VESF
VIRGO EGO SCIENTIFIC FORUM

MEMORANDUM OF UNDERSTANDING

For adhering to VESF

Considering that:

- The Virgo-Ego Scientific Forum, hereafter called VESF, has the purpose of enlarging the involvement of the scientific community on the scientific activities of the Virgo gravitational waves antenna sited at EGO, in Cascina, close to Pisa.

- The Forum is intended to be open to scientists in the field of astrophysics, astro-particle research , general relativity, gravitation etc, that may be interested in the data expected from Virgo and its future upgrades.

- The VESF is a structure in which non-Virgo scientists can interact with the Virgo collaboration regarding the R&D activity for future improvements, data analysis methods and strategies, the interpretation of the results and their relationship with other astrophysical data

- VESF will be a place for discussions and proposals on theoretical and experimental strategies concerning gravitational wave detection, with particular emphasis on the Virgo data analysis, but also including possible upgrades of the Virgo instrument.

- the *MTA-KFKI-RMKI Group*, MTA KFKI RMKI, Theoretical Department, H-1121 Budapest, Konkoly Thege út 29-33, hereafter called briefly *MTA-KFKI-RMKI Group* has a long established tradition in the field of gravitation research and associated techniques and in particular in the fields of general relativity and astrophysics.

- there is a common will in Europe to develop the collaboration in gravitational waves research,

- VESF is hosted and managed by the European Gravitational Observatory, hereafter called EGO, located in Via Amaldi, S.Stefano a Macerata, Cascina (PI), Italy, the site where the Gravitational antenna Virgo is installed.

- EGO is the depository of the official documents of VESF: its charter, the list of members, the Council decisions and minutes of its meeting, the decisions of the Executive board.

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It is agreed by VESF that the *MTA-KFKI-RMKI Group* becomes member of VESF, according to its charter here attached (attachment 1).
The *MTA-KFKI-RMKI Group* accepts to participate to VESF, in particular by pursuing the following activities of the VESF as indicated by the charter:

- Development of the waveforms describing the gravitational wave emitted by potential astrophysical sources,
- Regular update of the list of gravitational wave sources potentially detectable with the Virgo detector,

Moreover the *MTA-KFKI-RMKI Group* declares to have competence and to be interested in these other activities:

- R&D for future upgrade of the Virgo detector
- Virgo data taking and data analysis,
- development of data analysis methodologies

The *MTA-KFKI-RMKI Group* is composed by the persons listed in the Attachments 2 that will be considered as individual components of the VESF. The *MTA-KFKI-RMKI Group* will communicate to VESF any variation of the *MTA-KFKI-RMKI Group* composition.

The *MTA-KFKI-RMKI Group* is represented in the VESF Council by the person/s indicated in Attachment 3. As indicated in the Charter, the number of representatives is equal to the number of persons belonging to the group divided by six plus one The *MTA-KFKI-RMKI Group* will communicate to VESF any variation of its representatives to the VESF Council.

As indicated in the charter, access to Virgo data and participation to the Virgo data taking are managed via a specific MOU between the concerned *MTA-KFKI-RMKI Group* member of VESF and the Virgo collaboration represented by the Virgo spokesperson. Such a MOU will also establish the publications policy.

The VESF Coordinator

The representative of the *MTA-KFKI-RMKI Group* (Rácz István)

The Virgo Spokesperson

The director of RMKI (Szőkefalvi-Nagy Zoltán)

The EGO Director

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Attachment 1 to Memorandum of Understanding of adhesion to VESF

Virgo - EGO Scientific Forum Charter

1.1 Introduction

This document describes the Virgo- EGO Scientific Forum (VESF), its main functions and its internal organization. The relations with the Virgo collaboration and the European Gravitational Observatory (EGO) are also described.

1.2 Description and goals of the VESF

The VESF has the purpose of enlarging the involvement of the scientific community on the scientific activities of the Virgo gravitational waves antenna sited at EGO, in Cascina, close to Pisa.
The Forum is intended to be open to scientists in the field of astrophysics, astro-particle, general relativity, gravitation etc, that may be interested in the data expected from Virgo and its future upgrades.
The VESF is a structure in which non-Virgo scientists can interact with the Virgo collaboration regarding the R&D activity for future improvements, data analysis methods and strategies, the interpretation of the results and their relationship with other astrophysical data

1.3 Functions of the VESF

VESF will be a place for discussions and proposals on theoretical and experimental strategies concerning gravitational wave detection, with particular emphasis on the Virgo data analysis, but also including possible upgrades of the Virgo instrument.
Members of the VESF may participate to one or several of the following tasks:

1. regular update of the list of gravitational wave sources potentially detectable with the Virgo detector,
2. development of the waveforms describing the gravitational wave emitted by potential astrophysical sources,
3. coincidence searches with other astrophysical instruments
4. development of data analysis methodologies,
5. Virgo data taking and data analysis;
6. R&D for future upgrade of the Virgo detector.

1.4 Participation to the VESF

Membership

Members of the VESF are research groups belonging to a given institution. A research group is composed by a minimum of three people (including scientists, senior engineers and PhD students). Under particular circumstances the participation of individuals is accepted. Contemporary participation to the VESF and to other scientific collaborations both in the field gravitational wave detection or in other fields of astrophysics are possible and welcome.

MOUs

The contribution of each member to the VESF is described in a Memorandum of Understanding (MOU) between the member and the VESF itself.

Adhesion to VESF

After the foundation phase the adhesion of a new member is proposed to the VESF executive board. During this phase the MOU is prepared by the new member and the executive board. The new adhesion and the relative MOU are approved by the VESF Council with a qualified majority (2/3).

1.5 Organization of the VESF

VESF executive board

The VESF is governed by the VESF executive board. The executive board is composed by the EGO director, the Virgo spokesperson, the VESF coordinator and two persons elected by the VESF council for a period of two years.

VESF coordinator

The VESF executive board is chaired by the VESF coordinator. The VESF coordinator is elected by the VESF executive board for a period of two years. He/She is chosen in a list of at least three persons proposed by the VESF council. The VESF coordinator can assign specific coordination tasks to persons participating to the VESF

VESF council

The council is formed by representatives of each VESF member. The number of representatives is equal to the number of persons belonging to the group divided by six plus one. The council meets at least once a year and is chaired by the VESF coordinator. It indicates possible VESF coordinators to the executive board. It approves the adhesion of new members with a qualified majority (2/3). It sets the VESF scientific priorities, its policies and directions.

Resources for VESF

The allocation of fellowships and other resources to VESF members is part of the EGO R&D program. The VESF executive board collects and coordinates the proposals from VESF members and forwards them to the EGO director for evaluation by the Scientific and Technical Advisory Committee of EGO and final approval by EGO Council.

1.6 Relationship with the Virgo collaboration

The relationship between the Virgo collaboration and the VESF is managed by the Virgo spokesperson who is a member of the VESF executive board.
Access to Virgo data and participation to the Virgo data taking are managed via specific MOU between the concerned VESF member and the Virgo collaboration represented by the Virgo spokesperson. Such a MOU establishes the publications policy.

1.7 Relationship with EGO

The relationship between EGO and the VESF is managed by the EGO director who is a member of the VESF executive board.

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Attachment 2 to Memorandum of Understanding of adhesion to VESF

Composition of the Group participating toVESF.

The Group is composed by the persons listed in the Attachments 2 that will be considered as individual components of the VESF. The Group will communicate to VESF any variation of the Group composition.

1. István Rácz, head of the General Relativity Group at the Theoretical Department of RMKI, H-1121 Budapest, Konkoly Thege Miklós út 29-33, +36-30-426-1197, iracz@sunserv.kfki.hu
2. Zsolt Frei, Professor at the Physics Institute of Eötvös Lóránd University, Budapest, Pázmány Péter sétány 1/A, +36-1-3722-725, frei@alcyone.elte.hu
3. László Árpád Gergely, senior research fellow at the Departments of Theoretical and Experimental Physics, University of Szeged, H-6720 Szeged, Dóm tér 9, +36-62-54-6392, gergelyr@physx.u-szeged.hu
4. Gyula Fodor, senior research fellow at the Theoretical Department of RMKI, H-1121 Budapest, Konkoly Thege Miklós út 29-33, +36-1-3922-222/36-94, gfodor@rmki.kfki.hu
5. Péter Dombi, research fellow at the Laser Physics Department of the Research Institute for Solid-State Physics and Optics, H-1121 Budapest, Konkoly Thege Miklós út 29-33, +36-1-3922-222/36-09, dombi@szfki.hu
6. Mátyás Vasúth, research fellow at the Theoretical Department of RMKI, H-1121 Budapest, Konkoly Thege Miklós út 29-33, +36-1-3922-222/27-29, vasuth@rmki.kfki.hu
7. Péter Csizmadia, research fellow at the Theoretical Department of RMKI, H-1121 Budapest, Konkoly Thege Miklós út 29-33, +36-1-3922-222/16-13, cspeter@rmki.kfki.hu
8. Viktor Czinner, research associate at the Theoretical Department of RMKI, H-1121 Budapest, Konkoly Thege Miklós út 29-33, +36-1-3922-222/36-17, czinner@rmki.kfki.hu
9. Merse Előd Gáspár, research associate at the Physics Institute of Eötvös Lóránd University, Budapest, Pázmány Péter sétány 1/A, +36-1-3722-750, merse@complex.elte.hu
10. Balázs Mikóczi, PhD fellow at the Theoretical Department of Physics, University of Szeged, H-6720 Szeged, Dóm tér 9, +36-62-54-4168, mikoczi@titan.physx.u-szeged.hu
11. Zoltán Keresztes, PhD fellow at the Theoretical Department of Physics, University of Szeged, H-6720 Szeged, Dóm tér 9, +36-62-54-6394, zkeresztes@titan.physx.u-szeged.hu
12. Ádám Rusznyák, PhD fellow at the Theoretical Department of RMKI, H-1121 Budapest, Konkoly Thege Miklós út 29-33, +36-1-3922-222/26-49, rusznyak@rmki.kfki.hu
13. János Majár, PhD fellow at the Theoretical Department of RMKI, H-1121 Budapest, Konkoly Thege Miklós út 29-33, +36-1-3922-222/16-13, majar@rmki.kfki.hu
14. Bence Kocsis, PhD fellow at the Physics Institute of Eötvös Lóránd University, Budapest, Pázmány Péter sétány 1/A, +36-1-3722-750, bkocsis@complex.elte.hu
15. Péter Raffai, PhD fellow at the Physics Institute of Eötvös Lóránd University, Budapest, Pázmány Péter sétány 1/A, tatu@bolyai1.elte.hu

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Attachment 3 to Memorandum of Understanding of adhesion to VESF

Representative/s of the Group at the VESF Council

As indicated in the Charter, the number of representatives is equal to the number of persons belonging to the group divided by six plus one The Group will communicate to VESF any variation of its representatives to the VESF Council.

1. István Rácz, head of the General Relativity Group at the Theoretical Department of RMKI, H-1121 Budapest, Konkoly Thege Miklós út 29-33, +36-30-426-1197, iracz@sunserv.kfki.hu
2. Zsolt Frei, Professor at the Physics Institute of Eötvös Lóránd University, Budapest, Pázmány Péter sétány 1/A, +36-1-3722-725, frei@alcyone.elte.hu
3. László Árpád Gergely, senior research fellow at the Departments of Theoretical and Experimental Physics, University of Szeged, H-6720 Szeged, Dóm tér 9, +36-62-54-6392, gergelyr@physx.u-szeged.hu