prospective collaborators might be integrated into the experiment and will consult the appropriate Regional Representative. The Regional Representative reports to the Management Board the views of institutes who have associations with the applicant and / or are supported by the same funding agency.
- If sufficient interest is expressed by the Management Board, a letter (see Annex 4) will be sent to the applicant by the Resources Manager, requesting information concerning the financial viability of the group.
- If the Management Board judges the reply to be satisfactory, the group will be invited to make a short presentation at a future Collaboration Board meeting, giving information on the composition and experience of the group, its proposed contribution to the experiment and its other commitments.
- After the presentation, the Collaboration Board will have a first discussion, and any questions raised will be passed on to the applicant for clarification.
- A delegation from CMS including the Collaboration Board Chairperson, the Spokesperson and the Resources Manager will meet the applicants and the appropriate Funding Agency Linkperson and discuss the terms of entry.
- ⊖ The application will be considered further at a regular Collaboration Board meeting in a later CMS Week (normally the following one if all questions have been satisfactorily addressed in time) and a final decision will be made by secret ballot of those present who are qualified to vote.
- The Spokesperson will communicate in writing the outcome to the applicant. If accepted, a new group must affiliate with a Detector System or Coordination Area.
- If the Management Board does not express a positive opinion after the second or fourth bullet above, the matter will nevertheless be put before the next Collaboration Board. If the Collaboration Board supports the Management Board's view, the Spokesperson will be instructed to write a letter of rejection to the applicant. If the Collaboration Board disagrees with the Management Board and wishes to pursue the application further, the Spokesperson will be instructed to inform the group of the situation, invite them to make a presentation to the Collaboration Board addressing the points listed in the letter of Annex 4 and paying particular attention to any issues which have given rise to concern.

### **A3.2 Security of Membership in the Collaboration**

- Circumstances may arise that lead to the consideration of expulsion of an institute. However, no institute may be expelled from the Collaboration unless this action is approved by the Collaboration Board. Such an approval would require a two thirds majority of votes cast, following a full discussion at a Collaboration Board meeting. A quorum of the Collaboration Board of at least one third of the eligible institutes is required for the vote. In case a quorum is not reached the proposals are tabled at a later meeting of the Collaboration Board held at a CMS Week. The meeting will be announced well in advance.
- Participation of individuals in CMS is at the discretion of the institute to which they are accredited. Should an individual be guilty of a serious violation of the rules of CMS, the Spokesperson shall bring the matter to the attention of the relevant group leader, who will be expected to take appropriate action. If the problem is not quickly resolved, the Spokesperson shall bring the matter to the Collaboration Board who will decide on further action.
- Should it come to the attention of the Collaboration Board Chairperson that an institute appears to be inactive, the Collaboration Board Chairperson will attempt to contact the institute. The matter may then be raised with the appropriate Management Board Regional Representative and the Resources Manager to suggest a course of action.

### **A3.3 Associated Institutes**

- The status of Associated Institute provides a means of formally recognizing a group supplying specialist expertise in computing or engineering, but not normally interested in participating in the physics analysis of CMS.
- Such an Institute appears in all listings of the Collaboration membership, with a flag referring to an appropriate explanatory footnote. The Institute has observer (non-voting) membership of the Collaboration Board and is not normally expected to contribute to the M&O costs of the experiment. Contributions to the Experimental Physics Responsibilities required to run the experiment or analyse the data are encouraged but not required.
- Associated Institutes and all their members are required to comply with the same rules concerning confidentiality of internal CMS information and use of data as full members of CMS.
- The mechanism for considering an application for Associated status is the same as that for considering applications for full membership. A version of the letter of Annex 4 will be sent asking for assurance only that they will cover any travel and subsistence expenses of their personnel.
- Members of a group from an Associated Institute will not normally be included as authors of CMS physics publications, but they may exceptionally be included on papers to which they have contributed. They may appear as authors of CMS related technical papers to which they have contributed.

- An Associated Institute with participating physicists, for example a Tier 1 Institution, may be interested in participating in the physics analysis of CMS, with some members becoming regular authors of physics papers. In this circumstance the institute must fulfil its consequent obligations to the M&O costs and Experimental Physics Responsibilities in the experiment.
- The status of all Associated Institutes will be reviewed periodically by the Collaboration Board, which may decide that the association be terminated. This would normally be done in agreement with the Associated Institute.
- The reviews of Associated Institutes should take place every three years, with the next review foreseen to be at the end of 2017. However, the Collaboration Board may review the status of an Associated Institute at any time, should the circumstances under which the status was originally agreed undergo a significant change.

### A3.4 Cooperating Institutes

- The status of Cooperating Institute allows new Institutions intending to join CMS to gain experience, accessing the data and collaboration tools while ramping up to a full membership status.
- Such an Institute appears in all listings of the Collaboration membership, with a flag referring to an appropriate explanatory footnote. The Institute has observer (non-voting) membership of the Collaboration Board and is not normally expected to contribute to the M&O costs of the experiment. Contributions to the Experimental Physics Responsibilities required to run the experiment or analyse the data are encouraged but not required.
- Cooperating Institutes and all their members are required to comply with the same rules concerning confidentiality of internal CMS information and use of data as full members of CMS.
- The mechanism for considering an application for Cooperating Institute status is the same as that for considering applications for full membership. A version of the letter of Annex 4 will be sent to the applicants asking for assurance that they will cover any travel and subsistence expenses of their personnel as well as the necessary contributions in terms of computing resources and technical support.
- Members of a group from a Cooperating Institute will not normally be included as authors of CMS physics publications, but they may exceptionally be included on papers to which they have contributed. They may appear as authors of CMS related technical papers to which they have contributed. They will be listed as “Visitors from xxx” in the corresponding paper’s author list.
- The membership as Cooperating Institute will have a limited duration, with a maximum of 5 years. The status of all Cooperating Institutes will be reviewed annually by the Collaboration Board, which may decide that the association be terminated. The deadline to complete the full membership application will be discussed case by case. However, the Collaboration Board may review the status of a Cooperating Institute at any time, should

the circumstances under which the status was originally agreed undergo a significant change.



## **Annex 4: Letter to Prospective New Collaborators**

**Subject: Proposed participation of Institution in CMS Experiment**

Dear .....,

We are pleased to acknowledge the interest of your institute to participate in the CMS Collaboration. Your application will be discussed in the next meeting of the CMS Collaboration Board. The topics that usually arise in the discussion are listed below for which we are seeking clarification. Would your institute be able to:

- Make the appropriate contribution to the CMS Common Projects or other common items such as computing facilities and contribute, at the level agreed by the Resources Review Board (RRB), to their common maintenance and operation.
- Bear your appropriate share of other Maintenance and Operation expenses, including that for Core Software.
- Bear your appropriate share of the effort needed to install, commission and run the detector, including calibration and shift work.
- Pay for the travel and subsistence of your own personnel.

It is important to confirm that your institute will be able to meet these conditions in order to proceed. In addition it is expected that your institute would:

- Fund the construction or procurements for the completion of the high luminosity detector, or for possible upgrades, and for which you will accept responsibility and contribute to their maintenance and operation.
- Contribute to the cost of detector R&D, prototyping, calibration, installation commissioning and operation.

After your presentation in the meeting of the Collaboration Board we will have a discussion meeting between you and the Linkperson to your Funding Agency on one side and a delegation of CMS (the Spokesperson and the Chairpersons of the Finance Board and of the Collaboration Board) on the other side. A financial contribution as an entry fee will be required, and your group must be prepared to make a needed contribution to work for the operation, upgrade or maintenance of the detector. The aim is to reach a balance between what your group can realistically contribute to CMS and what the groups that have spent years building CMS can legitimately expect from you. The CMS delegation will report to the Collaboration Board before the final vote.

Yours sincerely,

CMS Resources Manager

cc. Chairperson of Collaboration Board  
Spokesperson

## **Annex 5: CMS Scientific Results and Publications**

Responsibility for producing and publishing physics results is delegated to the Physics Coordinators and the CMS Publications Committee respectively by the Spokesperson.

Opportunity to participate in all stages of the production and publication of CMS data results must be open to all members of the collaboration. It is the responsibility of the Spokesperson, Physics Coordinators and the Chairperson of the Publications Committee to ensure that this is so.

For physics results there are two complementary aspects in the approval procedure: the “physics approval” process, steered by the Physics Coordinators and Physics Coordination, and the “publication approval” process, steered by the Publications Committee. The two processes are linked via an Analysis Review Committee (ARC), which is appointed jointly by the Physics Coordinators and the Chairperson of the Publications Committee.

All material that involves the use of CMS raw data or CMS software, which is to be made available outside CMS, must be approved.

Publications using CMS data, by a limited list of authors from within CMS or elsewhere, may only be based on information already published by CMS.

Publications of technical documents limited to specific areas of CMS are overseen by the respective Detector System Editorial Boards, under the overall supervision of the CMS Publications Committee. Publications of technical documents covering wider areas or of the whole detector are overseen by the CMS Publications Committee.

Should a conflict arise involving authors, referee(s) or an Analysis Review Committee, the matter will be settled by the Publications Committee, and reported to the Collaboration Board.

In extraordinary cases it may be necessary for the Chairperson of the Collaboration Board and the CMS Spokesperson to inform the editors of a journal that a submitted paper is not endorsed by the CMS Collaboration. Following this, the Collaboration Board will be informed and decide on further actions to be taken.

### **A5.1 The CMS Publications Committee**

The role of the Publications Committee is to steer the approval and publication of CMS physics results, which have been approved by the Physics Coordinators for external presentation. The Committee also oversees the publications of the Detector Systems. It is also responsible for overseeing the approval and publication of technical and performance publications covering more than one Detector System.

The Publications Committee:

- Oversees the approval of the publication of physics results, with the assistance of the Analysis Review Committees (ARCS); if possible there is a member of the Publications Committee on each ARC.
- Acts proactively on the editorial quality defining standards (and tools) for detector description, formats, styles for the figures, symbols.
- Oversees the categorization of the CMS publications
- Ensures that CMS publications are appropriately distributed over journals.

All matters of substance concerning CMS publications must be brought to the Collaboration Board for information or approval.

The Publications Committee proposes detailed rules and guidelines for authors. These are published on a web page and must be approved by the Collaboration Board. Membership of and appointment to the Publications Committee is given in Article 2.6.2. The names of the current members are listed at:

<https://twiki.cern.ch/twiki/bin/viewauth/CMS/CMSPubComm>

## **A5.2 The Procedures for Approval and Publication**

The detailed procedures for approval and publication of CMS results are proposed by the Spokesperson, the Physics Coordinators and the Chairperson of the Publications Committee. These procedures will evolve as the conditions of analysis and research change within CMS and require that changes can be adopted expeditiously.

These procedures must be approved by the Collaboration Board, functioning as the Institution Board for Physics. It is the responsibility of the Spokesperson to present any proposed change of the procedures for approval to the Collaboration Board in a timely fashion.

The present set of procedures for approval and publications are found at:

<https://twiki.cern.ch/twiki/bin/viewauth/CMS/PhysicsApprovals>

<https://twiki.cern.ch/twiki/bin/view/CMS/Internal/Publications>

Publication policy:

<https://cms.web.cern.ch/org/cms-constitution-rules-and-guidelines>

Rules on publications by individual CMS members:

<https://cms.web.cern.ch/org/cms-constitution-rules-and-guidelines>

It is the joint responsibility of the Collaboration Board Chairperson, the Physics Coordinators and the Publications Committee Chairperson to ensure that the current procedures approved by the Collaboration Board can be found by all members of CMS at these sites.

## **Annex 6: Authorship of CMS Physics Papers**

The authors of CMS physics papers are the members of a CMS Institution listed as physicists or doctoral students in the CMS Database who have spent a significant fraction of their working time for CMS. Engineers are included as authors if the same conditions as those required for physicists to qualify for authorship are satisfied.

To qualify for authorship, a person must have been a member of CMS for at least one year since registration with the CMS Secretariat. In addition, the Institute must have covered the inclusion of that person in its obligations for M&O and Experimental Physics Responsibilities, specified in Annex A6.3.

For each paper, the relevant date on which a person must have been a member of CMS to qualify for authorship will be defined by the Publications Committee at the start of the preparation of that paper's author list.

In principle everyone who has contributed to the experiment has the right to sign CMS physics papers within the framework of the Constitution and in particular according to the rules of this Annex. Persons, including CMS Affiliates and non-CMS members, who would not normally be included as authors according to the rules of this Annex, may sign papers to which they have made a significant contribution. However, such persons may only be added exceptionally as authors to specific papers, for which a case has been made and agreed to by the Authorship Committee.

Individual authors may choose not to sign any particular paper by informing the Chairperson of the Authorship Committee.

Authorship of a paper of a primarily technical nature does not need to conform to the rules of this Annex.

Changes to the Authorship rules made since this version of the Constitution, as well as more detailed operational procedures, approved by the Collaboration Board, may be found at:

<https://cms.web.cern.ch/org/authorship-committee>

It is the responsibility of the Chairperson of the Authorship Committee to maintain the information found on this site.

### **A6.1 CMS Authorship Committee**

The Collaboration Board is ultimately responsible for defining CMS authorship. It appoints an Authorship Committee for two-year periods of office (appropriately staggered to maintain continuity). The Authorship Committee is a Standing Committee of the Collaboration Board to which its Chairperson reports regularly. The main task of the Authorship Committee is to harmonize and monitor the author list. To this end it oversees the application of these rules on authorship, decides whether requests for exceptions are justified, and proposes changes to these rules to the Collaboration Board for approval.

The Collaboration Board Chairperson, the Spokesperson, the Physics Coordinators, the Chairperson of the Publications Committee, the CMS Resources Manager and the CMS Secretariat are ex officio members of the Authorship Committee. The present composition of the Authorship Committee may be found here:

<https://cms.web.cern.ch/org/authorship-committee>

## **A6.2 Author List**

The list of authors for CMS publications is based on the membership information for each Institution contained in the CMS Database, which is maintained by the CMS Secretariat. This database also shows which members of CMS are currently entitled to be authors of CMS physics papers. The Team Leaders are responsible for ensuring that information in this database is up to date, and should send updates to the CMS Secretariat.

Authors are listed in alphabetical order under the Institution to which they belong. This Institution must be a member of CMS. An author may appear only once in the list. If a person is also affiliated to another Institution, it may be mentioned in a footnote as “Also at”. Upon request, an author who has moved to another Institution may have a footnote “Now at”. Institutions referred to in footnotes do not need to be members of CMS.

On papers published jointly by CMS and other experiments authors may be listed only once.

## **A6.3 Institutional Obligations**

An Institution has Experimental Physics Responsibilities physics responsibilities and financial obligations commensurate with the number of persons from that Institution who qualify to be authors. The obligations for Experimental Physics Responsibilities are defined in the Memorandum of Agreement document which is posted on the Web and which must be annually updated by the Spokesperson and approved by the Collaboration Board. There are particular requirements of new members of CMS.

The financial and Experimental Physics Responsibilities obligations of each Institution are determined for each calendar year, based on the membership of the Institution on a date shortly before the meeting of the RRB held the previous autumn.

Financial contributions must cover both the M&O Cat A and Cat B obligations as presented at the meeting of the RRB. Doctoral students do not count in the determination of the M&O obligations.

The contributions to the Experimental Physics Responsibilities shall cover the technical work, shifts etc. The obligation of each Institution is determined by the number of persons in that Institution eligible to sign all physics papers. The Team Leader of each Institution is responsible for distributing the Experimental Physics Responsibilities among the members of the team.

For persons with joint appointments at more than one Institution, the Institution under which the person is listed in the CMS Database is responsible for ensuring that the obligations for authorship are fulfilled, either by itself or by another Institution sharing the joint appointment.

For persons on temporary leave at another CMS Institution it is the responsibility of the home Institution to ensure that the M&O and obligations for Experimental Physics Responsibilities are fulfilled, either by the home Institution itself, or by obtaining explicit agreement that the host Institution will do so.

For persons such as CMS Affiliates and non-CMS members who have made significant contributions to specific papers to which they are exceptionally added as authors, the M&O and obligations for Experimental Physics Responsibilities do not need to be fulfilled.

## **A6.4 New Members and Persons Changing Status**

Qualifying new members of CMS who join the collaboration in a given year after the date defining the M&O contributions for the following year, are deemed to have their M&O contributions satisfied one year after they have joined CMS, provided they are to be included in their Institution's total for M&O for the next year.

Doctoral student members of CMS with the right to sign papers may continue to do so after receiving their PhD, without the requirement of M&O having been paid, if they continue to be a member of CMS. However, their change of status should be recorded promptly in the CMS Database, such that their M&O obligations apply from the earliest possible date.

Persons qualifying for authorship when they change from one CMS Institution to another, maintain their authorship rights. However their M&O and obligations for Experimental Physics Responsibilities must be fulfilled at the earliest possible date.

## **A6.5 Persons Leaving CMS or Retiring**

Authors who have been active in CMS for one year or more continue signing CMS papers for one year after leaving the Collaboration, unless the Institution's Team Leader objects. This right of continued signing also applies to deceased authors.

In addition, authors who retire or leave high energy physics can sign CMS physics papers for an additional period of four months for every year that they have been signing members of the Collaboration before the publication of the first physics paper (defined to be January 1st 2010), unless the Institution's Team Leader objects. This also applies to those with CMS Extended status. The additional period cannot exceed four years. Any additional period is terminated for authors who become authors of another major LHC experiment. The date of commencement in the Collaboration shall be determined from the date of arrival stated in the CMS Database. Authors falling in this category shall be exempted from the M&O and obligations for Experimental Physics Responsibilities.

CMS Emeritus members qualify as authors, but are exempted from the M&O and obligations for Experimental Physics Responsibilities providing they satisfy all the other conditions for authorship. Years as an Emeritus member shall neither be included in the determination of the additional periods mentioned above nor be counted against the continued and additional signing periods already accumulated.

## **A6.6 Persons Rejoining CMS**

Persons who were authors when they left CMS and who rejoin CMS within two years of leaving do not have to fulfil the requirements for new members for qualifying for authorship. If the rights to authorship have been retained at the time of re-registration, they are continued without break, provided the other conditions for authorship are fulfilled at the earliest possible date. In the case that the rights to authorship have lapsed, they resume when all the standard conditions for authorship for continuing CMS members have been met.

Persons who leave CMS for more than two years must re-register as new members on their return.

Persons who have extended rights to authorship as a result of signing membership of the Collaboration prior to January 1<sup>st</sup>, 2010, retain any balance of those rights which have not been used at the time of re-registering as a member of CMS, or of re-qualifying as author if that is

later.

### **A6.7 Members of CMS Who No Longer Qualify for Authorship**

Members of CMS who cease to be authors because they are no longer included in the number of persons in an institute for whom M&O is paid, may choose, with the agreement of the Team Leader, to continue to sign papers for a further period whose duration is defined in the same way as for a person leaving CMS, provided the obligations for Experimental Physics Responsibilities continue to be fulfilled. A person who chooses this option and subsequently requalifies for authorship, may not choose this option again in the four years after requalifying for authorship.

If the option is not exercised by a person within two years of ceasing to qualify as author, the option lapses.

A person who ceases to qualify for authorship and for whom the Experimental Physics Responsibilities obligations have not been fulfilled for a period of four years, must have the obligations for new members of CMS fulfilled before being reinstated as an author.

### **A6.8 Exceptions**

Any request for an exception to these rules must be made to the Chairperson of the Authorship Committee, and approved by the Team Leader responsible for the person for whom the exception is being requested. The request must be accompanied by a supporting statement from an appropriate senior member of CMS (Convener, Coordinator, System Manager or Spokesperson).

The Authorship Committee will decide upon all such requests. However, if an appeal is made or an issue of principle arises, it shall be brought to the Collaboration Board for decision.

All requests for exceptions, and whether they were granted, are to be reported by the Chairperson of the Authorship Committee to the Collaboration Board.

## **Annex 7: CMS Conference Committee**

### **A7.1 Role**

The CMS Conference Committee is responsible for promoting and organizing the representation of CMS at scientific fora. The Conference Committee shall actively pursue the goal of an equitable distribution of talks throughout the whole Collaboration and the participation of younger collaborators. The Committee will also act to promote and maintain a high standard of CMS presentations.

Scientific fora include international, selected national conferences, workshops, and symposia - all henceforth called “conferences”. Invited presentations at **major** laboratories shall be regarded as conference talks. A list of such venues can be found in a supplementary document posted on the Conference Committee web page, presently at:

<https://cms.web.cern.ch/org/conference-committee>

The scope of the Conference Committee includes:

- All conference talks proactively requested by the Conference Committee or by CMS Management
- All talks requested from the Conference Committee or from CMS management by the conference organizers
- All other conference talks where one of the major subjects includes the presentation of CMS results

### **A7.2 Members of the Conference Committee**

- Conference Committee Chairperson
- Appointed members
- Ex-officio Members
- Collaboration Board Chairperson or Deputy Collaboration Board Chairperson
- CMS Spokesperson or a Deputy Spokesperson
- Physics Coordinators
- Publications Committee Chairperson

The Chairperson of the Conference Committee is elected by the members of the Collaboration Board for a term of two years. The appointed members are nominated and approved by the Collaboration Board according to the procedure given in Article 2.6.1, for terms of two years.

In order to assure continuity, the terms of half the appointed members should be staggered by one year.

### **A7.3 General Rule**

- Members of CMS are eligible to speak on behalf of CMS if they satisfy the rules for CMS authorship, Annex 6. The Conference Committee may decide to make exceptions, and, if so, must report them to the Collaboration Board.
  - Any member of CMS can nominate a speaker.



- Only approved material can be included in CMS talks to non-CMS-exclusive audiences. For meetings that feature presentations of personal contributions to physics analyses by students specific rules apply, which can be found in a document linked via the web page of the Conference Committee, presently at: <https://cms.web.cern.ch/org/conference-committee>
- In general, and always for major presentations, open rehearsals should be made. For all talks, the slides must be submitted to the Conference Committee database a week before the talk is given. Approval is by Physics Coordination or the relevant Detector System Institution Board.

### **A7.4 Operation of the Committee**

The rules below set a framework within which detailed procedures of the CMS conference organisation are carried out. These procedures are in a document linked through the web page of the Conference Committee, presently at <https://cms.web.cern.ch/org/conference-committee>. Changes to these procedures are presented to the Collaboration Board for approval. It is the responsibility of the Chairperson of the Conference Committee to maintain the information found on this site.

### **A7.5 Communication with the organizer, identifying talks, nominations**

- The Conference Committee identifies conferences of interest.
- Initial contacts from conference organisers to any member of CMS concerning talks where one of the major subjects includes the presentation of CMS results should be handed over to the CMS Conference Committee Chairperson.
- For each conference, the Conference Committee typically assigns one of the appointed members to negotiate CMS presentations with the organizers and to coordinate the identification of the speakers.
  - For conferences where the scope is of a technical nature, a person designated by the corresponding Detector System community shall communicate with the organizers.
- All available talks are announced to the collaboration.

### **A7.6 Determining Candidate Speakers**

#### **A7.6.1 Presentations by CMS Members**

Speakers for presentations assigned to CMS are selected by the Conference Committee.

#### **A7.6.2 Invited talks**

When a CMS member is directly invited to give a talk falling within the scope of the Conference Committee, that is a talk where one of the major subjects includes the presentation of CMS results, the member must contact the Conference Committee without delay. On a case-by-case basis the Conference Committee will decide if the member can give the talk or if the member should suggest to the organizers the name of another CMS speaker chosen by the Conference

Committee.

Invited conference summaries and reviews of published results are not in the remit of the Conference Committee.

Invitations directly made to the Spokesperson and bearing on the role as Spokesperson should be left to the discretion of the Spokesperson. In all cases the Spokesperson shall inform the Conference Committee Chairperson of the invitation and may delegate an alternative speaker in consultation with the Conference Committee Chairperson. In all cases the Spokesperson shall inform the Conference Committee of the invitation and the name of the speaker. The talk shall be recorded as having been given by the speaker.

#### A7.6.3 Detector Systems

Speakers for talks on technical issues in a given Detector System shall be selected by the relevant responsible body of the Detector System. The Conference Committee is informed, and the talks and names of the speakers are recorded in the Conference Committee database.

Talks involving more than one Detector System are dealt by the Conference Committee.

### **A7.7 Posting**

The conference web page in the Conference Committee database (currently CINCO), accessible to all CMS members, will show all the available information including the names of speakers who have been officially assigned a talk. In addition, the title of that talk will be shown with a link to the abstract, the transparencies and write-up (wherever applicable). The publication of the proceedings follows the procedures specified for a Conference Report.

An electronic copy of the final version of all talks must be posted to the conference web page of the Conference Committee database.

Statistics showing the number of talks given by each person, institute and country will also be posted and periodically reported to the Collaboration Board.

### **A7.8 Decision Making, Reporting**

The Committee makes the decisions on speakers and talks. In case of disagreement the Collaboration Board Chairperson and the Spokesperson resolve the issue.

At CMS weeks, the Conference Committee meets and prepares a status report for the Collaboration Board, to which the Committee Chairperson reports.

## **Annex 8: Regional Representatives in the CMS Management Board**

At present, the following "Regions" are represented in the Management Board:

- CERN
- France
- Germany
- Italy
- Russia and Dubna Member States  
(at present: Russia plus Armenia, Belarus, Georgia, Ukraine and Uzbekistan)
- Switzerland
- United Kingdom
- U.S.A.
- Other CERN Member and Associated Member State Countries  
(at present: Austria, Belgium, Bulgaria, Finland, Greece, Hungary, Pakistan, Poland, Portugal, Serbia, Spain and Turkey)
- Other Non-CERN Member State Countries or Regions  
(at present: Brazil, China, Colombia, Croatia, Cyprus, Ecuador, Egypt, Estonia, India, Iran, Ireland, Korea, Lithuania, Malaysia, Mexico, New Zealand, Taiwan, and Thailand)

## **Annex 9: Detector System Organisations**

Detector Systems organise themselves appropriately according to their composition and functions.

Detector Systems are led by a System Manager supported by one or more Deputies (Article 3.2). Normally there is an Institution Board where participating Institutions are represented and which elects its own Chair; a Finance Board or equivalent body with a Resource Manager appointed by the System Manager in agreement with the CMS Resource Manager and the CMS Spokesperson (Article 5.3.3) and approved by the Institution Board; a person or persons coordinating technical matters appointed by the System Manager in agreement with the CMS Technical Coordinator and approved by the Institution Board and the CMS Management Board; a person or persons coordinating operations appointed by the System Manager in consultation with the CMS Run Coordinators and endorsed by the Institution Board and the CMS Management Board; and a person or persons coordinating studies and work for upgrades appointed by the System Manager in consultation with the CMS Upgrades Coordinator(s) and the Spokesperson, and approved by the Institution Board and the CMS Management Board.

Normally each Detector System will appoint two Detector Performance Group Conveners for terms of two years, staggered by one year. These are nominated by the System Manager in consultation with the CMS Run Coordinators, and must be approved by the Detector System Institution Board and the CMS Management Board.

There should be a safety link person (Art. 6.4) nominated by the System Manager in agreement with the CMS Technical Coordinator, and approved by the Institution Board.

In addition there should be a body responsible for editorial matters for Detector System material and acting as contact body to the CMS Publication Committee and other Detector Systems, and a body responsible for conference presentations for Detector System talks and posters, and interacting with the CMS Conference Committee and other Detector Systems as needed.

The internal organisation of each Detector System should be approved by its Institution Board and the CMS Management Board (Art 3.1) and will be posted on the web and be available to all members of CMS.