Framework Agreement for the Participation in VirgoLab

**BETWEEN:**

**The European Gravitational Observatory Consortium** (VAT no. IT01589510500), a consortium established under the Italian Law, promoting non-profit activities for the sake of fundamental research, having its seat at Cascina (Pisa), Italy, represented by its director (hereinafter referred to as **EGO**), consisting of the following entities:

* **Centre National de Recherche Scientifique** having its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as **CNRS)**
* **Fonds de la Recherche Scientifique** having its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as **FRS-FNRS).**
* **Fonds Wetenschappelijk Onderzoek** having its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as **FWO**).
* **Istituto Nazionale Fisica Nucleare** having its registered office at Via Enrico Fermi, 54, 00044 Frascati (Rome), Italy, represented by its President, Antonio Zoccoli (hereinafter referred to as the **INFN**).
* **Stichting Nederlandse Wetenschappelijk Onderzoek Instituten**, having its registered office at Winthontlaan 2, 3526 KV Utrecht, the Netehrlands, with its institute Nikhef, represented by its (Title), (Name) (hereinafter referred to as the **NWO-I)**.

**AND:**

* The Katholieke Universiteit Leuvenhaving its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as “**…**”);
* L’Université Catholique de Louvain having its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as “**…**”);
* Universiteit Antwerpen Belgium having its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as “**…**”)
* Nicolaus Copernicus Astronomical Center (CAMK PAN) having its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as “**…**”)
* Computer Centre Cyfronet AGH having its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as “**…**”);
* University of Warsaw having its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as “**…**”);
* Jagiellonian University having its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as “**…**”);
* CIEMAT - Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Madrid having its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as “**…**”);
* IFAE - Institut de Física d'Altes Energies, Bellaterra – Barcelona having its registered office at (Address), represented by its (Title), (Name) (hereinafter referred to as “**…**”).

**Collectively referred to hereinafter as the “Parties” and individually as “Party”.**

**Preamble**

**Considering that:**

* EGO ensures the functioning of the Virgo Interferometer for the detection of gravitational waves and the maintenance of the related infrastructures including a computer centre. EGO is a Consortium established on 11 December 2000, by the Founding Members, CNRS and INFN, in accordance with Articles 2602 and following and Articles 2612 and following of the Italian Civil Code. NWO-I has been an Associate Member since March 2022 and FRS-FNRS and FWO since March 2025.
* The Virgo Collaboration is an international scientific collaboration (not a legal entity) to exploit scientifically the data produced with the Virgo Interferometer and to contribute to the Ligo-Virgo-Kagra Collaboration for producing joint scientific results as well as prepare the evolution of the interferometers. The Virgo Collaboration has been established in the *Agreement for the realization of a laser interferometric antenna for gravitational wave detection* signed in June 1994 by CNRS and INFN.

In order for the Virgo interferometer to reach sensitivities and to produce observational data as a cornerstone of the worldwide network of gravitational wave observatories and to enable the transition from the Virgo Collaboration to the International Gravitation Wave Network (IGWN), EGO put in place an Organizational Review of EGO and the Virgo Collaboration in October 2023.

* Following the recommendations from the Organizational Review of EGO and Virgo dated from 29 March 2024 relating to the creation of a distributed laboratory for the operation, commissioning and upgrades of the Virgo interferometer, inspired by LIGOLab, the operating structure of the US gravitational wave antennas, the proposed Organization of VirgoLab was endorsed by the EGO Council on 19 March 2025. VirgoLab is not a legal entity, but a collaborative effort among the Parties.

**WHEREAS,**

* The Parties wish to fund and to support research in gravitational waves and the operation of gravitational wave detectors and have an interest in participating in VirgoLab in order to provide data from gravitation wave detections to their own and the broader community of interested scientists on a reciprocal basis as well as to develop the technical skills to build gravitational wave observatories.
* The Parties aim to set forth the terms and conditions which apply to VirgoLab and their collaboration.
* The Parties agree that provisions concerning the resources needed for projects to upgrade the Virgo detector in the future, will be dealt in separate Memoranda of Agreement.
* The Parties are the legal entities representing the Members of the VirgoLab, which are groups of technical and scientific personnel participating in VirgoLab (Member Labs).
* Each of the Member Labs has a designated Principal Investigator (PI) who is the primarly liaison person between the Member Lab and the related Party.

**NOW, THEREFORE, the Parties agree as follows:**

### **Article 1 - Definitions**

1. **EGO:** The European Gravitational Observatory.
2. **Virgo Collaboration (VC):** The broader scientific collaboration responsible for data analysis and scientific publication related to Virgo data organised by the [agreement and effective date].
3. **VirgoLab:** The distributed laboratory responsible for the operation, maintenance, commissioning, and upgrade of the Virgo interferometer, hosted by EGO.
4. **VirgoLab Activities :** VirgoLab activites are the operation, maintenance, commissioning and upgrade of the Virgo Interferometer.
5. **VirgoLab Project Phases :** The VirgoLab activities are organised as one project with three different phases.
6. **System Units :** The Virgo Interferometer can be described in terms of system units, which are entities that are covering a functional aspect of the instrument.
7. **Member Lab :** groups of scientists and technical personnel from associated laboratories, institutes, and university departments contributing to VirgoLab.
8. **Members :** scientists and technical personnel from EGO and Member Labs participating in VirgoLab.
9. **Agreement:** This VirgoLab Framework Agreement, including its preamble and Annexes.
10. **Annual Resource Plan :** The Annual Resource Plan detailing the contributions of financial resources, personnel, services or equipments to VirgoLab, made under the terms of this Agreement.

**Article 2 - Purpose**

1. The purpose of this Agreement is to conclude the creation of the VirgoLab and to identify the participating Member Labs from each Party specified in Annex 1.
2. The Agreement will establish a regulatory framework of VirgoLab, specifying the roles of the Parties and their supported Member Labs.
3. This Agreement establishes the process to allocate and review the contributions from the Parties to VirgoLab in terms of human and financial resources.
4. The organisation of VirgoLab is detailed in Annex 2.
5. The Rules of Procedures to be applied within VirgoLab are specified in Annex 3.
6. Upgrades of the Virgo Interferometer will be agreed upon in seperate Memoranda of Agreement.

**Article 3 - Forms of Collaboration**

1. All Members of the Virgo Collaboration are invited to participate in the VirgoLab in order to make detector related contributions. Where necessary and appropriate, contributors not being part of the Virgo Collaboration can also be invited to participate by the signature of an Accession Document to be annexed to this Agreement.
2. All Members of VirgoLab engage to contribute constructively to the goals of VirgoLab.
3. The Parties shall identify and agree through the annual Resource Review Procedure upon to their yearly contributions to VirgoLab Project and VirgoLab Technical Teams specified in the Annual Resource Plan. The annual Resource Review Procedure is detailed in the Rules of Procedure (Annex 3). The Annual Resource Plans agreed upon among the Parties shall be annexed to this agreement upon their approval by the EGO Council.
4. These Contributions may include the provision of financial resources (including the resources already provided to EGO Consortium by the EGO Members and allocated to VirgoLab), personnel with necessary skills and competence, services and equipment.

**Article 4 - The Host Laboratory**

1. VirgoLab benefits from administrative, financial and logistical support of EGO.
2. VirgoLab is represented by the EGO director.
3. EGO will be responsible for the whole site infrastructure used by VirgoLab.
4. EGO shall be responsible for all safety and security matters on-site and will issue corresponding rules and instructions to Members of VirgoLab. EGO will provide to VirgoLab all information, documentation, manuals and training necessary for the daily operation.
5. EGO will finance fellowships and secondments for VirgoLab Members on-site.
6. EGO will provide office space to host Members of VirgoLab when working on-site, access to state-of-the art technology to organize remote meetings, meeting rooms as well as access to its technical facilities for equipment maintenance and repair.
7. EGO will provide support, through the EGO User Office, to VirgoLab Members for welcoming them on-site and handling administrative procedures.
8. EGO manages computing equipment on-site, including data collection, storage, and low latency analysis.

**Article 5 - Engagement of the Parties**

1. The Parties engage to contribute in an adequate and timely manner to VirgoLab Projects and Technical Teams with their expertise, financial and human resources.
2. The Parties engage to respect the yearly resource planning exercise and to provide the resources agreed on a yearly basis. The Parties will duly report their efforts, results and any other relevant information related to the resources management to the VirgoLab Resource Coordination.
3. The property of instrumental equipment installed in the Virgo Interferometer on-site remains of the owners, who grant rights of use, free of charge as specified in specific loan agreements (for a template see Annex XX) The Member Labs who provided the equipment are in charge to provide the documentation and train the relevant people and will remain in charge to maintain the equipment they provided.
4. The Parties will ensure that personnel from its supported Member Labs participating in VirgoLab have the necessary skills and competence and comply with the rules of conduct and safety in force at the host Party (EGO) and the Virgo Collaboration (VIR-0222A-19 and subsequent modifications) and non‐discrimination and anti-harassment guidelines defined in VIR-0474C-14 and subsequent modifications.
5. Each Party remains bound by all the responsibilities and obligations relating to its capacity as employer and shall be responsible for ensuring that its personnel taking part in the collaborations have adequate social security and third-party liability insurance.
6. All expenses of the VirgoLab Members, including international and domestic travel, per diem, honoraria and other costs, shall be at the responsibility of the respective Party or their designated employer.

**Article 6 – VirgoLab Governance**

1. **EGO Council**

EGO Council is the highest governing body of VirgoLab, responsible for the strategic oversight and the ultimate decision-making.

EGO Council is approving the major strategic plans of VirgoLab, the resource allocations affecting VirgoLab and oversees the annual Resource Review Procedure.

EGO Council is appointing the EGO Director, who is the chair of the VirgoLab Executive Board and ratifies the proposals of the EGO Director for the Project Coordinators.

EGO Council appoints a VirgoLab Program Officer, who acts as the liaison among the EGO Council, the EGO Director and the VirgoLab Executive Board.

For agenda items concerning VirgoLab during Council Meetings, the non-EGO Members contributing to VirgoLab are also invited as observers during the closed sessions. Observers shall have no voting rights during those meetings.

1. **VirgoLab Executive Board**

The Executive Board (EB) is the primary management body of VirgoLab, responsible for the detailed implementation of the VirgoLab Activities and in charge of the operational decisions concerning VirgoLab.

The EB asseses proposed contributions of new MemberLabs and Parties joining VirgoLab and provides its conclusions to the Board of PIs and the EGO Council, before the EGO Director may sign the formal accession.

1. **VirgoLab Board of Principal Investigators**

The VirgoLab Board of Principal investigators (Board of PIs) comprises PIs representing the Member Lab groups from the Parties as defined in Annex 1.

The Board of PIs act as a representative body for the Member Labs within VirgoLab’s operational framework.

The Board of PIs provides input on the Project Coordinator proposals, ratifies the Team Leaders proposed by the EB, reviews changes to the VirgoLab Project and Technical Team structure.

The Board of PIs is also in charge of maintaining the VirgoLab author list, advising the Executive Board on the admission of new Member Labs to VirgoLab and organising the VirgoLab Collaborative Meetings.

The Board of PIs elects a chair, who is member of the EB.

1. **VirgoLab Technical Committee**

The VirgoLab Technical Committee provides expertise and recommendations to the EB on technical matters related to the VirgoLab Projects.

The Technical Committee provides technical guidance and solutions to ensure efficient operation and optimal performance of the Interferometer.

The Technical Committee comprises the VirgoLab Technical Team Leaders, who elaborate these recommendations in the Technical Teams.

The Technical Committee elects a chair, who is member of the EB.

1. **EGO Director**

The EGO Director is the principal executive officer of EGO, responsible for the overall management and implementation of relevant EGO Council’s decision, including the direct management of VirgoLab.

The EGO Director is responsible of implementaing the strategic direction set by the EGO Council for VirgoLab and oversees the overall operational management of VirgoLab.

The EGO Director proposes Project Coordinators for VirgoLab to the EGO Council considering input from the Virgo Spokesperson, the VirgoLab Board of PIs and relevant VirgoLab Members.

The EGO director ensures the adequate administrative and logistical support for VirgoLab. The EGO director represents VirgoLab towards external stakeholders and funding bodies.

1. **Virgo Collaboration Spokesperson**

The Virgo Collaboration Spokesperson represents the Virgo Scientific Collaboration and collaborates with the EGO Director on strategic and scientific aspects of VirgoLab, ensuring alignment with the broader scientific goals of the Virgo Collaboration.

1. **Project Coordinators**

The Project Coordinators are responsible for managing specific projects within VirgoLab, ensuring deliverables and milestones are met and agreed budgets are respected.

Project Coordinators are proposed by the EGO Director with input from the Virgo Spokesperson, the VirgoLab Board of PIs, and relevant VirgoLab Members, and appointed by the EGO Council.

Project Coordinators shall ensure continuous presence on-site and efficient contributions from off-site, if needed with the help of deputies.

1. **Program Officer**

The Program Officer acts as the main point of contact and the liaison between the EGO Council and the EGO Directorate and VirgoLab Executive Board. The Program Officer is responsible for overseeing the implementation of EGO Council decisions within the VirgoLab, facilitating transparent communication among all governance structures, and ensuring structured and timely reporting to the EGO Council.

1. **Technical Team Leaders**

The Technical Team Leaders coordinate functional expertise across Projects; establish workmanship standards and ensure they are applied. Technical Team Leaders are also responsible for training and competence development within their teams.

The Technical Team Leaders are proposed by the Executive Board and ratified by the VirgoLab Board of PIs.

Technical Team Leaders should ensure continuous presence on-site and efficient contributions from off-site, if needed with the help of deputies.

1. **Resource Coordinator**

For the preparation of all the bookkeeping and planning documents, VirgoLab Executive Board designates at least one Resource Coordinator.

As most of the financial resources of VirgoLab are allocated through EGO, it would be preferable if at least one Resource Coordinator is based at EGO and either part of EGOs administrative staff or supported by a dedicated person among EGOs administrative personnel.

1. **Other committees**

VirgoLab will also benefit from the advice of committees already in place, such as the EGO Administrative and Finance Committee for the resources spending and allocation concerning VirgoLab and the Scientific and Technical Advisory Committee (STAC). The VirgoLab technical activities are also overseen by the External Technical Review Committee.

**Article 7 – Data Management**

7.1 The handling of data within the VirgoLab, from its collection to preservation and sharing, will be described in details in the Data Management Plan (Annex 4).

**Article 8 - Intellectual Property & Publication**

1. Results, meaning all inventions, results, materials, methods, processes, programmes, software, findings or discoveries that are generated when carrying out the VirgoLab Activities are owned by the Party that generates them. However, the generating Party shall grant to the VirgoLab a non-exclusive, royalty-free, worldwide licence to use such Results for the purposes of its non-commercial Activities and for internal research and educational purposes.
2. In case Results are generated by two or more Parties jointly, the contribution of each of the Parties to these Results being indivisible, these Results will be jointly owned by such Parties in equal undivided shares, unless it is obvious that this division of ownership is disproportionate in relation to the respective contributions to such Results. The co-owners will, by mutual agreement, draw up written agreements with regard to the protection and commercial use of these joint Results in a ‘Joint Ownership Agreement’ (‘JOA’). In such JOA, the co-owners shall make arrangements for the commercial use of the joint Results, and/or for licensing the joint Results to third parties.
3. However, where no JOA has yet been concluded, each co-owner shall be:
4. free to use such Result for its own purposes (including commercial activities) subject to the conditions under a) and b) hereunder; and/or
5. entitled to grant non-exclusive licenses to third parties, without any right to sub-license, subject to the conditions under a) and b) hereunder:
   1. at least forty-five (45) days prior notice must be given to the other co-owner(s).
   2. a fair and reasonable market price must be provided to the other co-owner(s) to be agreed upon in writing, in advance.
6. This Agreement does not affect the ownership of any Background Information. All information, techniques, know-how, software and materials (regardless of the form or medium in which they are disclosed or stored), as well as any Intellectual Property Rights (including industrial property rights, database rights, and any similar forms of statutory protection, arising or available wherever in the world) pertaining thereto which is in the possession of a Party prior to commencement of this Agreement, or is generated by a Party before or outside the VirgoLab project and voluntarily introduced in the VirgoLab project, and which is necessary to carry out the VirgoLab project and is contributed by a Party. Background Information has to be listed in a separate MoA that will fall under this Framework Agreement.
7. Parties hereby grant, rights to use their Background Information free of charge on a non-exclusive, non-transferable, and non-sublicensable basis to the Party needing the Background Information for the purpose of carrying out the VirgoLab Activities and solely for the duration of this Agreement.
8. Parties hereby grant rights to use their Results free of charge on a non-exclusive, non-transferable, and non-sublicensable basis to the Party needing Results for the purpose of carrying out the VirgoLab Activities and solely for the duration of this Agreement.
9. Publications resulting from the VirgoLab Activities will follow the publication policy established by the VirgoLab Board of PIs as specified in Annex 3.

**Article 9 – Liability**

9.1 Except in case of gross negligence or willful misconduct, the aggregate liability by each Party towards any other Party is limited to its share (in-kind and/or in-cash) in the Annual Resource plan at signing of this Agreement.

9.2 No Party shall be liable to any other Party for any indirect or consequential loss or similar damage such as, but not limited to, loss of profit, loss of revenue or loss of contracts, provided such damage was not caused by a willful act or by gross negligence.

**Article 10 - Confidentiality**

1. "**Confidential Information**" is to be understood as any information concerning VirgoLab and any kind irrespective of whether it is provided in writing, orally, electronically, or in the form of samples, models, products or equipment etc., whether or not it is labelled as confidential or a similar nature and exchanged in any form and to which access is given by the disclosing Party to the receiving Party for the purpose of VirgoLab.
2. The receiving Party will maintain strict secrecy with respect to Confidential Information, not disclose it to any third party, without the prior written consent of the disclosing party, and take appropriate safety measures to safeguard to the Confidential Information and will use it solely for the performance of its activities in VirgoLab. The obligation of confidentiality ends five (5) years after the termination or expiration of this Agreement.
3. The aforementioned confidentiality obligation shall not apply, if the receiving Party can proof that:
   1. the Confidential Information is or becomes generally known or accessible, by means other than by breach of this Agreement;
   2. the Confidential Information of the disclosing Party became known to the receiving Party, independently from this Agreement, through the receiving Party’s own research and development work, which can be proven by written records;
   3. the receiving Party obtained the Confidential Information from third parties independently of this Agreement, without any breach of this confidentiality obligation;
   4. Parties agree to make all reasonable efforts to ensure that the promotion trajectories of PhD candidates affiliated with VirgoLab are not hindered or delayed, regardless of any disagreements or disputes that may arise between the Parties. The Parties further commit to resolving any conflicts in a manner that prioritizes the academic and professional progress of the PhD candidates. In cases of disagreement, the Parties shall cooperate in good faith to minimize any negative impact on the PhD candidates’ work and timeline.

**Article 11 - Duration and Termination**

1. This Agreement shall take effect on the date of signature by all Parties and shall have the same duration as the EGO Consortium, namely five years. The Agreement can be extedend as long as the EGO Consortium exists if all the Parties agree in writing.
2. A Party may withdraw from this Agreement with written notice, subject to agreed-upon written terms for phasing out any ongoing collaborations. If there are no pending collaborations for the terminating Party, the notice term shall be six months.

**Article 12 - Final Provisions**

1. All disputes arising out of or in connection with this Agreement, which cannot be solved amicably, shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with the said Rules. The place of arbitration shall be [XXXX, Italy] if not otherwise agreed by the conflicting Parties. The award of the arbitration will be final and binding upon the Parties. Nothing in this Consortium Agreement shall limit the Parties' right to seek injunctive relief in any applicable competent court.
2. Any amendments or additions to this Agreement are only valid in case made in writing and signed by the authorised representatives of all Parties
3. This Agreement shall be exclusively governed by the law of Italy.
4. Except if explicitly otherwise provided in this Agreement, no Party shall be entitled to act or to make legally binding declarations on behalf of any other Parties. Nothing in this Agreement shall be deemed to constitute a joint venture, agency, partnership, interest grouping or any other kind of formal business grouping or entity between the Parties.

**SIGNATURES:**

**For the European Gravitational Observatory (EGO):**

Name:

Title: Director

Date:

**For (Name of Funding Agency):**

Name:

Title: (Title)

Date:

(Repeat the signature section for each party)

**Annex 1:**

**Member Labs of VirgoLab**

* **including: symbol for represented groups in Board of PIs, name of the PI, FTEs**

**Belgium:**

* BelGrav Group Universiteit Antwerpen Belgium;
* KU Leuven, Belgium;
* UC Louvain.

**France:**

* APC - Laboratoire Astroparticule et Cosmologie CNRS/IN2P3 – Université Paris Diderot;
* Institut Fresnel Group, Aix Marseille Université – Ecole Centrale Méditerranée – CNRS;
* IJCLab - Irène Joliot-Curie Laboratory of Physics of the 2 Infinities Université Paris-Saclay, CNRS/IN2P3, Orsay:
* LAUM - Laboratoire d’Acoustique de l’Université du Mans – CNRS;
* LMA-IP2I, Université de Lyon – CNRS/IN2P3;
* LUTh-Caen group, LPC Caen, ENSI Canr, Université de Caen and CNRS/IN2P3;
* Observatoire astronomique de Strasbourg, Université de Strasbourg, CNRS;

**Italy :**

* Firenze/Urbino Group;
* INFN Genoa – Virgo Genoa Group;
* Milano-Bicocca group c INFN & Università degli Studi di Milano-Bicocca;
* Padova/Trento/Trieste Group;
* Perugia; INFN Sez di Perugia;
* Virgo Pisa Group;
* Sapienza-Roma group;
* Roma Tor Vergata group;
* UniSannio/UniSalerno Group INFN di Napoli, Gruppo Collegato di Salerno.

**Netherlands:**

* Nikhef partnerships: University of Amsterdam, University of Maastricht, University of Utrecht

**Poland**:

* Polgraw Consortium :

Nicolaus Copernicus Astronomical Center (CAMK PAN)l;

Computer Centre Cyfronet AGH;

University of Warsaw;

Jagiellonian University;

Funded by: Polish Academy of Science, Polish Ministry of Education and Science, Polish National Science Centre, The Foundation for Polish Science.

**Spain :**

* CIEMAT - Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Madrid ;
* IFAE - Institut de Física d'Altes Energies, Bellaterra - Barcelona.

**Annex 2: Organisation of VirgoLab**

**Annex 3: Rules of Procedure of VirgoLab**

**Annex 4: Data Management Plan**

**Annex 5: Annual Resource Plan 2026**