

Bylaws of the Virgo Collaboration

VIR-0456C-22

The Virgo Collaboration

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Preamble

This document establishes the fundamentals of how the Virgo Collaboration is structured and operates. It is the cornerstone of a broader collection of documents, constituting the Virgo statute, which together address all aspects of the Collaboration operation. This document refers to the other statute documents where relevant.

Section 1 defines the scope of the Collaboration. Section 2 defines the contents and modification procedure for the Virgo statute. Section 3 defines the rules for Collaboration membership. Section 4 defines how the Collaboration is governed. Section 5 describes the operational organization of the Collaboration. Finally, section 6 covers various aspects of the life of the Collaboration, including consequences to violating Collaboration rules (6.8).

1 Scope of the Collaboration

The goal of the Virgo Collaboration is to take observational data with the Virgo detector at the best possible sensitivity, and to produce scientific results of the highest quality from these data. This implies developing, commissioning, maintaining, operating, and upgrading the detector, analyzing and interpreting the data, as well as conducting the upstream research and development work necessary for the above. The Collaboration prepares publications and presents the results to the scientific community and for public dissemination. Part of this program is also accomplished with partners external to the Collaboration, as agreed in MoUs.

2 The Virgo statute

2.1 Definition

- 2.1.1. The purpose, organization and rules of the Virgo Collaboration, as well as its relationships with closely connected external bodies, are defined in a set of documents that together constitute the Virgo statute.
- 2.1.2. The statute chart is maintained in a dedicated record [1], with references to all the documents that constitute the statute. All statute documents are made accessible to all Collaboration members.
- 2.1.3. The statute is organized according to two levels.
 - 2.1.3.1. Level one: foundational documents
 - These include:
 - 2.1.3.1.1. The present bylaws
 - 2.1.3.1.2. The memorandum of agreement (MoA) with the EGO Consortium [2]
 - 2.1.3.1.3. The applicable memorandum of understanding (MoU) for the current Virgo upgrade [3]
 - 2.1.3.1.4. The MoU with the other collaborations of the gravitational wave detector network, and its attachments [4]
 - 2.1.3.2. Level two: operational documents
 - These include all other documents describing the functioning of the Collaboration or its relationship with loosely connected external bodies (other than partners in the gravitational wave detector network).

2.2 Procedure for modification

2.2.1. Level-one documents

2.2.1.1. Bylaws

2.2.1.1.1. Modification of the bylaws may be initiated through a proposal brought forward by either of:

2.2.1.1.1.1. The Virgo spokesperson (4.2)

2.2.1.1.1.2. A fraction of the Virgo steering committee (VSC, 4.1) representing at least 15% of all VSC members with voting rights

2.2.1.1.1.3. A fraction of Collaboration members representing at least 15% of all Collaboration members (§3.1.2)

2.2.1.1.2. The proposal is presented and discussed in a plenary meeting of the Collaboration (6.5), announced at least three weeks in advance. It may be amended by the proponents following this discussion.

2.2.1.1.3. The final version of the proposal is discussed and voted on in a VSC meeting. Approving a modification to the bylaws represents a major decision of the VSC (§4.1.4.2).

2.2.1.2. Other level-one documents

2.2.1.2.1. Any other level-one document may be modified according to the provisions in the aforementioned document, and approved by the VSC through a major decision (§4.1.4.2).

2.2.2. Level-two documents

2.2.2.1. They may be modified through a regular decision of the VSC (§4.1.4.3), unless an exception is called for in the bylaws.

3 Membership

3.1 Basic structure

3.1.1. The Virgo Collaboration is composed of Virgo groups.

3.1.2. A Virgo group is composed of individuals, known as Virgo members, from a single or multiple institutions. Each member must have a professional association with one of the group institutions. A group may have associate members without a professional association, such as students below the PhD level. Associate members do not appear in the group's MoA [5] but appear in the Virgo members database (VMD) [6].

3.1.3. A group member is any person who contributes to the group's scientific or technical commitment to Virgo.

3.1.4. Each Virgo group designates one member on a permanent or tenured position as group leader. The group leader is the formal point of contact between the Virgo Collaboration and the group (3.4).

3.1.5. The Virgo Collaboration is governed by the Virgo steering committee (4.1) and is led by the Virgo spokesperson (4.2). The main pillars of the Collaboration activities are defined by the Virgo core program [7]. The Collaboration operation is performed by working groups and committees as per its organizational structure (5, [8] and is managed on a day-by-day basis by the Virgo executive committee (VEC, 4.3).

3.1.6. The framework for the Collaboration operation is defined by a set of documents, collectively constituting the Virgo statute (2, [1]), pertaining to agreements with third parties as well as internal rules, policies and procedures. Internally, the present bylaws represent the top-level document defining how the Collaboration functions.

3.2 Contributions of groups

3.2.1. Nature of contributions

- 3.2.1.1. Each Virgo group is expected to contribute in an identifiable way to scientific or technical activities essential for the success of Virgo, as defined in the Virgo core program [7] and associated documents, such as work breakdown structures and white papers.
- 3.2.1.2. As part of, or besides those contributions, each Virgo group is also expected to take a share in service tasks, as defined in [9].
- 3.2.1.3. Each Virgo group is expected to cover a share of the overall financial costs of Virgo. The mechanism to do so is defined in [10].
- 3.2.1.4. Each Virgo group shall make available on site the equipment that it has undertaken to provide, in accordance with the timetable and technical specification agreed with the Collaboration. Unless otherwise agreed with the Collaboration, the group is responsible for designing, building, installing, commissioning, operating, maintaining the equipment and for dismantling it if/when it is no longer needed.

3.2.2. Quantification of contributions

- 3.2.2.1. Scientific and technical contributions are quantified according to the amount of time dedicated by members to Virgo activities.
- 3.2.2.2. The time contribution of a group is the sum of the time contributions from its members.
- 3.2.2.3. The unit used to quantify time contributions is the standard Virgo annual contribution (SVAC), which by definition corresponds to a weekly effort of 35 hours during 46 weeks of a year.
- 3.2.2.4. According to the number of hours dedicated in a year by a member to Virgo work, its contribution is expressed as a fraction of SVAC, bound to a maximum value of 1.

3.2.3. Formalizing membership and contributions

- 3.2.3.1. Each Virgo group must have an up-to-date, approved memorandum of agreement (MoA) with the Collaboration, describing the planned, agreed upon contributions of the group to Virgo activities. The MoAs are revised regularly. They are reviewed by a dedicated committee (MoA review committee, [5]) and approved by the VSC (§4.1.1.4).
- 3.2.3.2. Each Virgo group must report regularly about its accomplished contributions to Virgo activities, so that they can be assessed against the MoA commitments [5].
- 3.2.3.3. Each Virgo member must appear with an up-to-date entry in the VMD [6], indicating the institution(s) they¹ are affiliated to in connection with the Virgo group they are currently a member of (and only this group).
- 3.2.3.4. The procedure to formalize group contributions is defined in [5].

¹This document uses singular they/their pronouns to refer to Collaboration members in a gender-agnostic way.

3.2.4. Sharing contributions

- 3.2.4.1. Each Virgo group has the responsibility and obligation to share openly with the Collaboration all their research efforts within the scope of the Virgo core program. This includes hardware, hardware designs, software, analysis results, relevant data, and information about any on-going work [12].

3.3 Composition of groups

- 3.3.1. Each Virgo group has the prerogative of defining its members, under the responsibility of the group leader (§3.1.4, 3.4).
- 3.3.2. A group is formed of scientists on permanent positions and typically includes engineers and supporting technical staff, scientists on temporary positions, PhD students. They may also include retired scientists with an official active status. Students under the PhD level are associate members of the group.
- 3.3.3. In order to form a standalone Virgo group, a group must fulfill all the following requirements:
 - 3.3.3.1. Have a minimum of 3 non-retired members, including at least:
 - 3.3.3.1.1. 1 scientist on a permanent position
 - 3.3.3.1.2. 2 members with a PhD
 - 3.3.3.1.3. 2 members qualifying for default authorship (§3.6) - after a waiting period if applicable
 - 3.3.3.2. Provide a time contribution of at least 2.5 SVACs (§3.2.2.3), with the exception of the first, probationary year (§3.7.4)
- 3.3.4. A set of individuals at an institution that does not fulfill those requirements may become part of an existing standalone group (provided both parties agree) or may join forces with other institutions in a similar situation in order to form a standalone group, provided an agreement to share the contributions to the financial costs of Virgo – if applicable – is established.

3.4 Role of group leaders

- 3.4.1. Group leaders (§3.1.4) take responsibility for:
 - 3.4.1.1. Establishing the composition of the group (§3.1.2 and 3.3)
 - 3.4.1.2. Preparing the MoA between the group and the Collaboration (§3.2.3.1, [5])
 - 3.4.1.3. Reporting the activity of the group as requested by the Collaboration (§3.2.3.2, [5])
 - 3.4.1.4. Making sure each group member and associate member features with an up-to-date entry in the VMD (§3.2.3.3)
 - 3.4.1.5. Ensuring the contributions of the group to Virgo are timely fulfilled, making sure appropriate person power is available to support scientific and technical contributions
 - 3.4.1.6. Closely following progress of the tasks under the group's responsibility, communicating issues to the spokesperson and/or coordinators, responding to issues raised by the spokesperson and/or coordinators
 - 3.4.1.7. Coordinating the group's review of a Collaboration paper draft when the editorial committee has requested such a task from the group (§4.1.1.20)

- 3.4.1.8. Ensuring that each member and associate member in the group is aware of, understands, and complies with the rules of the Virgo Collaboration, including the code of conduct [13]
- 3.4.1.9. Participating to the governance of the Virgo Collaboration through their VSC membership (4.1), with a voting right if the group is confirmed (§3.7.5) and in good standing ([5], §6.8)
- 3.4.1.10. Following the current affairs of the Collaboration, sharing all relevant information with the group, and collecting feedback from the group in a fair way.

3.5 National representatives

- 3.5.1. Each country with at least one confirmed Virgo group in good standing is expected to select, if appropriate, one national representative based on its own procedure, for a term left to its discretion and with the only constraint that the representative is a Virgo Collaboration member qualifying for default authorship.
- 3.5.2. National representatives are expected to be points of contact for administrative matters that require coordination across national groups, and to liaise with funding agencies.

3.6 Authorship

- 3.6.1. Authorship on publications is the primary way to recognize a member's contribution to Virgo.
- 3.6.2. Virgo members who have made substantial contributions to the Virgo core program and whose time contribution is above a threshold of 0.4 SVAC (§3.2.2.3) earn the right to default authorship on all Collaboration publications.
- 3.6.3. Other Virgo members, including associate members, may petition for authorship on a specific paper that they have substantially contributed to; such petitions must be approved by the VSC (§4.1.1.20).
- 3.6.4. If a member has made substantial contributions to the Virgo core program, but their time contribution has fallen below the threshold due to circumstances such as medical or parental leave, the member may request from the spokesperson an exemption from this requirement.
- 3.6.5. For members on permanent or temporary faculty positions with mandatory teaching duties, the threshold is reduced to 0.2 SVAC (§3.2.2.3). Although there is some value for the Collaboration in voluntary teaching, the latter is not associated with a threshold reduction by default; special requests may be placed with the spokesperson in exceptional cases, who will bring them to the attention of the VSC; this is a regular decision (§4.1.4.3).
- 3.6.6. Exceptionally, retired members who have made substantial contributions to the Virgo core program over many years, but cannot make a time contribution above threshold anymore, may petition for the status of Virgo legacy member and be exempted from this requirement. Such petitions must be made at the time of the group MoA renewal and approved by the VSC for the duration of the MoA; this is a regular decision (§4.1.4.3).
- 3.6.7. A member granted default authorship may opt out of the author list for a specific paper, by notifying in due time the chair of the editorial committee and the author list curator.
- 3.6.8. The author list, i.e. the list of members granted default authorship on all papers of the Virgo Collaboration, is regularly updated, at least twice per year.

- 3.6.9. The author list contains members from confirmed Virgo groups who meet the requirements, after a waiting period upon joining the Collaboration. The duration of the waiting period may depend on the type of position held by the member.
- 3.6.10. An author who leaves the Collaboration in good standing and then rejoins within 3 years with an effort level that meets the requirements will be added back to the author list without the waiting period.
- 3.6.11. An individual who voluntarily withdraws from the Collaboration or who is a member of a group that voluntarily withdraws from the Collaboration will retain authorship rights on Collaboration publications for some time after leaving, as spelled out in the authorship rules [16]. However, this right will not give them access to confidential internal information prior to publication (§6.0.3). Individuals may waive this right by notifying the spokesperson, the chair of the editorial committee, and the author list curator.
- 3.6.12. The detailed procedure to build the author list is described in [16].

3.7 Virgo group admission

- 3.7.1. Admitting a new group into the Virgo Collaboration is a prerogative of the VSC and represents a major decision (§4.1.1.3).
- 3.7.2. Groups interested in joining the Collaboration contact the Virgo spokesperson. Using the core program as a starting point, they develop a plan together with the spokesperson, coordinators, and other Collaboration members for how the group will contribute to Virgo. During this preliminary phase, the spokesperson may invite potential members of the group to attend some internal meetings, in order to share relevant information and offer opportunities for discussions with Virgo members.
- 3.7.3. The group's planned contributions is described in an MoA proposal that is presented during a Collaboration plenary meeting before being submitted to the VSC for approval.
- 3.7.4. Upon VSC approval of the MoA, the group joins the Collaboration for one probationary year during which it will have the same rights and duties as any other group, with the following exceptions: the group leader will be an observer in the VSC, without a voting right, and the group members will not be granted default authorship on the Collaboration publications unless they are transitioning from another group where they had acquired that right.
- 3.7.5. After one year, the group's activity and revised MoA proposal is assessed following the regular procedure and is presented during a Collaboration plenary meeting. Upon VSC approval of the MoA, the group becomes a confirmed group of the Collaboration.
- 3.7.6. In committing to the MoA, the group is also committing to the Virgo funding procedure.

3.8 Termination of membership

- 3.8.1. When an individual leaves a group, for any reason, the group leader will promptly remove their name in the VMD; special care will be taken to do this promptly. If the individual is leaving the Collaboration (i.e. is not transitioning to another Virgo group in short order), they will immediately lose all the rights associated with their membership, except for the possibility to retain authorship rights (3.6.11, [16]).
- 3.8.2. A group may end their membership in the Collaboration by notifying the spokesperson in writing of their intent to withdraw. This communication must take place with enough

lead time and at least 18 months before the group effectively leaves the Collaboration. A shorter period before withdrawal may be negotiated with the spokesperson, but must allow the Collaboration to arrange responsibility transfer for the activities the group was in charge of. Following the withdrawal notification, the spokesperson and the group leader will formulate the terms of the group's departure in a written document, to be approved by the VSC at least 12 months before the group's departure date. Withdrawal does not exempt the group from its financial obligation in the year of the departure. The group is eligible to reapply to join the Virgo Collaboration using the standard application process.

- 3.8.3. An individual may be excluded from the Collaboration for severe violation of the Collaboration rules (§6.8, 4.1.1.23). Excluded individuals will immediately lose all the rights associated with their membership, including any further authorship rights.
- 3.8.4. A group may be excluded from the Collaboration for severely failing to fulfill its duties (§4.1.1.22). All the group members will immediately lose all the rights associated with their membership, including any further authorship rights.
- 3.8.5. After leaving the Collaboration, former members may not divulge or use any Collaboration confidential information, proprietary data, or research products that are not publicly available and to which they gained access through their Collaboration membership.
- 3.8.6. Groups and individuals leaving the Collaboration have the obligation to leave all products (detector hardware, software, analysis intermediate or final results, documents) developed for Virgo available to the Collaboration. Unless otherwise agreed with the Collaboration, ownership of hardware is transferred to EGO, and the group is discharged of further maintenance or dismantling obligations.

4 Governance

4.1 The Virgo steering committee

4.1.1. Role

4.1.1.1. The VSC has the responsibility to discuss all organizational and scientific matters of the Virgo Collaboration, to define rules and policies, and to vote on any decision committing the Collaboration.

The various types of decisions made by the VSC are defined in 4.1.4. Specifically, the VSC:

4.1.1.2. Approves the documents forming the statute of the Virgo Collaboration. Approving a new or revised level-one statute document is a major decision (§4.1.4.2). Approving a new or revised level-two statute document is a regular decision (§4.1.4.3).

4.1.1.3. Approves the admission of a new group; this is a major decision (§4.1.4.2).

4.1.1.4. Approves the MoA between each Virgo group and the Collaboration, upon a recommendation from the MoA review committee [5]; this is a regular decision (§4.1.4.3).

4.1.1.5. Elects the spokesperson (§4.1.4.6, §4.5)

4.1.1.6. May remove the spokesperson. This is a major decision (§4.1.4.2) that can be made following a petition from at least 15% of VSC members with a voting right, communicated at least two weeks before a (regular or extraordinary) VSC meeting. The discussion and vote will be chaired by the oldest VSC member with a voting right.

4.1.1.7. Ratifies the appointment made by the spokesperson for a deputy spokesperson (§4.2.11).

- 4.1.1.8. Makes a proposal to the EGO Council for the appointment of the detector upgrade coordinator. The internal selection is made following the nomination and election procedure (4.5). A single person is proposed to the EGO Council, accompanied with the ranked list of candidates.
- 4.1.1.9. Elects (§4.1.4.6, §4.5):
 - 4.1.1.9.1. the commissioning coordinator
 - 4.1.1.9.2. the run coordinator
 - 4.1.1.9.3. the data analysis coordinator
 - 4.1.1.9.4. the detector characterization coordinator
 - 4.1.1.9.5. the chairs of the various data analysis working groups
 - 4.1.1.9.6. the chair of the editorial committee
 - 4.1.1.9.7. the chair of the speakers committee
 - 4.1.1.9.8. the chair and deputy chair of the core program committee
 - 4.1.1.9.9. the outreach coordinator
 - 4.1.1.9.10. the computing coordinator
 - 4.1.1.9.11. the chair of the diversity, equity and inclusion working group
- 4.1.1.10. Appoints (§4.1.4.5), upon a proposal from the spokesperson:
 - 4.1.1.10.1. the ombudspersons (§6.2.2)
 - 4.1.1.10.2. the review chairs of the data analysis working groups
 - 4.1.1.10.3. the members of the editorial committee
 - 4.1.1.10.4. the author list curator
 - 4.1.1.10.5. the members of the speakers committee
 - 4.1.1.10.6. the members of the core program committee
 - 4.1.1.10.7. the Virgo chair of the joint run planning committee
 - 4.1.1.10.8. the Virgo chair of the joint meeting committee
 - 4.1.1.10.9. the members and chairs of ad-hoc committees
- 4.1.1.11. Appoints, upon a proposal from the detector upgrade coordinator:
 - 4.1.1.11.1. the detector technical manager
 - 4.1.1.11.2. the detector system engineer
 - 4.1.1.11.3. the detector system managers
 - 4.1.1.11.4. the detector subsystem managers
- 4.1.1.12. Defines and revises the charge assigned to standing committees. If this implies a revision of the bylaws, this is a major decision (§4.1.4.2); otherwise, it is a regular decision (§4.1.4.3).
- 4.1.1.13. Approves the creation, charge, and appointment of ad-hoc committees upon proposal by the spokesperson; this is a regular decision (§4.1.4.3).
- 4.1.1.14. Approves MoUs with other collaborations forming the worldwide network of gravitational wave detectors; this is a major decision (§4.1.4.2).
- 4.1.1.15. Approves MoUs with external collaborations or scientists, upon a recommendation from the core program committee [8]; this is a regular decision (§4.1.4.3).
- 4.1.1.16. Discusses and approves policies driving the life of the Collaboration; this is a regular decision (§4.1.4.3) unless it implies a revision of the bylaws, in which case it is a major decision (§4.1.4.2).
- 4.1.1.17. Defines and regularly updates the core program of Collaboration activities, upon a proposal from the core program committee [8]; this is a regular decision (§4.1.4.3).

- 4.1.1.18. Approves the observation plans and schedule, upon a recommendation from the joint run planning committee chair; this is a regular decision (§4.1.4.3).
- 4.1.1.19. Approves the Collaboration publication plan, upon a proposal from the data analysis coordinator and a recommendation from the core program committee [8]; this is a regular decision (§4.1.4.3).
- 4.1.1.20. Approves collaboration papers upon a recommendation from the editorial committee, following an internal review process involving several individuals and several Virgo groups, and approves petitions for authors not on the author list by default; this is an urgent, regular decision (§4.1.4.4).
- 4.1.1.21. Fosters ideas for detector upgrades and their articulation with the science case, drives the Collaboration effort to bring upgrade plans to maturity, makes (regular) decisions regarding submitting mature upgrade proposals to funding agencies.
- 4.1.1.22. Votes on excluding a group from the Collaboration for severely failing to fulfill its duties, upon a recommendation from the MoA review committee; this is a major decision (§4.1.4.2).
- 4.1.1.23. Votes on excluding an individual from the Collaboration for severely violating the Collaboration rules, upon a proposal from the spokesperson; this is a major decision (§4.1.4.2).

4.1.2. Composition

- 4.1.2.1. The spokesperson chairs the VSC (§4.2.8.1), without a voting right.
- 4.1.2.2. Standing members with a voting right are:
 - 4.1.2.2.1. Ex-officio members, in the person of the group leaders, for confirmed groups with an approved, up-to-date MoA.
 - 4.1.2.2.2. Elected members, in the person of two representatives for Collaboration members on non-permanent positions.
 - 4.1.2.2.2.1. The election follows a nomination step open to all Collaboration members.
 - 4.1.2.2.2.2. The electorate and eligible members consist of Collaboration members who are holding non-permanent, non-tenured positions, who have been Collaboration members for at least a year at the date the term is due to start, and who have default authorship rights.
 - 4.1.2.2.2.3. If necessary, an election is organized in the final quarter of a year to fill the seats with a term starting on January 1st of the following year, following the usual procedure (§4.5).
 - 4.1.2.2.2.4. The representatives are elected for a one-year term, which can be extended to a second year if they are willing to continue serving and if there is no known plan for them to leave the Collaboration before September 30th of the second year.
 - 4.1.2.2.2.5. If a representative steps down before the end of their term, for instance upon leaving the Collaboration, no by-election is organized. The seat is offered to the candidate with the second most number of votes in the latest election. If the candidate declines, the seat remains vacant until the next election cycle at the end of the year.
- 4.1.2.3. VSC members have the responsibility to discuss VSC issues with those they represent.
- 4.1.2.4. Each VSC member is expected to actively participate to the governance process. If a group leader is unavailable for a VSC meeting, a different delegate from the group may attend, provided this is communicated by the group leader to the VSC prior to the meeting.

4.1.2.5. Permanently invited members without a voting right are:

4.1.2.5.1. EGO representative(s), as per the EGO-Virgo agreement [2]

4.1.2.5.2. The deputy spokesperson

4.1.2.5.3. Group leaders of groups in their probationary year (§3.7.4) or groups without an approved MoA [5]

4.1.2.5.4. National representatives (§3.5)

4.1.2.5.5. Occasionally invited members without a voting right: the spokesperson may invite any Collaboration member, such as a coordinator or committee chair, to attend a VSC meeting in view of a specific agenda item.

4.1.3. Operation

4.1.3.1. The VSC operates on a roughly periodic meeting schedule, with a frequency of at least once per month and with dates shared by the spokesperson months in advance. For each meeting, the spokesperson prepares and shares an agenda at least a week in advance, identifying decisions to be made and communicating the list of occasional invitees. Extraordinary meetings may also take place if necessary; they may be requested by any group leader to the spokesperson, who convenes the meeting.

4.1.3.2. It is expected that the VSC will reach most of its decisions by consensus, following in person discussions during meetings. If/when a vote is needed, this follows the procedures defined in §4.1.4. VSC discussions are to be informed by input from the coordinators or committee chairs on topics within their charge. The VSC may decide to charge standing or ad-hoc committees to deal with specific matters.

4.1.3.3. Meeting minutes are written by the spokesperson and shared with the VSC a few days after the meeting. A summary of important information and decisions is written by the spokesperson and shared with the Collaboration. This document includes: for major decisions, the statement submitted to a vote along with the result of the ballot; a summary of regular decisions; a list of appointed and elected positions with the start and end dates of each mandate.

4.1.4. Decision making

4.1.4.1. Decisions made by the VSC belong to several categories, described below. When a vote is needed, it is organized by the spokesperson during a VSC meeting, using a reliable web-based tool ensuring secrecy and remote participation possibility. VSC members with a voting right (or their delegates) who are in attendance (in person or remotely) are invited to participate in the vote. In urgent, exceptional circumstances, the spokesperson may organize a vote outside of a VSC meeting.

4.1.4.2. Major decisions

Such decisions are made during a meeting of the VSC. The point to be decided upon must appear in the meeting agenda and be discussed during the meeting. The decision is made via a formal secret vote requiring a quorum of at least two thirds of VSC members with a voting right. The decision is approved if it receives a number of positive votes representing at least two thirds of the valid votes, excluding abstentions.

4.1.4.3. Regular decisions

Such decisions are made during a meeting of the VSC. The point to be decided upon must appear in the meeting agenda and be discussed during the meeting. The decision may not require a formal vote if a consensus is reached. In case a vote is needed, a secret vote is organized if proposed by the spokesperson or requested by any voter. The decision is approved if it receives a majority of positive votes, excluding abstentions. If the results are tied, the decision falls to the spokesperson.

4.1.4.4. Urgent, regular decisions

Such decisions may be made outside a meeting of the VSC, through email. The decision may be called by the spokesperson or by another person in charge on condition of the spokesperson's approval. The email must state clearly the point to be decided upon and the decision process (vote or silent consent, deadline for expressing opinion).

4.1.4.5. Appointments

Appointments of people to specific tasks that are not required to go through an election process are considered regular decisions. In case a vote is needed, a secret vote is organized. Positions to be filled are announced by the spokesperson at the previous VSC meeting at the latest, so that group leaders can suggest names to the spokesperson.

4.1.4.6. Elections

Some positions of responsibility are assigned following an election process that involves a nomination step, as described in 4.5. The decision is made through a formal secret vote during a meeting of the VSC.

4.1.4.6.1. If there is a single candidate, a yes/no secret vote takes place. The candidate is elected upon receiving a majority of positive votes, excluding abstentions.

4.1.4.6.2. If there are two candidates, the candidate who receives the highest number of votes in the single voting round is elected, unless abstentions represent more than one half of the valid votes, in which case the election is considered inconclusive, restarting the whole process.

4.1.4.6.3. If there are more than two candidates, multiple rounds of voting take place, excluding each time the candidate with the lowest number of votes until a candidate receives more than 50% of the votes, excluding abstentions. If more than one candidate receive the same lowest number of votes, another voting round takes place. If the situation persists, the spokesperson may pause the voting process.

4.2 Spokesperson for the Collaboration

4.2.1. The spokesperson leads the Virgo Collaboration, and is empowered to represent the Collaboration to the public and to the broader scientific community.

4.2.2. The spokesperson is responsible for the proper functioning of the Virgo Collaboration, and is responsible and empowered to ensure that the Collaboration fulfills its missions, resolving any issues.

4.2.3. The spokesperson leads the process to fill the organizational structure of the Collaboration, installing leadership and membership for working groups and committees. For appointed positions, the spokesperson brings forward a proposal to the Virgo steering committee (§4.1.1.10). For elected positions, the spokesperson organizes the nomination and election process (§4.1.1.9, 4.5). The spokesperson may propose to create (or bring to a close) an ad-hoc committee, with a well-defined charge to tackle a specific task and with proposed leadership and membership, to be confirmed by a regular decision (§4.1.4.3) of the VSC.

4.2.4. In the event that any elected or appointed position is vacated temporarily or indefinitely, the spokesperson is empowered to appoint an interim replacement until the leave ends or the position can be filled through normal procedures.

4.2.5. In exceptional cases, the spokesperson may propose to the Virgo steering committee to remove a leader of a working group or committee; this represents a major decision (§4.1.4.2).

In urgent cases, the spokesperson may decide on a suspension, with the consent of the VEC, and then bring the case to the VSC.

- 4.2.6. The spokesperson is responsible for maintaining the Virgo statute chart [1], which should include references to the documents controlling the functioning of the Collaboration, and for ensuring that all documents forming the Virgo statute are accessible to Collaboration members.
- 4.2.7. The spokesperson is responsible for maintaining the Virgo organization chart [11] and document [8], which should include the current committees, working groups, and all appointed or elected positions.
- 4.2.8. In addition, the spokesperson:
 - 4.2.8.1. Chairs the Virgo steering committee.
 - 4.2.8.2. Chairs the Virgo executive committee.
 - 4.2.8.3. Chairs the MoA review committee.
 - 4.2.8.4. Jointly chairs the joint EGO-Virgo committee, together with the EGO director.
 - 4.2.8.5. Represents the Collaboration to the EGO Consortium, the EGO Council, the EGO scientific and technical advisory committee (STAC), in formal presentations to the funding agencies, and in formal interactions with other collaborations within the gravitational wave detector network.
 - 4.2.8.6. Ensures that a minimum of three full meetings of the Collaboration (nominally in-person meetings, known as Virgo weeks §6.5.3.1) are organized each year, in addition to the meetings held jointly within the gravitational wave detector network.
 - 4.2.8.7. Organizes biweekly remote meetings of the Collaboration (§6.5.3.2).
 - 4.2.8.8. Identifies key issues and opportunities and brings them to the attention of the Collaboration.
 - 4.2.8.9. Is attentive to issues arising in the Collaboration and responds to them.
- 4.2.9. The spokesperson is elected by the Virgo steering committee to a non-renewable three-year term, following a nomination process open to all Collaboration members and election procedure defined in 4.5.
- 4.2.10. The spokesperson may be removed by the Virgo steering committee (§4.1.1.6).
- 4.2.11. The spokesperson appoints a deputy spokesperson. The term of the deputy spokesperson ends at the conclusion of the term of the spokesperson. **The appointment is confirmed by the Virgo steering committee** (§4.1.1.7). The deputy spokesperson may be removed at the discretion of the spokesperson, who will inform the VSC of the decision and propose a replacement as soon as possible.
- 4.2.12. The spokesperson may delegate some responsibilities to the deputy spokesperson, but ultimate authority and responsibility always remain with the spokesperson.

4.3 The Virgo executive committee

4.3.1. Role

- 4.3.1.1. The Virgo executive committee (VEC) is in charge of coordinating the day-to-day activities of the Collaboration, implementing the rules and policies defined by the VSC. The VEC is a framework to disseminate information, identify issues and action items, and where necessary make ordinary decisions that do not require the VSC to weigh in.

- 4.3.1.2. The decisional prerogatives of the VEC are limited and are executed under the responsibility of the spokesperson. They only apply to matters not falling explicitly under the charge of the VSC. Within those constraints, the VEC can make decisions in an autonomous way on matters characterized by their technical nature (with “technical” applying to any area of activities) and/or their urgency.

4.3.2. Operation

- 4.3.2.1. The VEC is expected to come to conclusions not by vote, but to make collegial decisions driven by proposals put forward by the coordinators in charge. In case of unresolved disagreement within the VEC, the spokesperson has the final say and reports to the VSC. The VEC is expected to interact on a daily basis and nominally meet weekly, and to make the executive summary of decisions and action items from each meeting promptly available to the Collaboration.

4.3.3. Composition

- 4.3.3.1. The VEC is composed of ex-officio members:

- 4.3.3.1.1. Spokesperson (chair)
- 4.3.3.1.2. Detector upgrade coordinator
- 4.3.3.1.3. Detector upgrade technical manager, if applicable
- 4.3.3.1.4. Commissioning coordinator
- 4.3.3.1.5. Joint run planning committee cochair
- 4.3.3.1.6. Run coordinator
- 4.3.3.1.7. Editorial committee and speakers committee chairs
- 4.3.3.1.8. Outreach coordinator
- 4.3.3.1.9. Data analysis coordinator
- 4.3.3.1.10. Detector characterization coordinator
- 4.3.3.1.11. Data analysis working group cochairs
- 4.3.3.1.12. Computing coordinator
- 4.3.3.1.13. EGO representatives, as per the EGO-Virgo MoA

- 4.3.3.2. The spokesperson may invite other members from the Collaboration to specific meetings.

4.4 The joint EGO-Virgo committee

4.4.1. Role

- 4.4.1.1. The Virgo Collaboration has a broad interface to the EGO Consortium. On one hand, the detector is located at the EGO site. On the other hand, Virgo is a scientific collaboration that is not a legal entity. As such, it does not manage any funds. Most of the funds covering the activities of the Collaboration are managed by the EGO Consortium and are provided by the funding agencies contributing to the EGO budget (whether or not they are a member of the EGO Consortium).
- 4.4.1.2. To fund its activities, the Collaboration makes funding requests to the EGO Council, through the EGO director and the Virgo spokesperson.
- 4.4.1.3. The joint EGO-Virgo committee (JEVCo) is a standing committee gathering members of the Virgo Collaboration and of the EGO Consortium in order to assist the EGO director and the Virgo spokesperson in managing issues of common interest and in preparing the interactions between the Collaboration and the EGO Council

regarding financial matters. It reports to the EGO Council through the EGO director and to the Virgo steering committee through the spokesperson. It receives all reports on issues of common interest addressed to the EGO STAC and EGO Council.

4.4.1.4. The JEVCo addresses all issues involving interactions between the EGO Council or the EGO Consortium and the Collaboration. This includes, but is not limited to:

4.4.1.4.1. Discuss Virgo plans that may have an impact on EGO and EGO plans that may have an impact on Virgo

4.4.1.4.2. Manage issues in implementing the planned sequence of observations, commissioning and upgrades

4.4.1.4.3. Assess the cost of operating and maintaining the Virgo detector and the sharing of the related funds; discuss contracts or conventions with laboratories

4.4.1.4.4. Assess the cost of storing and analyzing the Virgo data to produce scientific results, including computing for data analysis; discuss contracts with external computing centers

4.4.1.4.5. Assess the cost of operating the Collaboration, including travel costs covered by the EGO Consortium, and the sharing of the related funds

4.4.1.4.6. Assess the needs for fellowships to reinforce the Collaboration with temporary staff on specific, high-priority topics, and make recommendations on the allocation of fellowships

4.4.1.4.7. Assess the cost of various aspects of the Collaboration life, like publications, science communication, or actions supporting diversity, equity and inclusion

4.4.1.4.8. Estimate the value of in-kind or computing contributions proposed by Virgo groups as part of their country's contribution to the EGO budget

4.4.1.4.9. Discuss all changes that have a significant impact on the cost of any on-going detector upgrade

4.4.1.4.10. Make recommendations regarding the allocation of contingency funds and any significant change of the detector budget

4.4.1.4.11. Drive preparatory work to cost future upgrade proposals before they are brought forward to the EGO Council

4.4.1.5. The JEVCo is expected to meet as often as needed, and at least twice per year in preparation of the EGO Council meetings.

4.4.2. Composition

4.4.2.1. The composition of the JEVCo is based on ex-officio membership:

4.4.2.1.1. EGO director (cochair)

4.4.2.1.2. Virgo spokesperson (cochair)

4.4.2.1.3. EGO scientific director

4.4.2.1.4. EGO technical director

4.4.2.1.5. EGO administrative director

4.4.2.1.6. Virgo detector upgrade coordinator

4.4.2.1.7. Virgo detector technical manager

4.4.2.1.8. Virgo commissioning coordinator

4.4.2.1.9. EGO operations coordinator

4.4.2.1.10. Virgo computing coordinator

4.4.2.1.11. Virgo national representatives

4.4.2.2. Moreover, the committee mandates other Collaboration members to provide assistance on topics requiring specific expertise.

4.5 Procedure for elected positions

- 4.5.1. Leadership positions elected by the VSC (§4.1.1.9) are assigned following a procedure that involves a step where nominations of possible candidates are collected from the Collaboration, before the decision is put to the vote of the VSC (§4.1.4.6).
- 4.5.2. The election of the VSC representatives for Collaboration members on non-permanent positions (§4.1.2.2.2) follows a similar procedure, except the ballot is held among a specific electorate (§4.1.2.2.2.2).
- 4.5.3. For each election separately, an ad-hoc election committee is appointed by the VSC, upon a proposal from the spokesperson.
 - 4.5.3.1. The election committee is charged to call for, stimulate, and collect nominations from the Collaboration.
 - 4.5.3.2. The election committee discussions and its interactions with potential candidates are strictly confidential.
 - 4.5.3.3. The election committee establishes the list of candidates, consisting of nominees who have expressed their willingness to stand for the election.
 - 4.5.3.4. The election committee shares the list of candidates with the VSC, together with the number of nominations received and the number of nominees.
 - 4.5.3.5. The election committee shares the list of candidates with the Collaboration.
- 4.5.4. All Collaboration members are entitled to submit nominations for any election.
 - 4.5.4.1. The call for nominations is announced on the Virgo general mailing list, with the position to be filled, the composition of the election committee and the procedure to be followed.
 - 4.5.4.2. Nominations are not made anonymously, but are treated confidentially.
 - 4.5.4.3. Nominations are not limited in number; a Collaboration member may suggest several names.
 - 4.5.4.4. Self-nominations are allowed and encouraged.
 - 4.5.4.5. Diversity and gender-balance are important considerations in the nomination process.
- 4.5.5. The process starts at least six weeks before the election, which happens at least three weeks before the term starting date. The list of candidates is announced at least three weeks before the election.
- 4.5.6. Candidates are asked to provide a brief statement which should include a curriculum vitae, an account of relevant experience, and their views on matters relevant to the position. This material is distributed to VSC members.
- 4.5.7. The spokesperson manages the election process and communicates the name of the elected person to the Collaboration.
- 4.5.8. Specific case of the spokesperson election
 - 4.5.8.1. The process starts at least three months before the election, which happens at least two months before the term starting date. The list of candidates is announced at least one month before the election.
 - 4.5.8.2. A discussion between the candidates and Collaboration members is organized in a plenary Collaboration meeting chaired by the spokesperson.

5 Organization

- 5.0.1. In order to fulfill the different aspects of its mission, the Collaboration relies on working groups and committees dealing with governance, scientific or organizational matters.
- 5.0.2. The role and composition of governance bodies are defined in 4.
- 5.0.3. The role and composition of other bodies (working groups, standing committees, ad-hoc committees) are described in [8].
- 5.0.4. An up-to-date organizational chart is maintained in [11].

6 Collaboration life

- 6.0.1. The organization of the Virgo Collaboration is guided by the following principles: separation of policy-making and executive powers, minimal formal organization, limited terms of office.
- 6.0.2. The Virgo Collaboration is responsible for coordinating the scientific work performed within its scope and for ensuring equal scientific opportunity among its member groups and individuals. The Collaboration makes every effort to maintain the highest ethical and scientific standards.
- 6.0.3. Collaboration members shall maintain confidentiality within the Collaboration of results, plans, and designs not publicly available.

6.1 Code of conduct and Non-discrimination and anti-harassment guidelines

- 6.1.1. The Virgo Collaboration strives for workplaces free from discrimination and harassment. It is the policy of the Virgo Collaboration that all members will conduct themselves in a professional manner that is welcoming to all participants and free from any form of discrimination, harassment, or retaliation. Members will treat each other with respect and consideration to create a collegial, inclusive, and professional environment. Creating a supportive environment to enable scientific discourse is the responsibility of all members.
- 6.1.2. The code of conduct is defined in [13] and the non-discrimination and anti-harassment guidelines are defined in [14].
- 6.1.3. The Virgo Collaboration has approved the Diversity Charter of APPEC, ECFA, NuPECC [15]

6.2 Ombudspersons

- 6.2.1. The Virgo ombudspersons provide independent, impartial, confidential and informal assistance to all members of the Virgo Collaboration. The role of the ombudspersons and the dispute resolution procedure are described in [14].
- 6.2.2. The VSC appoints two ombudspersons, preferably with a diversity of gender.

6.3 Leadership positions

- 6.3.1. The various efforts produced by the Collaboration to fulfill its mission are led or coordinated by Collaboration members entrusted with leadership roles for limited terms (§4.1.1.5, §4.1.1.7, §4.1.1.8, §4.1.1.9, §4.1.1.10, §4.1.1.11). Whether they are appointed or elected by the VSC, the selection is guided by the same principles, looking to pick

dedicated Collaboration members with appropriate experience, expertise and skills, who can be trusted to act in the best interest of the Collaboration thanks to their integrity, independence, and flawless track record of abiding by the Collaboration rules.

- 6.3.2. The Collaboration strives to share the organizational and leadership tasks among its members, assigning at most one leadership position to an individual at a given time. Members in a leadership position may apply for another position, but are expected to step down from the former position if selected for the new one.

6.4 Recognition of member contributions

- 6.4.1. As a fair return to their contribution, the Collaboration is committed to promoting its members at all stages of their careers.
- 6.4.2. The outcome of the Collaboration work is by construction that of a collective effort. As such, Collaboration results are communicated through Collaboration papers, which are the primary recognition of the contribution of each author.
- 6.4.3. In addition, the Collaboration commits to giving the appropriate visibility to individual contributions and responsibilities, both inside and outside the Collaboration.
- 6.4.4. Moreover, Collaboration members are entitled, within the strict conditions of the Virgo publication rules [16], to publish short-author list papers on their research work within the Virgo scope.
- 6.4.5. The Collaboration is committed to sharing public presentations given on behalf of the Collaboration in a fair and transparent way that reflects the involvement of Collaboration members to the common effort.

6.5 Collaboration meetings

- 6.5.1. Meetings are an essential part of the Collaboration life. Whether they gather the whole Collaboration or subsets of it, they are organized in a transparent way and are announced in advance to the relevant group of people.
- 6.5.2. The Collaboration makes every effort to make remote meeting participation possible, using widely accessible, high-quality tools. Relevant material should be made available before the meeting.
- 6.5.3. Special opportunities for the Collaboration to convene on different timescales are:
 - 6.5.3.1. Several days long meetings, known as Virgo weeks. They are organized at least three times a year, are by default held in person and address all Collaboration affairs.
 - 6.5.3.2. Biweekly, short meetings. They are held remotely and focus on the highlights of current Collaboration business.

6.6 Diversity

- 6.6.1. The Virgo Collaboration encourages inclusion and fosters diversity among all its members, creating and preserving a respectful and professional working environment. It offers training to all members regarding diversity matters, and makes sure diversity is taken seriously into consideration in all aspects of the Collaboration life.
- 6.6.2. This effort is driven by the diversity, equity and inclusion working group and is coordinated by the working group chair.

6.7 The Virgo early-career scientists group

- 6.7.1. The Virgo Collaboration recognizes that many of its members are early-career scientists on non-permanent or non-tenured positions. The Collaboration accommodates a dedicated space, in the form of the Virgo early-career scientists (VECS) group, to serve as a forum for this community.
- 6.7.2. The VECS group self-organizes, within the framework of the Collaboration rules, and operates under the auspices of at least one VSC advisor. Its functioning guidelines are defined in [17].

6.8 Consequences to violating Collaboration rules

- 6.8.1. Depending on the breach severity or repetition, as appreciated by the VSC, the VSC may impose sanctions on individuals ranging from a formal warning, a temporary ban from giving public presentations on behalf of the Collaboration, a temporary loss of default authorship rights, to exclusion from the Collaboration. Sanctions imposed on a group may include, in addition to the above, a temporary loss of the group leader voting right at the VSC. Those represent regular decisions (§4.1.4.3) of the VSC, except exclusion from the Collaboration, which is a major decision (§4.1.4.2).

7 References

- [1] VIR-XXX, Virgo statute chart, in preparation
- [2] EGO-COU-47-2002, Memorandum of Agreement between the Virgo Collaboration and EGO Consortium
- [3] EGO-DIR-124-2019, Memorandum of Understanding For Collaboration in the upgrade of the Advanced Virgo Detector (Project Advanced Virgo +)
- [4] VIR-1139A-19, Memorandum of Agreement between VIRGO, KAGRA, and LIGO
- [5] VIR-0454B-22, Defining and reviewing the scientific contributions of Virgo groups
- [6] Virgo members database
- [7] VIR-XXX, Virgo Collaboration core program, in preparation
- [8] VIR-0455B-22, Organizational structure of the Virgo Collaboration
- [9] VIR-XXX, Sharing service tasks among members of the Virgo Collaboration, in preparation
- [10] VIR-XXX, Financial contributions from Virgo groups, in preparation
- [11] VIR-0270A-21, Virgo Collaboration Organizational Chart
- [12] VIR-0215A-15, Guidelines for the conservation and access policy of the VIRGO documents and software
- [13] VIR-0222A-19, Code of Conduct for the LIGO Scientific Collaboration and the Virgo Collaboration
- [14] VIR-0474C-14, Non-discrimination and anti-harassment guidelines of the Virgo collaboration
- [15] Diversity Charter of APPEC, ECFA, NuPECC

- [16] VIR-0335F-13, Virgo Collaboration Publication and Presentation Rules
- [17] VIR-0931A-20, Virgo Early Career Scientists Group Guidelines