

MEMORANDUM OF UNDERSTANDING FOR THE MAGIC COLLABORATION

Between

- Institut de Física d'Altes Energies, Barcelona, Bellaterra, Spain
- Universitat Autònoma de Barcelona, Bellaterra, Spain
- Universitat de Barcelona, Barcelona, Spain
- Humboldt University Berlin, Berlin, Germany
- Instituto de Astrofísica de Canarias, Tenerife, Spain
- University of California, Davis, California, USA
- Universität Dortmund, Dortmund, Germany
- Division of Experimental Physics, University of Lodz, Lodz, Poland
- Universidad Complutense, Facultad de Ciencias Físicas, Madrid, Spain
- Max-Planck-Institut für Physik, München, Germany
- Sezione INFN and Dipartimento di Fisica, Università di Padova, Padova, Italy
- Tuorla Observatory, Piikkiö, Finland
- Sezione INFN di Pisa, Gruppo Collegato INFN and Università di Siena, Siena, Italy
- Institute for Nuclear Research and Nuclear Energy (INRNE), Sofia, Bulgaria
- Sezione INFN di Trieste, Gruppo Collegato INFN and Università di Udine, Udine, Italy
- Universität Würzburg, Würzburg, Germany
- Yerevan Physics Institute, Cosmic Ray Division, Yerevan, Armenia
- ETH Zürich, Institute for Particle Physics, Switzerland

Approved in Pisa by the MAGIC Collaboration Board on June 28th, 2005

Approved in Madrid by the MAGIC Collaboration Board on November 25th, 2006

The MAGIC Collaboration Board in their meeting at Udine on 14 June 2012 unanimously decided to extend the present MoU by another 5 years.

PREAMBLE

The members of the Major Atmospheric Gamma-ray Imaging Collaboration (abbreviated MAGIC) are working towards the goal of obtaining physics results from the running of the MAGIC telescopic installation, a set of large-diameter Cherenkov telescopes on the Canary Island La Palma. The overall objective is very high energy ground-based gamma-ray astronomy and astroparticle physics at the lowest possible energy threshold. At the moment of writing this Memorandum of Understanding, the MAGIC collaboration is already operating the first 17 meter diameter Imaging Air Cherenkov Telescope (IACT), and has started the construction of a second telescope, MAGIC-II, with a similar structure but using improved technologies in some of its elements.

1. ORGANIZATION STRUCTURE

The MAGIC collaboration was constituted in 1998 and is composed at time of writing the present document by over 150 scientists and technicians from 18 institutes (see list of institution signatures in section 16 below).

The organization of the MAGIC collaboration is structured into three levels:

- An Executive Board
- A Collaboration Board
- The members of the MAGIC Collaboration

1.1 EXECUTIVE BOARD

The Executive Board governs the experiment. It is delegated by the Collaboration Board to take executive decisions. It therefore reports to the Collaboration Board on all actions, and relies on its guidance concerning decisions with strategic impact.

The mandate of the Executive Board is threefold:

- take actions to run the experiment
- take decision on daily questions
- take the actions needed for the construction of new telescopes.

1.1.1 Composition of the Executive Board

The above goals require having a very operative and efficient executive board, formed by a small group of people. The composition is of seven persons (see the organization chart in Annex 1), as follows

- the Spokesperson,
- the Deputy Spokesperson as its Executive Secretary,
- the Technical, Software and Physics coordinators and the “new telescopes” (NT) Project Manager

- the Chair of the Collaboration Board, who acts as a permanent bi-directional link between the Executive Board and the Collaboration Board.

1.1.2 Meetings of the Executive Board

Very frequent and short meetings based on an open agenda prepared by the Deputy Spokesperson shall take place. It is suggested that regular phone conferences are held every 7 to 14 days.

The coordinators and the NT Project Manager report at each meeting.

The Deputy Spokesperson acts as the meeting secretary and takes minutes. These minutes shall be available within one week to all members of the Collaboration Board.

1.1.3 Decisions of the Executive Board

All decisions shall be taken unanimously after adequate discussion. However, in case of dissension the Spokesperson shall take the final decision.

1.2 COLLABORATION BOARD

The Collaboration Board is the principal governing body of the collaboration. It is the final deciding body of the collaboration.

The Collaboration Board is basically the assembly of the representatives of all institutes in the collaboration, thus ensuring proper representation of all collaboration members. Its mandate is to take strategic decisions on the experiment and the construction of further telescopes, and to supervise the actions of the Executive Board.

1.2.1 Composition of the Collaboration Board

The Collaboration Board is formed by Institute Representatives of all collaborating institutes, with the members of the Executive Board, a Deputy Chair and a secretary added. Each institute is represented by one board member. The Chair of the Collaboration Board may, regularly or on a per-case basis, invite members of the collaboration members to participate in the Collaboration Board discussions. Invited members and the secretary do not have a vote in the Collaboration Board.

1.2.2 Meetings of the Collaboration Board

The Collaboration Board meets regularly at least twice per year, usually in coincidence with the MAGIC collaboration meetings. The meetings shall follow a closed and formal agenda with all the relevant documentation available for remote access of all the Collaboration Board members well in advance.

In addition, the Chair may decide to hold extraordinary meetings or call for meetings by telephone or video.

1.2.3 Decisions of the Collaboration Board

The Collaboration Board shall have its quorum to take decisions with the participation of two thirds of the voting members excluding the clause for IAC, independent of the meeting style, face to face, telephone/video meeting or vote by e-mail.

Each member of the Collaboration Board has one vote. Decisions shall be made by agreement of at least two thirds of members specified in the list of the Collaboration Board¹. Important decisions shall be announced 2 weeks before the Collaboration Board meeting by the Chair of the Collaboration Board, and the representatives of institutions can vote on those issues by e-mail or by proxy, in case he/she will not attend the meeting. In principle, discussions shall be continued until reaching an agreement. In case of dissension the following emergency/crisis procedure shall apply:

The decision making procedure in emergency / crisis cases:

Notwithstanding the requirement of agreement more than two thirds this procedure shall be used only in the exceptional case of an emergency or crisis situation in the Collaboration Board or in the entire MAGIC collaboration if consensus is not reached at all. In this case each member institution of the MAGIC collaboration has one vote whereas the decision shall be taken by a single majority of votes. The votes shall be weighted according to the investment share in the MAGIC-II and MAGIC-I constructions as laid down in Annex 5 and 6 hereto, the cumulative common fund contributions of all past years and the cumulative investment of manpower (cumulative FTE*averaged annual salary of scientists in the EU).

1.3 MEMBERS OF THE MAGIC COLLABORATION

The members of the MAGIC Collaboration are defined by a list proposed to the Chairman of the Collaboration Board (see below) by the Group Leaders of the collaborating institutes. The Collaboration Board has the right to accept or refuse the proposed memberships after discussion with the relevant Group Leader. The new members of existing institutes approved in this process are recognized as Full Members. After the first (one) year's experience and the contributions paid to the MAGIC collaboration, they are promoted to be Active Members (see also section 3 and 7) who can sign the publications.

Individuals leaving the collaboration may sign the publications for one more year.

¹ There is an Agreement Document with the Instituto de Astrofísica de Canarias (IAC) signed by the MAGIC Collaboration which states that the IAC can nominate a representative at the maximum decisory body of the MAGIC Collaboration, therefore the Collaboration Board, who would have a 25% weight in the decisions. If that would ever happen, the weights described above would have to be renormalized to a total of 75% weight in the final decision.

1.4 ELECTIONS AND TERMS OF MANDATE OF THE BOARDS

1.4.1 Election and terms of mandate for the Executive Board

In the normal course of action, the Deputy Spokesperson becomes a candidate for the Spokesperson position after his mandate of two years. At that time the members of the MAGIC Collaboration shall decide whether extending for a period of two more years the existing Spokesperson and Deputy Spokesperson mandates or nominate the Deputy Spokesperson as the new Spokesperson and elect a new Deputy Spokesperson. This decision and the possible election of a new Deputy Spokesperson are done by the MAGIC collaboration with the following procedure.

Candidates for (Deputy) Spokesperson should have a record of experimental work and are proposed to the collaboration by the Collaboration Board. Each candidate should make public his interest to become spokesperson to the Chair of the Collaboration Board. The Chair of the Collaboration Board collects a list of candidates and distributes it to the Collaboration Board asking members to vote within each institute for the different candidates. The votes of each institute have the weight of the actual number of collaboration members showing up in the list of active members of each institute for the total accounting. The candidate with the largest number of weighted votes is elected Deputy Spokesperson.

The mandate of Spokesperson and Deputy is for two years although it can be renewed, as described above, for as long as the Collaboration wishes.

The Technical, Software and Physics Coordinators and the NT Project manager are proposed by the Spokesperson. The final decision on these nominations has to be taken in consensus with the Chair of the Collaboration Board, who shall try to guarantee that the executive board composition represents, as much as possible, the interests of the different institutes and the nationalities of the collaboration.

The mandate of these four members is of two years; it may be extended if decided by the incoming Spokesperson; it may also be discontinued at any time by the Spokesperson, in agreement with the Chair of the Collaboration Board. The coordinators and the NT project manager may each have a proxy (Deputy), who may occasionally replace them in the Executive Board.

1.4.2. Election, terms of mandate and operation of the Collaboration Board

The Institute Representatives are appointed by their institute. They shall be Astroparticle Physicists, and there is no time limit of their mandate imposed by the Collaboration. The Deputy Chair is elected by the members of the Collaboration Board with the weights as described above (1.4.1), from a list of candidates proposed by the different Institute Representatives; the Deputy Chair is expected to become the Chair after two years, although, like in the case of the Spokesperson, the mandates can be renewed by the Collaboration board every two years. In special cases (e.g. at the first application of this

procedure) the Chair may be elected directly using the same procedure as described above.

The election of the Collaboration Board Deputy Chair happens, whenever possible, in counter-phase with the election of the Deputy Spokesperson to ensure institutional continuity over the electoral changes.

A secretary with an indefinite mandate takes care of organizing Collaboration Board meetings, of writing minutes, of collecting all related documents, and of making them available.

The mandates of the Spokesperson or of the Collaboration Board Chair may be prematurely terminated by the Collaboration Board if justified by exceptional circumstances. A new election will then have to take place, in accordance with the rules given above.

1.5 TASKS AND RESPONSIBILITIES

All members of the Collaboration Board have tasks and responsibilities based on the goals of the collaboration. They are given in the following.

1.5.1. Spokesperson

The Spokesperson acts as the chair of the Executive Board as well as the scientific and technical representative of the MAGIC collaboration. He/She is the responsible person for operation, for day-to-day technical and scientific decisions, for short-term technical actions, and for the scientific outcome of the MAGIC installation.

He/She is further responsible for a fair distribution of the tasks of operation to all Institutions, according to the major decisions of the Collaboration Board. He/She may temporarily delegate functions to the Deputy Spokesperson.

1.5.2. Chair of the Collaboration Board

The Chair of the Collaboration Board acts as the Political and Administrative representative of the MAGIC collaboration.

The Chair of the Collaboration Board is elected by the Collaboration Board. His mandate is for two years, and shall be in counter-phase with the Spokesperson, whenever possible, viz. his election takes place in the middle of the Spokesperson's mandate

He/She represents MAGIC in front of the Instituto Astrofísico de Canarias, which hosts the Telescopes. He/She is responsible for the administration of the Common Fund (see Annex 8). He/She is in charge of the institutional relation with the MAGIC collaborating institutes and with new institutes willing to join the collaboration. He/She is responsible for establishing the policies concerning conference speakers and publications.

He/She is the contact person for the institutional relation with other collaborations. He/She shall promote the discussion within the Collaboration Board on strategic decisions and long-term technical actions and scientific policies.

He/She is further responsible for the experiment's outreach and publicity.

Concerning speakers at conferences, the Chair of the Collaboration Board is responsible for maintaining a database with all relevant conferences, and an account of all MAGIC presentations already made. The Chair of the Collaboration Board shall be in charge of receiving any offer for MAGIC talks and proposing to the Executive Board candidates for all presentations, trying to make sure that the rights and efforts of every institute and collaboration member contributions are properly taken into account.

Concerning publications, the Chair of the Collaboration Board is responsible for maintaining the updated author list to be used at each publication which includes all active MAGIC members, as well as the relevant Guest Observers for a given publication, if applicable.

1.5.3. Software Coordinator

The Software Coordinator is empowered by the Collaboration Board to take day-to-day software decisions, always in agreement with the spokesperson.

The Software Coordinator may nominate a Deputy Software Coordinator who can act as a proxy if necessary, and whose additional functions shall be decided by the Software Coordinator.

The Software Coordinator nominates and chairs a Software Expert Board (including, for instance, the persons responsible for each software task, software experts and the person responsible for the data centers). The composition of this Board must be approved by the Collaboration Board.

The Software Coordinator is responsible for the coordination of all software maintenance and development tasks and data access for MAGIC: Monte Carlo and analysis code repository, data transfer, access to data centers, and offline data checking.

The Software Coordinator must also ensure that the correct software versions and parameters and solid analysis techniques are used in the analyses leading to the publication of the MAGIC data and results.

He/She acts as the moderator of a MAGIC-software bulletin-board, and is in charge of sending emails on important software issues to the MAGIC Collaboration Board or the general MAGIC collaboration list, if needed.

1.5.4. Technical Coordinator

The Technical Coordinator is empowered by the Collaboration Board to take day-to-day technical decisions in agreement with the spokesperson.

The Technical Coordinator may nominate a Deputy Technical Coordinator who can act as a proxy if required, and whose additional functions shall be decided by the Technical Coordinator.

He/She nominates and chairs a Subsystem Expert Board (including one responsible for each subsystem and the Telescope Manager). The composition of this Board must be approved by the CB.

He/She is responsible for coordinating all hardware and online operation, maintenance and upgrade of MAGIC (operation, online monitoring, online data-checks, maintenance, repairs, installation of new equipment, data-taking shifts).

The Technical Coordinator has to make sure that correct telescope parameters (and possible technical problems) are appropriately taken care of in the analyses leading to the publication of MAGIC data and results.

He/She is directly responsible for the activity of the Telescope Manager (*See Annex 2 about the Telescope Manager responsibilities*).

The Technical Coordinator acts as the moderator of a MAGIC-technical bulletin-board and is in charge of sending emails on important technical issues to the MAGIC Collaboration Board or the general MAGIC collaboration list if needed.

1.5.5. Physics Coordinator

The Physics Coordinator is empowered by the Collaboration Board to take day-to-day decisions on observation schedule, physics analyses and release of results, in agreement with the spokesperson.

A Deputy Physics Coordinator may be nominated who can act as a proxy, if required, and whose additional functions shall be decided by the Physics Coordinator.

He/She nominates and chairs a Physics Board, including, for instance, the Physics Working Group Conveners, internal physics experts, external scientific advisors (theorists and/or experimentalists) and a scheduler. The composition of this Board must be approved by the Collaboration Board.

He/She is supported by a Physics Advisory Board, which includes the Physics board, plus additional experts.

He/She nominates the members of the Editorial Board in agreement with the Chair of the Collaboration Board and entrusts them with the internal refereeing of scientific publications. The Editorial Board is composed by at least 3 members and it is renewed whenever a new Physics coordinator is nominated.

The Physics coordinator is responsible for coordinating all physics issues as observation schedule, physics analyses, paper publications and presentations at conferences.

Concerning physics results the procedure to observe is the following:

The Physics Coordinator collects any new physics results from the Physics Working Group Conveners, and submits them to the Executive Board for approval. These results shall have the form of a short document (at most two or three pages including diagrams) explaining the data used, the analysis made, the results obtained and their possible relevance.

The Executive Board approves an internal release within MAGIC as a “preliminary result”, and establishes a mechanism for its verification (for instance, checking by an independent analysis team).

The Physics Coordinator follows up the proper verification of the result and brings it back to the Executive Board for formal approval, once verified.

Once the result is approved, the authors are requested to produce a paper to be sent to an Editorial Board and by the Chair of the Collaboration Board; the Editorial Board shall guarantee proper internal refereeing. If the Editorial Board approves the document, the Physics Coordinator together with the Chair of the Collaboration Board takes charge of submitting it to the proper Journal. The (Chair of the) Collaboration Board shall maintain a proper author list.

Superior scientific results published in papers shall be presented also on the MAGIC web site for the purpose of education and outreach as well as publicity. The editorial board is responsible for always keeping the page for scientific results up to date.

Publications with an accent on technical developments are not subjected to this procedure and do not require the full author list, but must be cleared by the Editorial Board and the Executive Board before submission.

Concerning results for presentations at conferences the procedure to observe is the following:

The Physics Coordinator and the Executive Board approve a “preliminary result” as described in the preceding paragraph. At this stage, the Executive Board may authorize the result to be presented at workshops, seminars and conferences with the “PRELIMINARY” label.

The Physics Coordinator maintains a pool of such results available for the MAGIC speakers, updating the results with the latest information approved by the Executive Board.

Like the two other coordinators, the Physics Coordinator has to act as the moderator of a MAGIC-physics bulletin-board. He/She communicates via email concerning important physics issues with the MAGIC Collaboration Board or with the general MAGIC collaboration list, if needed.

1.5.6. NT Project Manager

The NT Project Manager is empowered by the Collaboration Board to initiate activities and take day-to-day technical decisions for the construction of New Telescopes (NT), in agreement with the spokesperson.

A Deputy NT Project Manager is nominated to act as a proxy, if needed; additional functions of the Deputy may be decided by the NT Project Manager. The NT Project Manager nominates an Administrative and/or a Technical Assistant. He/She also nominates and chairs a NT Construction Board, including, for instance, persons responsible for each NT subsystem. The composition of this Board must be approved by the Collaboration Board.

The NT Project Manager is responsible for coordinating all NT construction activities like civil engineering, construction planning, subsystem construction coordination, subsystem installation, subsystem integration, tests and commissioning.

He/She acts as the moderator of a NT bulletin-board, and is responsible for communicating via email on important NT issues with the MAGIC Collaboration Board or with the general MAGIC collaboration list, whenever needed.

2. CONSTRUCTION, OPERATION AND MAINTENANCE

Each institution shall contribute to the construction, maintenance and operation of the MAGIC Telescopes, both from the point of view of financial contribution and of human resources. The contribution shall be in relation to the number of scientists from the institution signing the present document, but in case of limited external resources this issue can be negotiated with the Chair of the Collaboration Board. The resulting agreement is subject to approval by the Collaboration Board.

Each group is expected to participate in the data taking shifts in approximate correspondence to the number of authors.

Once the MAGIC Telescopes are fully operational, the Collaboration Board shall draw up a list of all major components of the telescopes that are not to be removed or upgraded without prior consent of the Collaboration Board. An upgrade affecting the data analysis, e.g. needing new Monte Carlo events, shall only be performed once the data analysis chain is ready for the new component as decided by the Software and Physics Coordinators.

3. RIGHTS OF COLLABORATION MEMBERS

The participation in the MAGIC collaboration can take place at several different levels:

- Full members of the MAGIC collaboration have access to all data and analysis groups and can propose observation targets. They are counted on the coefficients of their home institutions for all aspects: common fund sharing, data-taking shifts sharing, weighting of votes, etc...

- Members of a new institute in trial period (see Chapter 9) have access to all data and analysis groups with the guidance by experts in the collaboration. They are not counted on any of the coefficients mentioned above. However, they are encouraged to share data-taking shifts to understand the experiment better.

- Guest observers have to sign an association agreement with one of the collaborating institutes which effectively will host them, and will have access only to restricted data sets and the analysis group or groups selected by the Collaboration Board according to their original guest observation request. They are not counted on any of the coefficients mentioned above.

- Physics working groups may invite external scientists for the interpretation of new results and new phenomena to prepare a specific publication. On such occasions, the physics working group coordinator shall propose to the Collaboration Board the invitation of the external scientist with a clear description of the scientific topic, the purpose, the role of external scientists and the duration of their participation. The Chair of the Collaboration Board shall organize a dedicated extraordinary Collaboration Board meeting to assess the proposal. External scientists may sign the paper to which they contributed. They are not counted on any of the coefficients mentioned above.

4. PLANNING OF THE OBSERVATION PROGRAM

The Physics Coordinator sets up and chairs the Time Allocation Committee. This committee consists of 10 experienced scientists in the MAGIC collaboration including the Spokesperson and the Physics Coordinator. 8 members shall be nominated by the Physics Coordinator, who shall call for observation proposals once a year inside the MAGIC collaboration two months before the due time. The time allocation committee shall evaluate all proposals and drafts for a one year's observation program by allocating a defined observation time to each proposal. This observation program will be presented for approval to the Collaboration Board by the Spokesperson after being agreed within the Executive Board.

To this end, the Physics Coordinator will chair the evaluation and grading of the proposals collected by the Physics Board, which should, whenever possible, come from the Physics Working Groups in a coordinated manner and shall include the guest observer proposals.

The Physics Coordinator appoints a Scheduler who shall define a detailed observation schedule, specifying a night by night and hour by hour time schedule based on the approved time allocation table.

In exceptional and urgent cases, the Executive Board may, upon request of the Physics Coordinator, decide to change the observation plan on short notice. The Spokesperson is answerable for any such change to the Collaboration Board. Changes to the observation plan by the operators during their shifts are allowed only for the cases specified in Target of Opportunity proposals. For the case of unexpected situations, there shall be a prioritized list with phone numbers of individuals for consultation available to the operator. Each observation plan and change of observation plan is communicated to the collaboration.

5. COMMUNICATION

The main instrument of communication and synchronization are the MAGIC collaboration meetings, held at least twice a year. The place and dates of the next collaboration meeting are made public at the end of the previous meeting. The ordinary meetings of the Collaboration Board will, whenever possible, coincide with the MAGIC collaboration meetings.

6. PRESENTATION OF RESULTS

The presentation of physics results at conferences and workshops will be discussed and decided by the Executive Board following the procedure outlined in section 1.5.5. The Chair of the Collaboration Board shall ensure that each group has a fair share of the presentations. MAGIC-specific invitations shall be made known to all members of the Collaboration Board. No new results can be presented outside the MAGIC collaboration without agreement by the Executive Board.

In case of outstanding or conflicting results, the Chair of the Collaboration Board might decide to call for an extraordinary Collaboration Board meeting either de visu or virtual to decide on their release. If deemed necessary, the publications of new scientific results

or new discoveries shall be supplemented by press releases, according to the guidelines set out in Annex 3.

The Chair of the Collaboration Board will also take care that the MAGIC collaboration produces materials available for the interested public as part of an education and outreach program involving public talks, high-school visits, or media contact.

7. PUBLICATIONS

The Chair of the Collaboration Board will take care of producing the appropriate author list for each original data paper. The author list will contain the names of all active MAGIC collaboration members in alphabetical order unless otherwise agreed by the Collaboration Board, and the names of the guest observers who have contributed to that specific publication. If no agreement can be reached for a specific paper, the Executive Board will decide. The corresponding authors are indicated on each publication.

The institutes shall declare their active members to the Collaboration Board. Persons who have made technical contributions in the construction of the telescope or its upgrades stay as active members on the author list as long as they are involved in at least one of the following activities.

To be an active member (author), individuals have to be a full member of the MAGIC collaboration for more than one year and participate in at least two of the following activities:

- shifts or maintenance work within the last year
- analysis or analysis supervising tasks
- collaboration organizational responsibilities
- MAGIC-related technical developments

The procedure to follow towards a MAGIC publication is detailed in section 1.5.5. **Publication of new scientific results or new discoveries by members of the MAGIC Collaboration shall follow the publication policy as explained in Annex 4.**

8. EXPENSES

8.1 Personnel Matters

Collaborators working at La Palma remain under contract with their respective home institutions. Their salary and social benefits will remain the responsibility of the home institution. The home institution is responsible to make sure that the necessary insurance for accident and liability exists for their members and that their members act in accordance with the local safety rules when working at La Palma. The home institute is also responsible for the cost of travel and subsistence, also in the case of data taking shifts.

8.2 Construction of the Telescopes

Every collaborating institute participates in the construction of the MAGIC Telescopes. The construction costs are shared among the collaborating institutes according to their financial capabilities. The total amounts of the MAGIC-II telescope construction, as of October 2005, are foreseen to be 6.1 MEUR (see Annex 5 on construction costs).

8.3 Operating Expenses

Global operating expenses of the experiment will be shared among the participating institutes. The MAGIC Collaboration Board appoints a representative to handle the accounting of such expenses. A detailed account shall be made available to each collaborating institute on an annual basis. (*See Annex 8 about Common Fund administration*)

Global expenses to operate the MAGIC Telescope at La Palma will include:

- A compensation to the Instituto Astrofísico de Canarias (IAC), which hosts the Telescopes, according to special agreements between the MAGIC collaboration and IAC. This compensation is regulated independently of the MoU.
- Direct charges of the share of operating costs to be paid to IAC.

These costs will include electricity costs, costs for storage rooms, telephone and communication costs and site costs for maintenance of the ORM, new common installations and contributions. Cost sharing is done according to a key accepted by the Collaboration Board, and includes the operating costs of the optical telescope(s). The

Common Fund might also be used to cover the salary of people working for the full year at La Palma, whose functions are described in a separate document.

At the time of signature of the present MoU, the total cost is of 350 kEUR/year, shared according to the Table in Annex 9. In case the total annual cost exceeds 400 kEUR, the contributions of the different Institutions will be renegotiated.

8.4 Maintenance and Repairs

All costs of maintenance and operation for the telescopes are shared by the members of the collaboration on the same basis as other expenses. On the other hand, repairs are the responsibility of the operating group(s).

9. JOINING THE MAGIC COLLABORATION

Requests by new institutes to join the MAGIC collaboration are to be addressed to the Chair of the Collaboration Board who shall initiate negotiations and ask for a decision of the Collaboration Board in due time.

In case of application of a new institution, the Collaboration Board shall define a one year's trial period for this institute. During this trial period, members of the new institution can participate in the collaboration meetings as observers and also take shifts and access the MAGIC data with the guidance of experts in the collaboration. The new institution does not need to pay Common Fund contributions during this trial period. After one year, the Collaboration Board approves or rejects the new institute as a full member institute of the MAGIC collaboration.

10. LEAVING THE MAGIC COLLABORATION

Requests of institutes to leave the MAGIC collaboration must be addressed, at least three months in advance, to the Chair of the Collaboration Board, who shall take care of the fact that, before leaving, the respective institute makes sure that their responsibilities for hardware or software items are taken over by other members of the MAGIC collaboration.

The Chair of Collaboration Board shall examine the validity of MAGIC membership of all institutes according to their contributions to the MAGIC collaboration. If the Chair of Collaboration Board recognizes a clear failure of fulfilling minimal duties for one year by an institute, he/she shall propose to the Collaboration Board to deprive that institute of

the membership in MAGIC. Such decision shall be taken at the Collaboration Board meeting.

11. END OF THE MAGIC COLLABORATION

The dissolution of the MAGIC Collaboration is established if the Collaboration Board decides so.

In the event of terminating the collaboration, any costs arising from the dismantling of any installations and the restoration of the environment if necessary for any reason shall be shared by all collaboration partners following the share coefficient as in Annex 8 to this MoU.

12. OPTICAL OBSERVATIONS

The MAGIC collaboration operates, in addition to the MAGIC telescopes, one or more optical telescopes, in order to have access to data at optical wavelengths of the same source as observed with MAGIC, whenever this is considered necessary. Typically, an optical telescope will be under the control of an institute of the MAGIC collaboration. At the moment of writing this document, the 60cm KVA telescope (with a 35 cm auxiliary telescope), already working on the Roque de los Muchachos on La Palma, is the only optical instrument of support for the collaboration. It is operated by the Tuorla group, and rented by the University of Turku from the Royal Swedish Academy of Sciences, for the period 1.1.1999-31.12.2008. Later, further instruments may be installed.

The KVA telescope is reserved for other scientific purposes for two one-month periods each year, as scheduled by the KVA Observing Program Committee. Outside these two periods, the KVA optical telescope will be available for MAGIC-supporting observations, whenever this is deemed necessary by the collaboration. In case of conflict with any other optical observation programs, MAGIC support will take precedence, up to maximum of 66% of scheduled KVA time averaged over any three months' period, excluding the periods referred to above and possible time allocated to Spanish and CCI programs.

12.1 Installation and Operation of Optical Telescopes

The optical telescope(s) will be provided by the group who operates it (them), like other detector parts of MAGIC. The installation of an optical telescope will be the responsibility of the operating group.

All groups are invited to participate in operating the optical telescope(s) on the same level as participating in data taking shifts in MAGIC.

12.2 Cost Sharing for Optical Telescopes

All costs of maintenance and operation for the optical telescopes are shared by the members of the collaboration on the same basis as other expenses, as outlined in the MoU. This includes all global expenses (site, electricity, storage, data carriers, etc). Cost sharing is done according to a key accepted by the Collaboration Board, and includes the operating costs of the optical telescope(s). Repairs, on the other hand, are the responsibility of the operating group(s).

12.3 Data Analysis and Data Sharing for Optical Observations

Data taken by the optical telescopes in support of the MAGIC program are the property of the collaboration. The analysis software must be prepared and maintained by the operating group(s), their standard processing, however, can be included in the MAGIC processing chain. The rules given in the MoU about the presentation of results and publications apply without change.

Data taken during periods when MAGIC has not required optical support will not be subject to these rules.

12.4 Other Auxiliary Devices

Similar rules can be applied for devices to observe at other wavelengths than optical.

13. EXECUTIVE AMENDMENTS

For pragmatic reasons clarification of certain points might be necessary in the future. As long as they do not change major aspects of this document, they can be added as amendments to this MoU if approved by the CB. All collaboration partners agree to comply with such amendments.

14. DISPUTES

In case of disputes, the EB tries to conciliate. If disputes cannot be conciliated, the place of venue shall be Barcelona.

15. DURATION

This Memorandum of Understanding supersedes the one dated from the year 2000 and can be renewed by decision of the Collaboration Board. The present Agreement is valid for 5 years from its date of signature, unless the Collaboration is dissolved before.

16. SIGNEES

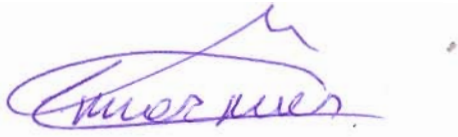
As of Oct. 2006, the following institutions are members of the MAGIC collaboration:

- Institut de Física d'Altes Energies, Barcelona, Bellaterra, Spain
- Universitat Autònoma de Barcelona, Bellaterra, Spain
- Universitat de Barcelona, Barcelona, Spain
- Humboldt University Berlin, Berlin, Germany
- Instituto de Astrofísica de Canarias, Tenerife, Spain
- University of California, Davis, California, USA
- Universität Dortmund, Dortmund, Germany
- Division of Experimental Physics, University of Lodz, Lodz, Poland
- Universidad Complutense, Facultad de Ciencias Físicas, Madrid, Spain
- Max-Planck-Institut für Physik, München, Germany
- Sezione INFN and Dipartimento di Fisica, Università di Padova, Padova, Italy
- Tuorla Observatory, Piikkiö, Finland
- Sezione INFN di Pisa, Gruppo Collegato INFN and Università di Siena, Siena, Italy
- Institute for Nuclear Research and Nuclear Energy (INRNE), Sofia, Bulgaria
- Sezione INFN di Trieste, Gruppo Collegato INFN and Università di Udine, Udine, Italy
- Universität Würzburg, Würzburg, Germany
- Yerevan Physics Institute, Cosmic Ray Division, Yerevan, Armenia
- ETH Zürich, Institute for Particle Physics, Switzerland

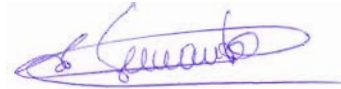
Dates and Signatures

(pages 20-36)

- Institut de Física d'Altes Energies, Bellaterra, Spain



MAVEL MARTINEZ
MAGIC-IFAE PI



ENRIQUE FERNANDEZ
IFAE DIRECTOR

- Universitat Autònoma de Barcelona, Bellaterra, Spain

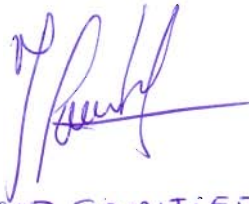
13.12.06



- Universitat de Barcelona, Barcelona, Spain



PROF. JOSEP M. PAREDES



DR. JOSEP SAMITIER



UNIVERSITAT DE BARCELONA



Vicerektorat de Política Internacional

- Humboldt University Berlin, Berlin, Germany

Thomas We

Prof. Dr. Thomas We, Projektleiter

Bonnie Sel -- 21.12.2006

I.A. Dr. Brigitte Lehmann
Leiterin der Forschungsabteilung

- Instituto de Astrofísica de Canarias, Spain

A handwritten signature in dark ink, appearing to be 'A. G.' or similar, written in a cursive style.

December 28, 2006

- University of California, Davis, California, USA

A handwritten signature in black ink, appearing to be 'DANIEL TERENCIO', written in a cursive style.

DANIEL TERENCIO, PI

- Universität Dortmund, Dortmund, Germany

W. Rhode

Prof. Dr. Dr. W. Rhode

30. 11. 06

- Division of Experimental Physics, University of Lodz, Lodz, Poland

1/12/06

deyillo

- Universidad Complutense Madrid, Facultad de Ciencias Físicas, Madrid, Spain

MV Fonseca 30.11.06

VICERRECTORADO DE INVESTIGACIÓN
Y POLÍTICA CIENTÍFICA
Carmen Acebal Sarabia
Carmen Acebal Sarabia

- Max-Planck-Institut für Physik, München, Germany

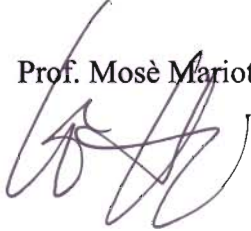
30.11.06

W. Heisenberg
MAX-PLANCK-INSTITUT
für Physik
Werner-Heisenberg-Institut
Föhringer Ring 6, 80805 München
Postfach 401212, 80712 München
Tel. 089/32354-0 · Fax 089/3226704

- Sezione INFN and Dipartimento di Fisica, Università di Padova,
Padova, Italy

July 23rd, 2007

Prof. Mosè Mariotti

A handwritten signature in black ink, consisting of several loops and strokes, positioned below the printed name.

- Tuorla Observatory, Piikkiö, Finland

Esso Uelsteraja 30.11.06
DIRECTOR


CB-MEMBER

- Sezione INFN di Pisa and Dipartimento di Fisica, Università di Siena,
Siena, Italy

July 23rd, 2007

Prof. Riccardo Paoletti

A handwritten signature in black ink, appearing to read 'R. Paoletti', written in a cursive style.

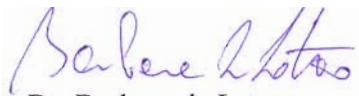
- Institute for Nuclear Research and Nuclear Energy (INRNE), Sofia, Bulgaria.

Director:
14/12/2006



Prof. D. Elenkov

- Sezione INFN di Trieste, Gruppo Collegato INFN and Università di Udine,
Udine, Italy
September 10th, 2007



Dr. Barbara de Lotto

- Universität Würzburg, Würzburg, Germany

22.12.2006



- Yerevan Physics Institute, Cosmic Ray Division, Yerevan, Armenia



/ A. Chilingarian /

Head of Cosmic Ray Division

5/12/06

The signature of Professor Ashot A. Chilingarian is confirmed -

L. S. Mikaelyan,
Deputy Director of YerPHI
Head of Personal Department



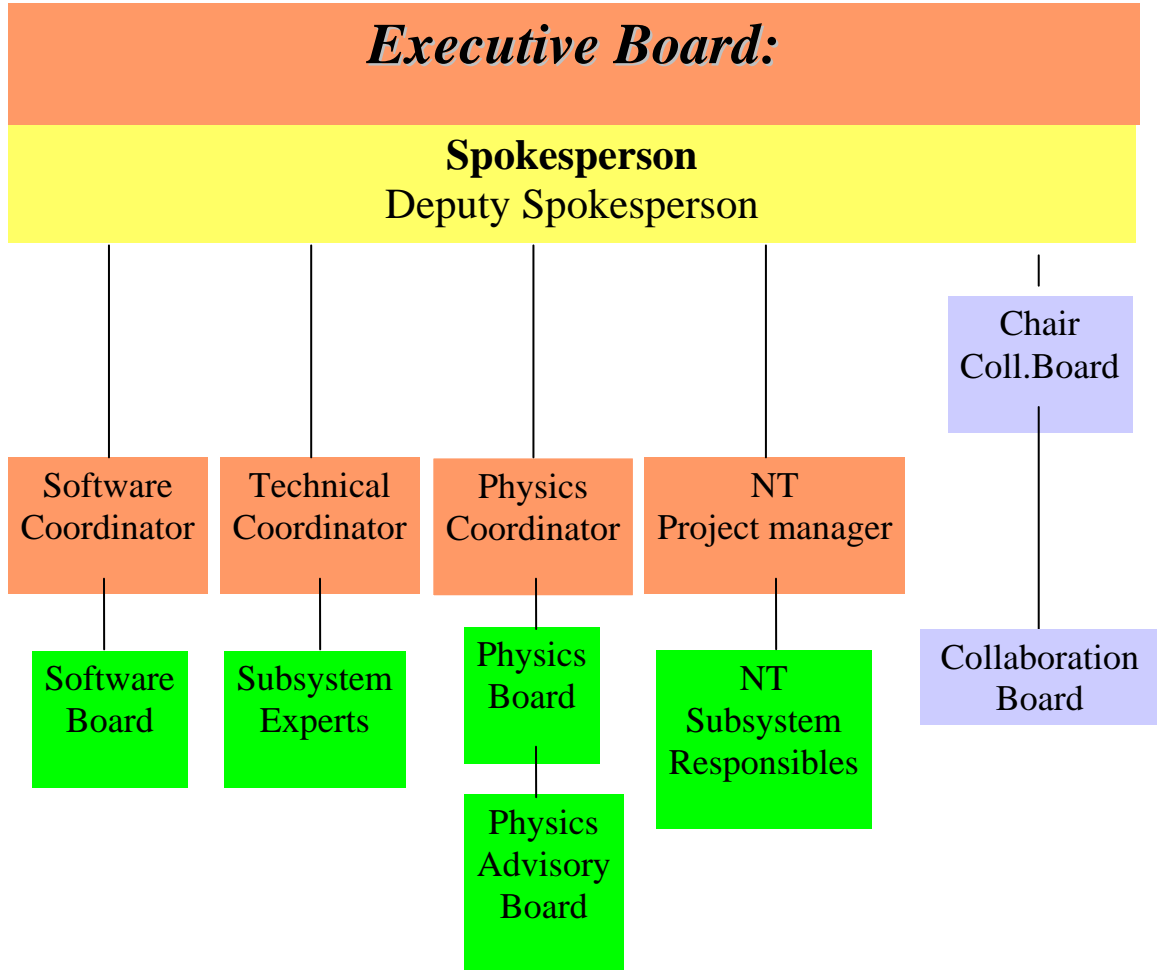
- ETH Zürich, Institute for Particle Physics, Switzerland



J. Fröhlich

ETH Zürich
Institut für Teilchenphysik
Schafmattstrasse 20
CH-8093 Zürich

Annex 1: Organization structure for the Executive Board



Annex 2: Telescope Manager Responsibilities.

- i) Supervise the operation of the telescopes and LIDAR , i.e., prepare during daytime the night observations and coordinate with the physics team the observation program
- ii) Ensure that group members coming to La Palma obey the safety rules as well as outside institutions which perform work on site, i.e. acting as GLIMOS (group leader in matter of safety). In case of absence (night observations, vacations, weekends) the duties can be transferred to a person being instructed on safety matters.
- iii) Distribute relevant new safety information, rules and general site information to the collaboration members
- iv) Act as a link to the ORM site manager
- v) Perform minor repairs and organizational work in agreement with the Technical Coordinator.
- vi) Inform (about needed repair or preventive maintenance) as well as help groups to carry out their repair and service duties for MAGIC.
- vii) Send regular a status reports to the Technical Coordinator.
- viii) Participate in the CB meetings whenever possible (ex. sensitive personnel issues)
- ix) Report any critical issue to the Technical Coordinator and Spokespersons.
- x) Make sure (can delegate) that the telescope is secured in case of bad weather periods (needs a 4 wheel drive in winter)
- xi) Carry out preventive maintenance and inform responsible groups of the needs to fulfill their duties
- xii) Update site WebPages
- xiii) Write or initiate writing of operation instructions or make sure that proper documentation of the instruments are available
- xiv) Assist in copying data, take care about some local computing

Annex 3: The procedure for the press release

Highly important scientific results in MAGIC must be submitted to journals which have a wider audience (Nature, Science, and etc.). The correspondence and the contact data of the submitted paper shall list the persons who made significant contributions to that work. In parallel, a press release must be suitable to have an impact on public outreach, education and political issues. We recognize that a press release is especially important as an appeal to the funding agencies and individual institutions in each country.

The Spokesperson, the Co-Spokesperson, the chair of the collaboration board and the Physics coordinator will prepare the document for an international press release from the draft which is prepared for submission, including the general explanation of MAGIC. A press release is always published in the name of the MAGIC collaboration with a list of all institutions (authorship) without any exception. The names given for correspondence are those of the Spokesperson, the Co-Spokesperson and the Chair of the Collaboration Board. The contents of any press release is subject to the Collaboration Board's prior approval.

In each country, a press release is prepared by the PIs in that country, and is based on the document of the relevant international press release. Only one press release in each country is expected except for some special cases. The press release in each country is in the name of the MAGIC collaboration with a list of all institutions of that country and their PIs. The names given for correspondence are those of the PIs of the institutions of that country. The contents of any press release is subject to the Collaboration Board's prior approval.

The International press release and the individual press release in each country must be synchronized within a few days. Without any exception, the international press release must be done first, then the press release in each country will follow.

Annex 4: Publication policy of new discoveries and new results

The MAGIC collaboration recognizes the importance of new discoveries and new results and their confidentiality before publication.

New discoveries are defined to be the identification of new sources and the discovery of new phenomena which have a high scientific value. The publication or disclosure of new discoveries in journals and the press are organized by the physics coordinator and the Executive Board. Final approval by the Collaboration Board in special telephone conferences or by e-mail exchange is mandatory.

New results are defined to be new observations for established sources which have a scientific value for publication. The publication of new results in scientific journals is organized by the physics coordinator and reviewed by the internal referees and the editorial board. The presentation of new results in conferences is arranged by the chair of the Collaboration Board and the Physics Coordinator and is subject to prior approval by the collaboration board.

All collaboration members must respect this publication / disclosure procedure and are strictly prohibited to leak any information about new discoveries and new results outside the MAGIC collaboration before publication.

Annex 5: MAGIC-II construction shares (November 2006)

Total budget for MAGIC-II construction is estimated about 6.1 MEUR

Institution	Task	Share	Total share	Keuro
IFAE Barcelona	Receiver Board	100%	7,8%	470
	Readout FADC	50%		
	Data center	35%		
	FADCs	50%		
	Camera R&D	5%		
UA Barcelona	Data center	32%	2,8%	170
	Mirrors	15%		
	Diamond polishing	15%		
UC Madrid	Data center	32%	5,5%	330
	Camera (PMTs)	20%		
	Camera (Electronics)	12%		
	HPD R&D	15%		
MPI Munich	Telescope mount	100%	49,4%	2969
	Under carriage	100%		
	Telescope mechanics	100%		
	Telescope gears	30%		
	Camera access tower	100%		
	Telescope container	100%		
	Camera (PMTs)	57%		
	Camera (Electronics)	71%		
	Camera (Mechanics)	100%		
	Winston cones	100%		
	Data Center	10%		
	Camera R&D (HPDs)	77%		
Concrete foundation	50%			
U.Humboldt Berlin	Camera (PMTs)	20%	2,3%	140
	Optical cables	50%		
U. Wuerzburg	Star guiders + CCD Camera	100%	1,7%	100
	Control pannel in container	100%		
	Optical cables	50%		
	Camera R&D (HPDs)	3%		
U. Padova	Mirror construction	85%	12,4%	745
	Diamond polishing	85%		
	Mirror heating	100%		
	Trigger electronics	50%		
U.Siena	Mirror heating power	100%	5,9%	355
	Trigger electronics	50%		
	Readout FADC	50%		
U.Udine	Online, Semi-Online PCs	90%	3,7%	223
	M.C. Center	80%		
ETH	Star guidars + CCD Camera	50%	4,8%	287
	AMCs	100%		
	Online, Semi-Online PCs	10%		
	M.C. Center	10%		
U. Lodz	Camera (PMTs)	3%	0,2%	15
Tuorla	Mirrors	20%	0,7%	40
U. Dortmund	VCSEL	100%	2,8%	170
	Camera (Electronics)	17%		
U. Davis	Winston cones		0,0%	0

Annex 6: MAGIC-I Construction Share

The column “Share” is an extraction from the document “Memorandum of Understanding between the members of the MAGIC Telescope collaboration” dated 15.02.2000. The column “Total share” is from the minutes of SC committee meeting in January 2001. This table was confirmed and updated by the collaboration.

Institution	Task	Share	Total share	Keuro
IFAE Barcelona	Camera	100%	17,9%	990
	Photomultiplier	50%		
	Preamplifiers	100%		
	FADCs	25%		
	Remote Controls	100%		
	Camera Tour	100%		
	Counting House	100%		
UA Barcelona	Meteorological Station	100%	0,5%	30
	Shower simulation			
UC Madrid	Photomultiplier	20%	2,0%	113
	Shower simulation			
MPI Munich	Telescope mounting	100%	51,4%	2848
	Discriminators	100%		
	Analog optical fibers	100%		
	Photomultipliers	30%		
	Receiver Board	100%		
	MUX FADC	100%		
U. Siegen	FADC (constr. /test)	75%	3,8%	208
	DAQ (hw/interface)	100%		
U.-SW. Goettingen	Tracking	100%	8,1%	450
	Slewing	100%		
	Data Center	100%		
U. Padova	Mirror construction	100%	12,2%	675
	Trigger (L1& L2)	60%		
	GRB alarm system	100%		
U.Siena	Trigger	40%	1,7%	95
Yerevan	Neural Net Trigger	100%		
	LIDAR	100%		
U. Lodz	Analysis sw.			
U. Davis	Winston cones		0,4%	20
U. Udine	Online PCs, PCs in MCC		0,5%	25
Tuorla	KVA Telescope		1,6%	90

Annex 7: Contributions in Man Power (1998-2006)

This table shows the man power contributions to the MAGIC collaboration by individual institutions between 1998 and 2006.

Scientists + PhDs/2 + Technicians									
Institute	Country	2001	2002	2003	2004	2005	2006	2007	Total
IAC	Spain							5,0	5,0
IFAE Barcelona	Spain	9,5	11,5	9,5	7,5	8,5	14,5	12,0	73,0
UAB Barcelona	Spain	3,0	3,5	4,0	5,0	4,0	3,0	3,0	25,5
U Barcelona	Spain							3,5	3,5
U Berlin (+ Siegen)	Germany	2,0	2,5	2,5	3,5	3,5	3,5	1,0	18,5
<i>Crimean Astroph. Obs.</i>	<i>Ukraine</i>	4,5	3,5	2,0	1,0	1,0			
UCalifornia Davis	USA	4,0	2,5	1,5	2,5	2,5	1,5	1,5	16,0
U Dortmund	Germany						2,0	2,0	4,0
University of Lodz	Poland	3,0	4,0	4,5	4,5	4,5	4,5	3,0	28,0
Universidad Compl. Madrid	Spain	5,0	4,0	3,5	4,5	6,0	6,0	5,0	34,0
MPI München	Germany	23,0	27,0	18,5	22,0	22,5	31,5	31,5	176,0
INFN Padova	Italy	8,1	10,1	12,1	12,1	12,6	13,6	13,8	82,4
<i>Potchefstrom University</i>	<i>South Africa</i>	2,0	1,5	1,0	1,0	1,0			
INFN Siena	Italy	1,0	3,5	5,5	6,0	7,0	7,0	7,5	37,5
Sofia	Bulgaria					3,0	3,0	3,0	9,0
Tuorla Astron.Inst.	Finland			2,0	2,5	2,5	3,0	3,0	13,0
INFN Udine	Italy			5,5	5,0	6,5	6,0	6,0	29,0
Würzburg (+ Göttingen)	Germany	4,5	4,0	3,5	3,5	2,5	4,0	5,0	27,0
Yerevan Physics Institute	Armenia	1,0	1,0	1,0	1,0	4,0	4,0	3,5	15,5
ETH Zürich	Switzerland				4,0	5,5	8,0	9,5	27,0
Total		70,6	78,6	76,6	85,6	97,1	115,1	118,8	642,4

Annex 8: Common Fund Administration

According to section 1.5.2 of the MoU the Chair of the Collaboration Board is responsible for the administration of the Common Fund.

Following a decision of the MAGIC Collaboration Board, a Common Fund Manager (CFM), presently IFAE, will as account holding partner of the Collaboration manage the Common Fund of the MAGIC collaboration whose amount shall be within the financial limits and in accordance with the Memorandum of Understanding. To that end, the CFM will open a Common Fund Account which will be operated in the following way:

For the management of the Common Fund Account, the following rules shall apply:

- The Collaboration Board will define in the last meeting of every year the share coefficients of all collaborating Institutes for the following year. If no agreement can be reached, the previous coefficient will be used until a new coefficient is decided. As of June 2005, the procedure used so far for the computation of the sharing coefficients was the following: from EU tables, we find for each country $a = \text{per-capita Gross National Product}$ and $b = \text{fraction spent on R\&D}$. From the “active MAGIC members” table we get $c = \text{number of physicists per institute (PhD students count 0.5, Diploma Students do not count)}$. We form the product $a \times b \times c$ for each institute, using the appropriate country, and normalize such that the sum becomes 100%. In the Collaboration Board meeting in Munich in February 2006, the Collaboration Board agreed that the coefficient $a \times b$ of each institute shall not exceed the coefficient of $a \times b$ of Germany.
- The balance of this account shall always remain positive. Therefore, in order to start the operation, a buffer will be created by an initial down payment. The amount for this initial payment will be determined by the Collaboration Board and distributed according to the current share coefficients.
- The Institutes will receive the first request per year at the beginning of each year. This request will be for their share in the sum of the closing balance of the previous year and the foreseen expenses for the year.
- The CFM, as the account holding partner, will, via the Chair of the Collaboration Board, send a request for each institution's share in the Common Expenses, clearly specifying said expenses. Collaborating Institutions shall transfer the required amounts to the CFM within a period of less than three months from the date of receiving the notification.

- Any interest generated in the Common Fund Account by the money advanced by the collaborating institutes for the yearly expenses will be used for Common Fund expenses, and will be taken into account in the yearly closing balance.

- In special cases an extraordinary request might be issued at any time if the Collaboration Board decides it necessary within the 20% of the total cost.

- The Chair of the Collaboration Board will present at the final Collaboration Board meeting of every year a complete statement of accounts of the year showing each single partner's contributions and their intended use. The Chair of the Collaboration Board then presents the previsions for the coming year, and will ask for an approval of the accounting. In this context, the Collaboration Board will nominate for the duration of 2 years two senior members who will check once per year the Common Fund financial operations. These two members will also report to the Collaboration Board. Notwithstanding, the Collaboration Member Institutions shall have a global right to examine and audit, whereas the Chair of the Collaboration Board shall in individual cases enforce the audit procedure.

- In case of problems such as delays in payment or a temporary impossibility in some Institution to cover their share, the CFM will bring the subject to the Chair of the Collaboration Board, who will make a decision on how to proceed.

- The CFM reserves the right of, upon approval by the Collaboration Board, considering the expenditures originated by the administration of the Common Fund as a Common Fund expense and, therefore, charging the collaboration for them.

- The CFM will collect all receipts related to the common costs of the MAGIC collaboration that are recognized by the MAGIC Collaboration Board as "Common Fund Expenses". The CFM will either pay the invoices or reimburse the individual institutions as necessary from the Common Fund Account.

- The CFM will then distribute periodical requests for reimbursements of the Common Fund Account to all collaboration institutions following the share coefficient decided by the Collaboration Board.

Annex 9: Common Fund Share Formula 2007

Institute	Country	GDP/capita US\$	Fraction spent for R&D	Number of physicists	Product	Normalize	Share %	Share per physicist
IFAE Barcelona	Spain	27175	0,011	9,5	2839,79	0,06401	6,40	0,674
UAB Barcelona	Spain	27175	0,011	3,0	896,78	0,02021	2,02	0,674
Universitat Barcelona	Spain	27175	0,011	3,5	1046,24	0,02358	2,36	0,674
Humboldt-Universität Berlin	Germany	33785	0,026	1,0	878,41	0,01980	1,98	1,980
UCalifornia Davis	USA	33785	0,026	1,5	1317,62	0,02970	2,97	1,980
Universität Dortmund	Germany	33785	0,026	2,0	1756,82	0,03960	3,96	1,980
University of Lodz	Poland	7487	0,006	4,5	202,15	0,00456	0,46	0,101
Universidad Compl. Madrid	Spain	27175	0,011	5,0	1494,63	0,03369	3,37	0,674
MPI München	Germany	33785	0,026	15,0	13176,15	0,29699	29,70	1,980
INFN Padova	Italy	29635	0,011	10,0	3259,85	0,07348	7,35	0,735
INFN Siena	Italy	29635	0,011	7,5	2444,89	0,05511	5,51	0,735
INR Sofia	Bulgaria	3328	0,006	3,0	59,90	0,00135	0,14	0,045
Tuorla Astron.Inst.	Finland	33785	0,026	3,0	2635,23	0,05940	5,94	1,980
INFN Udine	Italy	29635	0,011	5,5	1792,92	0,04041	4,04	0,735
Universität Würzburg	Germany	33785	0,026	5,0	4392,05	0,09900	9,90	1,980
Yerevan Physics Institute	Armenia	1078	0,006	3,5	22,64	0,00051	0,05	0,015
ETH Zürich	Switzerland	33785	0,026	7,0	6148,87	0,13860	13,86	1,980
				89,50	44364,92	1,00	100,00	

Notes:

- GNP/capita taken from EU 2005 statistics (table as of Nov 2006, but not recently updated)
(found at http://tilastokeskus.fi/tup/maanum/maailmanumeroina_taulukot_en.html)
- fraction of GNP for research and development from same tables (2003/4)
- fraction of GNP spent for R&D (no recent data available for Armenia and Bulgaria, Polish fraction used)
- number of physicists from group leaders' information Nov 2006

Annex 10: Common Fund 2002 – 2007 (€)

	2002	2003	2004	2005	2006	2007*	Total 01-07
IFAE Barcelona	6.865	5.069	6.961	17.230	8.900	17.283	62.308
UAB Barcelona	2.435	0	5.355	15.539	0	0	23.329
Universitat de Barcelona					3.333	6.367	9.700
Humboldt U. Berlin (+Siegen)	6.000	7.780	36.900	6.900	17.900	5.348	80.828
Ucalifornia Davis	11.670	7.493	12.285	14.559	9.100	8.019	63.126
Universität Dortmund				9.192	21.200	10.692	41.084
University of Lodz	785	1.475	1.548	1.047	1.500	1.230	7.585
Universidad Complutense de Madrid	4.840	8.000	3.731	20.103	0	6.666	43.340
MPI München	16.940	29.564	289.825	120.642	68.300	80.189	605.460
INFN Padova	13.370	10.827	10.994	9.763	22.300	19.839	87.093
INFN Siena	1.135	7.006	7.760	8.040	15.600	14.879	54.420
INR Sofia				129	400	365	894
Tuorla Astron. Institute	3.645	7.905	10.505	11.111	32.500	16.038	81.704
INFN Udine		5.732	5.820	6.892	16.700	10.911	46.055
Universität Würzburg	7.750	17.987	12.041	7.447	28.400	26.730	100.355
Yerevan Physics Institute	85	22	28	90	415	138	778
ETH Zürich		14.314	14.924	49.510	37.798	47.421	163.967
Total	75.520	123.174	418.677	298.194	284.346	272.115	1.472.025
*The numbers in 2007 are requested/expected numbers; they shall be updated after April.2007.							

Annex12

New member institute of the MAGIC Collaboration

DESY

The institutes of the MAGIC Collaboration, represented by the Collaboration Board (CB), agreed on the official participation of DESY with a group led by Dr. E. Bernardini, with a full membership on 23 April 2008.

The MAGIC Collaboration appreciates the initial hardware contribution of 164k Euro to the MAGIC project by DESY.

DESY agrees with the Memorandum of Understanding of the MAGIC Collaboration dated 25 November 2006, and the representative of the DESY group, Dr. E. Bernardini, will respect the rules and duties as a member of the MAGIC Collaboration.

Signed for the Collaboration:
Date:



M. Teshima
Spokesperson

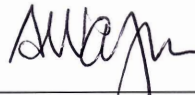


M. Mariotti
Co-spokesperson

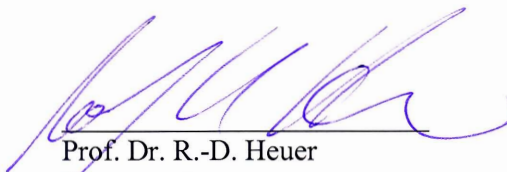


R. Mirzoyan
Chair of Collaboration Board

Signed for DESY:
Date: 21. 4. 08



Prof. Dr. A. Wagner
Chairman of the DESY Directorate



Prof. Dr. R.-D. Heuer
Director of Research



Dr. Ulrich Gensch
Representative of the directorate in Zeuthen



E. Bernardini,
DESY Group representative

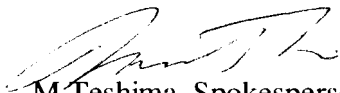
New member institute of the MAGIC collaboration

Istituto Nazionale di Astrofisica (INAF)

The institutes of the MAGIC collaboration, represented by the Collaboration Board (CB), agreed on the official participation of the group from the Istituto Nazionale di Astrofisica (INAF) led by Dr. Marco Salvati, with full membership beginning on 23 April 2008. The MAGIC collaboration appreciates the initial hardware contribution of 300 kEuro to the MAGIC project by this new institute.

The President of INAF, Dr. Tommaso Maccacaro, and the group representative, Dr. M. Salvati, have read and understood the Memorandum of Understanding of the MAGIC collaboration dated on 25 November 2006, and will respect rules and duties as a member institute.

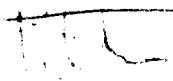
Signed for the collaboration:



M. Teshima, Spokesperson

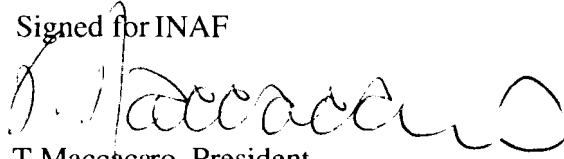


M. Mariotti, Co-spokesperson



R. Mirzoyan, Chair of Collaboration Board

Signed for INAF



T. Maccacaro, President

M. Salvati, INAF Group representative



Annex14

New member institute of the MAGIC collaboration

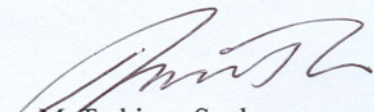
IIEEC-CSIC

The institutes of the MAGIC collaboration, represented by the Collaboration Board (CB), agreed on the official participation of the group in the institute IIEEC-CSIC led by Dr. D. Torres, with full membership on 23.Apr.2008.

The representative of the IIEEC-CSIC group, Dr. D. Torres has read and understood the Memorandum of Understanding of the MAGIC collaboration dated 25 November 2006, and will respect the rules and duties as a member institute.

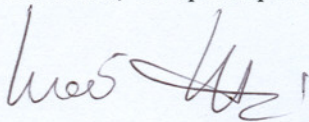
Signed for the collaboration:

03.06.09

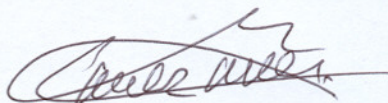


M. Teshima, Spokesperson

M. Mariotti, Co-spokesperson



M. Martínez, Chair of Collaboration Board



Signed for IIEEC-CSIC Group



J. Isern, Director of IIEEC-CSIC



D. Torres, IIEEC-CSIC Group representative

ANNEX 15

(approved by CB in June 2009, substituting subsection 1.4.1 of the original MoU version, which subsection thereby becomes invalid)

1.4.1 Election and terms of mandate for the Executive Board

The mandates of the **Spokesperson and his Deputy** are for two years; they have to be re-defined upon termination. The Collaboration Board chooses one of three options:

- a) the Spokesperson steps down, the Deputy Spokesperson becomes Spokesperson, and a new Deputy is elected; this is the default option;
- b) the mandates of both Spokesperson and Deputy are renewed for another period of two years; there is no bound on how often the mandate may be renewed;
- c) both Spokesperson and Deputy are elected anew.

If applicable (options a) or c)), Spokesperson and/or Deputy are elected by the full MAGIC collaboration. The election procedure is as follows. Candidates express their interest to the Chair of the Collaboration Board (CCB), who distributes the list of candidates to the Institute Representatives. They ask active members in their institute to cast their votes for the different candidates, and communicate the result to the CCB. The active member votes of all institutes are summed for the total accounting. The candidate with the largest number of votes is elected. In case of election of both officers (option c)) the same procedure is followed twice, electing first the Spokesperson and, in a second round, the Deputy.

The Technical, Software and Physics Coordinators and the NT Project manager are proposed by the Spokesperson. The final decision on these nominations has to be taken in consensus with the Chair of the Collaboration Board, who shall try to guarantee that the executive board composition represents, as much as possible, the interests of the different institutes and the nationalities of the collaboration.

The mandate of these four members is of two years; it may be extended if decided by the incoming Spokesperson; it may also be discontinued at any time by the Spokesperson, in agreement with the Chair of the Collaboration Board. The coordinators and the NT project manager may each have a proxy (Deputy), who may occasionally replace them in the Executive Board.

Annex 16

(approved by CB in June 2009, substituting section 7 of the original MoU version, which section thereby becomes invalid)

7. PUBLICATIONS

The Chair of the Collaboration Board will take care of producing the appropriate author list for each original data paper. The author list will contain the names of all active MAGIC collaboration members in alphabetical order unless otherwise agreed by the Collaboration Board, and the names of the guest observers who have contributed to that specific publication. If no agreement can be reached for a specific paper, the Executive Board will decide. The corresponding authors are indicated on each publication.

The institutes shall declare their active members to the Collaboration Board.

To be an active member (author), individuals have to be a full member of the MAGIC collaboration for more than one year and fulfill at least one of the following conditions:

- Datataking shifts within the last year
- Organizational responsibilities
- Technical development or maintenance in the last year
- Emeritus or senior member responsible for raising funds for the collaboration.

The procedure to follow towards a MAGIC publication is detailed in section 1.5.5. **Publication of new scientific results or new discoveries by members of the MAGIC Collaboration shall follow the publication policy as explained in Annex 4.**

Annex 17

Members, Physicist Members, Active Members, Dormant Members, Emeritus and Authors

MEMBERS: declared as such by a group leader. (No need to wait for one year, no need to be physicist, no need to be interested on signing papers). They can join mailing lists and meetings. A group leader must report about any new member to the Chairman of the Collaboration Board when he/she joins their group and declare if he/she is interested to sign papers in the future. The Collaboration Board has the right to accept or refuse the proposed memberships after discussion with the relevant Group Leader.

PHYSICIST MEMBERS: members who are interested on signing papers.

ACTIVE MEMBERS: physicist members who fulfill at least one of the 4 duties below. Active members have access to all data and analysis groups and may propose observation targets. The duties are revised at least on a yearly basis by the Chair of the CB.

1. Datataking shifts in the last year
2. Organizational responsibilities
3. Technical development or maintenance in the last year
4. Emeritus.

DORMANT MEMBERS: physicist members who are no longer active. They do not sign papers, do not have access to all data and analysis groups and may not propose observation targets. But they can stay in the mailing lists and attend meetings.

AUTHORS: Physicist members (1) are active and (2) have spent more than one year as member. Or alternatively individuals who were active physicist members one year ago.

All physicist members who are not dormant or emeritus enter the calculation of the shift and the CF shares.

Annex 18

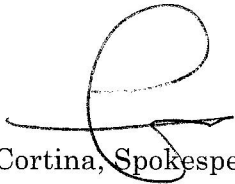
New member institute of the MAGIC collaboration
Japan Consortium

The institutes of the MAGIC collaboration, represented by the Collaboration Board (CB), agreed on the official participation of the group Japan Consortium led by Dr. H. Kubo, with full membership on 14. November 2012.

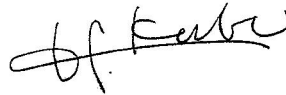
The representative of the Japan Consortium group, Dr. H. Kubo has read and understood the Memorandum of Understanding of the MAGIC collaboration dated 14. June 2012, and will respect the rules and duties as a member institute.

Signed for the collaboration

Signed for Japan Consortium



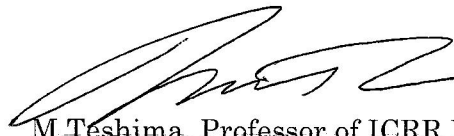
J. Cortina, Spokesperson



H.Kubo, Japan-Consortium Representative



R. Mirzoyan, Co-spokesperson



M.Teshima, Professor of ICRR U.Tokyo



A. De Angelis, Chair of Collaboration Board