

ISTITUTO NAZIONALE DI FISICA NUCLEARE

CONSIGLIO DIRETTIVO

DELIBERAZIONE N. 12012

Il Consiglio Direttivo dell'Istituto Nazionale di Fisica Nucleare, riunito a Roma in data 29 e 30 settembre 2011, alla presenza di n. 33 dei suoi componenti su un totale di n. 33:

- premesso che XENON è una Collaborazione internazionale finalizzata all'implementazione del programma Xenon Dark Matter in atto presso i Laboratori Nazionali del Gran Sasso e che, nella sua fase attuale, si rende necessaria la stipula di un Memorandum of Understanding per le successive fasi di funzionamento e presa dati;
- tenuto conto che la stipula di questo MoU, oltre a definire il programma scientifico sopra descritto, regola le questioni sul piano gestionale, organizzativo e finanziario della Collaborazione nonché l'apertura di un Common Fund per la costruzione e avvio dell'esperimento XENON1T;
- preso atto che, in occasione della sua riunione del 29 aprile u.s., il Consiglio Direttivo dell'Istituto ha discusso e approvato la partecipazione dell'INFN all'esperimento;
- visto lo schema di "Memorandum of Understanding of the XENON Collaboration", allegato alla presente deliberazione e di esso parte integrante;
- vista la nota del Direttore dei LNGS, Prof.ssa Lucia Votano, del 25/08 u.s., prot. n. 2520;
- vista le note del Presidente di CSN II, Prof. Roberto Battiston, del 14 giugno e 3 settembre uu.ss.;
- su proposta della Giunta Esecutiva;
- in data 30 settembre 2011 con n. 33 voti favorevoli;

DELIBERA

E' approvato lo schema di "Memorandum of Understanding of the XENON Collaboration", allegato alla presente deliberazione e di esso parte integrante. Il Presidente è autorizzato a perfezionarlo e a sottoscriverlo.

Gli oneri a carico dell'Istituto, derivanti dalla partecipazione al Memorandum of Understanding, pari a complessivi Euro 2.020.000 per gli anni 2011-2018, trovano copertura, quanto a Euro 493.000, per il 2011 con i finanziamenti allo scopo assegnati alla CSN II e, per il restante, con quanto sarà assegnato alla medesima CSN II negli esercizi finanziari di competenza.

## **Memorandum of Understanding of the XENON Collaboration**

Columbia University, USA  
Purdue University, West Lafayette, USA  
Rice University, USA  
University of California, Los Angeles, USA  
IN2P3 - Subatech, Nantes, France  
Johannes Gutenberg University Mainz, Germany  
Max Planck Institute for Nuclear Physics, Heidelberg, Germany  
University of Münster, Germany  
INFN and University of Bologna, Italy  
INFN LNGS, Italy  
INFN Torino, Italy  
Nikhef, the Netherlands  
University of Coimbra, Portugal  
University of Zurich, Switzerland  
The Weizmann Institute of Science, Israel  
Shanghai Jiao Tong University, China

### **1 Preamble**

The institutions currently constituting the XENON Collaboration, and listed in Appendix A, are working together to realize the XENON Dark Matter program at the Gran Sasso underground laboratory of the INFN (LNGS). The scientific goal is to progressively improve the sensitivity to particle dark matter direct detection with a liquid xenon (LXe) target in a dual-phase Time Projection Chamber (TPC). The current phase of the program uses the XENON100 TPC located in the interferometer tunnel of the LNGS.

The construction of XENON100 and its installation in the same passive shield developed for the XENON10 prototype, was completed in 2008. The experiment is expected to continue to take data beyond 2011. A design study for the next phase, with a ton scale TPC (XENON1T), was initiated in 2010. The XENON1T experiment will feature a total xenon mass of about 2.4 ton, shielded by an active water Cherenkov veto. With a raw background rate of  $\sim 0.1$  mdru (a factor of 100 lower than the XENON100 background), XENON1T should reach a sensitivity of  $\sim 2 \times 10^{-47}$  cm<sup>2</sup> at 100 GeV for spin-independent cross section of dark matter WIMPs with nucleons. An initial proposal for XENON1T was submitted to the LNGS Scientific Committee in Spring 2010, followed by a Technical Design Report in Fall 2010. In May 2011, XENON1T was approved by the INFN to be located in hall B of LNGS.

### **2 Purpose of the present MoU**

The purpose of this Memorandum of Understanding (MoU), made by and among the XENON collaborating institutions, is to establish organizational, managerial and financial guidelines to be followed by the Collaboration for the staged operation of XENON100 and later XENON1T, to establish a Common Fund for the construction and

operation of the experiments and to define the distribution of tasks and responsibilities for the construction phase of XENON1T.

This MoU is not legally binding, however it is the firm intention of all the signing institutions to follow its guidelines.

### 3 Collaboration Management

The following roles or bodies are defined:

- **Collaboration:** the ensemble of the participating institutions, listed in Appendix A, that provide the financial and human resources needed for the operation of XENON100 and the construction of the XENON1T experiment.
- **Spokesperson:** the leader and formal representative of the Collaboration, who oversees its overall scientific and technical program. The **Spokesperson** and a **Deputy Spokesperson** will be elected by the Collaboration Board as defined in the Governance rules in Appendix B.
- **Principal Investigator (PI):** the leader of each collaborating institution who carries the scientific and financial responsibility of that institution concerning the XENON program, and who represents that institution within the Collaboration Board.
- **Collaboration Board (CB):** a committee composed of the Spokesperson, Deputy and all the PIs, and with possible addition of other senior technical and/or engineering staff. The CB represents the main decision-making body of the Collaboration. The CB also elects, upon suggestions of the Spokesperson and Deputy, the Technical Coordinator (TC) and the various WG coordinators. The TC, together with the Spokesperson and Deputy will nominate the Operations Manager (OM).
- **Chairman of the Collaboration Board:** she/he will be elected among the PIs that do not already carry the roles of Spokesperson or Deputy. The duty of the Chairman will be to manage the calendar of the Board meetings and communicate it to its members, and of setting the agendas of the meetings and see that they are followed. The Chairman will be elected as defined in the Governance rules, appendix B.
- **Editorial Board (EB):** the EB will manage the papers to be submitted for publication. It is composed of an elected Chair and up to four members, appointed by the Collaboration Board. Drafts of the publications will be submitted to the Editorial Board who will thereafter assign internal referees to the papers.
- **Speakers bureau:** this body, composed of an elected Chair and two appointed members will keep an up-to-date list of upcoming conferences and will coordinate

speakers. It will also keep track of past conferences and speakers. **The Spokes person and the Deputy Spokesperson are ex-officio members.**

- **Technical Coordinator (TC):** a person responsible for the overall project technical progress, workflow coordination, and WBS (Work Breakdown Structure) conformance. The TC reports to the project's Spokesperson, Deputy and Collaboration Board.
- **Operations Manager (OM):** a person responsible for the overall schedule of the XENON experiments at LNGS, including maintenance schedule necessary to insure continuous detector operation. Other tasks include, but are not limited to: coordinate and oversee the shift plan, ensuring that each person on shift is properly trained and qualified, with required permission or license as required for the safe and smooth operation of the experiment. The Operations Manager is also ultimately responsible for ensuring that all XENON personnel on-site is compliant with the safety rules of the hosting Laboratory as well as any applicable laws; finally he/she communicates any emerging operational issues to the Collaboration Board, and interfaces with the technical and engineering staff of the hosting Laboratory.
- **Hosting Laboratory:** the underground Laboratory which hosts the experiment. For the XENON100 and XENON1T phases of the XENON program the hosting Laboratory is the Gran Sasso Laboratory (LNGS) of the Italian Istituto Nazionale di Fisica Nucleare, which is also one of the participating institutions.

The collaboration aims filling the above management position with the best candidates. In addition it is agreed that the balance between different groups and countries will be kept. With an US spokesperson it is, for example, agreed that the deputy spokesperson will be from a non-US group.

Details of the governance mechanisms, such as elections of the roles and decision making processes are given in Appendix B.

#### **4 Site Conditions and Safety Procedures**

The XENON experiments are and will be designed according to the guidelines of the hosting LNGS laboratory. The collaboration accepts to work under the *General Conditions applicable to Experiments performed at INFN Laboratories* in its up to date version (current version is 2.3 from March 2010, which is attached to this document).

Each collaborating institution shall require its researchers, employees, agents and guests participating in the experiment to comply with all Safety procedures as detailed by the hosting Laboratory and required by applicable law. All the operations performed on the experimental site and in the external facilities of LNGS will be carried out in full compliance with the LNGS safety rules. Each member of the collaboration will be fully

responsible of her/his actions in face of LNGS regulations and of Italian law. The following officers shall manage safety matters:

- **GLIMOS:** The Group Leader In Matter Of Safety is appointed jointly by LNGS in agreement with the Collaboration. The responsibilities of the GLIMOS are to provide an interface between the XENON Experiment and LNGS on matters of safety, to generate safety guidelines and procedures in agreement with LNGS, to ensure that safety is properly accounted for in the planning of the underground activities, to organize all safety trainings that are appropriate for the Collaboration members together with LNGS. These activities are organized in cooperation with the Safety Advisor.
- **Safety Advisor:** The role of the Safety Advisor is to ensure that the safety guidelines and policies adopted by the Collaboration comply with the safety regulations and fulfill the risk analysis in normal and emergency conditions.

## 5 XENON100 and XENON1T Operation Costs

1. To cover on-site operating costs for the XENON100 and XENON1T experiments, each institution shall contribute funds towards a "Common Fund" as defined in Appendix C. For the 2011 calendar year, Appendix C delineates the agreement reached within the Collaboration, for the XENON100 Common Fund.
2. Each collaborating institution is expected to participate in the experimental effort. The overall contribution of an institution to the operation of the experiment should be in relation to the number of physicists, including graduate students that participate in the experiment.
3. Each collaborating institution contributes manpower to cover on-site shifts as required for a safe and fruitful operation of the experiment. The share of the shifts load should be proportional to the number of physicists, including graduate students that participate in the experiment.
4. The responsibility of operating and maintaining the various components of the experiment lies with the Collaboration Board and ultimately with the Spokesperson. Each institution which has contributed a component or a system, will continue to provide the manpower, materials, spare parts and other pieces of equipment that are required for the operation of the component or the system.
5. Any equipment that is placed in the experiment, whether contributed or owned by a collaborating institution, cannot be withdrawn without the permission of the Collaboration Board until the end of the experiment.
6. Each institution is in general responsible for the maintenance and repair of the equipment and components of the experiment which it has provided. In case of a major failure of detector components, the resulting technical and/or financial problems shall be addressed by the Collaboration Board.
7. The number of participants from each institution shall be reviewed at the beginning of each year, and the Collaboration Board will define the overall amount of the Common Fund budget for the year. The Collaboration Board shall make equitable adjustments, as needed, if the number of participants from a given



institution changes significantly during the course of the year, or if it becomes clear that the Common Fund is not sufficient to cover the necessary expenses.

8. Unused funds in the Common Fund and deposited in the INFN account (see Appendix B) shall remain property of the XENON Collaboration, and shall be carried over to the next calendar or fiscal year.

## **6 Contribution to the XENON1T Construction**

For the construction of the XENON1T project a summary overview of the division of deliverables and responsibilities as well as a detailed list along with specific institutional responsibilities is listed in Appendix D (WBS Table).

The Collaboration will contribute funds to the Common Fund to cover expenses associated with the development of the XENON1T infrastructure, to be shared among the participating member institutions (see Appendix C).

## **7 Ownership of equipment and Intellectual Property Right (IPR)**

The Institutes shall remain the owner of the equipment and material they provide. Material and equipment is put at the disposal of the collaboration for the duration of this MoU without charge. Parties as owners of equipment and material will warrant its proper operation and compliance with safety and use standards. All equipment must comply with the corresponding local and national safety regulations and with those applicable at the Hosting Laboratory. The owner must agree on the proposed use and operation of equipment. General rules concerning Intellectual Property Right (IPR) are specified in Appendix E.

## **8 Membership in the Collaboration**

Every PI of a XENON institution must propose to the Collaboration Board the membership of any new member of her / his group. The PI must describe the tasks, the expertise and the level of involvement and the Collaboration Board will decide on the basis of this information. It is the responsibility of every PI to notify the Collaboration Board about the date when members leave her / his group.

## **9 Publications**

The authorship rules for XENON publications are defined by the document called 'XENON authorship rules' which is maintained separately.

## **10 Participation in Competing Experiments**

To avoid possible resource conflicts and provide program focus, Collaboration members shall not participate in Dark Matter experiments that are in direct competition with the XENON program. Collaborators that are engaged in other directly competing Dark Matter experiments at the time of signing of this MoU are actively encouraged to terminate their participation in the competing experiments. Collaborators who act against

this spirit may be subject to a vote by the Collaboration Board that can decide the termination of their participation to XENON with a majority of 4/5 of the votes.

### **11 Cessation**

A Collaborating Institution may withdraw from the Collaboration at any time by submitting its resignation in writing to the Collaboration Board. However, an institution that withdraws shall not remove any equipment from the experimental site unless approved by at least 4/5 of the members of the Collaboration Board. Any institution can be removed from the Collaboration for not fulfilling their pledged obligation or responsibility to the XENON Collaboration by a vote of 4/5 of the Collaboration Board, however under these circumstances the Collaboration no longer retains control of the disposition of any equipment provided by that group.

### **12 Effective date, duration of this MoU and amendments**

This MoU will take effect on the date of its signature by each institution, and shall remain valid throughout the construction, operation and dismantling phase of XENON1T.

#### **12.1**

In case of changes to the Collaboration's composition and/or sharing of responsibilities, a written amendment will be negotiated by the requesting institution(s).

#### **12.2**

Modifications to this document concerning the main articles will be possible following an unanimous vote of the Collaboration Board. Should these modifications change the spirit of the MoU (in the opinion of the CB or of the representatives of the participating institutions) a new signature will be required.

#### **12.3**

Modifications to this document concerning the parts covered in the Appendices (work breakdown structure, governance rules, etc.) will be subject to discussion and vote by the Collaboration Board, without requiring a new signature by the participating institutions. Such changes require a ¾ majority of votes in the CB.

### **13 Entrance of new parties**

The participation of new institutions to the XENON program will be subject to a discussion and vote by the Collaboration Board. In case of approval, which requires a ¾ majority of votes in the CB, the new institution will be asked to participate to the Common Fund for operations and/or construction with a sum decided by the CB. The new entrant will also be asked to sign this MoU.

## 14 Signatures

Institute	Name, Title	Date	Signature
Columbia University	Prof. E. Aprile, Professor		

Institute	Name, Title	Date	Signature
Purdue University	Prof. N. Giordano, Head of the Physics Department		

Institute	Name, Title	Date	Signature
Rice University	Dr. P. Shagin		

Institute	Name, Title	Date	Signature
University of California, Los Angeles	Prof. K. Arisaka,  Dr. H. Wang		



Institute	Name, Title	Date	Signature
IN2P3-Subatech, Nantes	Prof. S.Katsanevas, Director of Research		

Institute	Name, Title	Date	Signature
Johannes Gutenberg University Mainz, Germany	Prof. U. Oberlack, Professor		

Institute	Name, Title	Date	Signature
Max-Planck-Institut für Kernphysik. Heidelberg, Germany	Prof. M. Lindner, Director		

Institute	Name, Title	Date	Signature
University of Münster, Germany	Prof. Ch. Weinheimer, Professor		

Institute	Name, Title	Date	Signature
INFN-Bologna INFN-LNGS INFN-Torino	Prof. R. Petronzio, President of INFN		

Institute	Name, Title	Date	Signature
Nikhef, the Netherlands	Prof. F. Linde, Director		

Institute	Name, Title	Date	Signature
University of Coimbra, Portugal	Prof. J.M. Lopes, Professor		

Institute	Name, Title	Date	Signature
University of Zürich, Switzerland	Prof. L. Baudis, Professor		

Institute	Name, Title	Date	Signature
The Weizmann Institute, Israel	Prof. H. Garty, Vice President  Prof. M. Sheves, VP Technology Transfer		

Institute	Name, Title	Date	Signature
Shanghai Jiao Tong University, China	Prof. K. Ni, Professor		

## 15 Appendix A: Participating Institutions, Funding Agencies and Finance Board

### 15.1 Participating Institutions and Principal Investigators

The following table shows the participating institutions, with year of admittance to the Collaboration, and their respective Principal Investigator (PI). Every PI has one vote in matters of governance (see appendix B).

<b>Institution</b>	<b>Principal Investigator</b>
Columbia University, USA (2007)	Prof. E. Aprile
Purdue University, USA (2011)	Prof. R. Lang
Rice University, USA (2007)	Dr. P. Shagin
University of California, Los Angeles, USA (2008)	Prof. K. Arisaka & Dr. H. Wang
IN2P3 - Subatech, France (2009)	Dr. D. Thers
Johannes Gutenberg University Mainz, Germany (2010)	Prof. U. Oberlack
Max Planck Institute for Nuclear Physics, Heidelberg, Germany (2009)	Prof. M. Lindner
University of Münster, Germany (2009)	Prof. C. Weinheimer
INFN and University of Bologna, Italy (2009)	Prof. G. Sartorelli
INFN LNGS, Italy (2007)	Dr. F. Arneodo
INFN Torino, Italy (2010)	Dr. W. Fulgione
Nikhef, the Netherlands (2010)	Dr. M.P. Decowski
University of Coimbra, Portugal (2007)	Prof. J. Matias-Lopes
University of Zurich, Switzerland (2007)	Prof. L. Baudis
Weizmann Institute, Israel (2010)	Prof. E. Gross

Shanghai Jiao Tong University, China (2009) under the leadership of Prof. Kaixuan Ni has a special status. It participates in XENON100 only and the PI is not a member of the Collaboration Board.

### 15.2 Funding Agencies and Finance Board

The following table lists the funding agencies which support the XENON program. If necessary, a meeting of the Finance Board may be scheduled to help resolve financial and political issues. The Finance Board is composed of the Representatives of the Funding agencies or the responsible PI for the corresponding funding line, the Spokesperson and the chairman of the Collaboration Board.

<b>Funding Agency</b>	<b>Representative or contact person</b>
NSF	J. Whitmore
DOE	M. Salomon
SNF	L. Baudis

MPG	M. Lindner
BMBF	U. Oberlack / Ch Weinheimer
DFG	Ch. Weinheimer / U. Oberlack
INFN	R. Petronzio
IN2P3	S. Katsanevas
FOM	F. Linde
FCT	J.M. Lopes

## **16 Appendix B: Governance**

### **16.1 Election of the Spokesperson**

The spokesperson will be elected by the Collaboration Board every three years among its members.

### **16.2 Election of the Deputy Spokesperson**

The Deputy spokesperson will be elected by the Collaboration Board every three years among its members.

### **16.3 Election of the Collaboration Board Chair**

The CB chair will be elected among the members of the Collaboration Board every three years.

### **16.4 Election of the Editorial Board and the Speakers Bureau**

The Editorial Board and its Chair, the Speakers Bureau and its chair will be elected every two years by the Collaboration Board among the members of the Collaboration.

### **16.5 Nomination of the Technical Manager and Operations Manager**

The Technical Manager and Operations Manager are appointed by the Collaboration Board. The Operations Manager will be paid through the Common Fund, as specified in Appendix C.

### **16.6 Other roles**

The following roles will be appointed by the Collaboration Board in agreement with the Hosting Laboratory, the LNCS:

- Accountant of the Common Fund
- GLIMOS (Group Leader in Matters of Safety)
- RAE (Responsabile Ambientale d'Esperimento – environmental responsible person)

### **16.7 First round of elections**

The first round of elections will take place after this MoU is signed by all participating institutions. After that, at the first meeting of the Collaboration Board, the elections of the Spokesperson, Deputy Spokesperson and Chair of the Collaboration Board will be formally established and the date will be documented. The other roles foreseen by this MoU will be nominated by the CB shortly after.

### 16.8 Participation to the CB meetings

By agreeing to this MoU, all the PIs commit themselves to their active participation to the meetings of the Collaboration Board, whether in person or through teleconferencing systems. Whenever a PI cannot participate she/he should communicate her/his absence to the mailing list of the CB.

### 16.9 Decision Making within the CB

The meetings of the CB are considered valid when at least 2/3 of the members are present. It is the duty of the Chair to verify the level of participation. The CB aims at achieving consensus through discussion, with the goal of finding optimal solutions for the physics goals of the Collaboration. Whenever a vote is deemed necessary, or during formal elections, each PI will have one vote. A simple majority of votes will decide unless where specified differently in this MoU. A simple majority of votes will decide unless defined differently in this MoU. Elections for governance positions require a simple majority. This majority will be sought in a second election round between the two candidates with most votes if there are more than two candidates in a first round. If management roles cannot be fulfilled then the CB can decide any time to end the term of the Spokesperson, Deputy Spokesperson or Collaboration Board Chair with a 4/5 majority.

### 16.10 Plenary meetings

Plenary meetings of the Collaboration will be held twice a year.

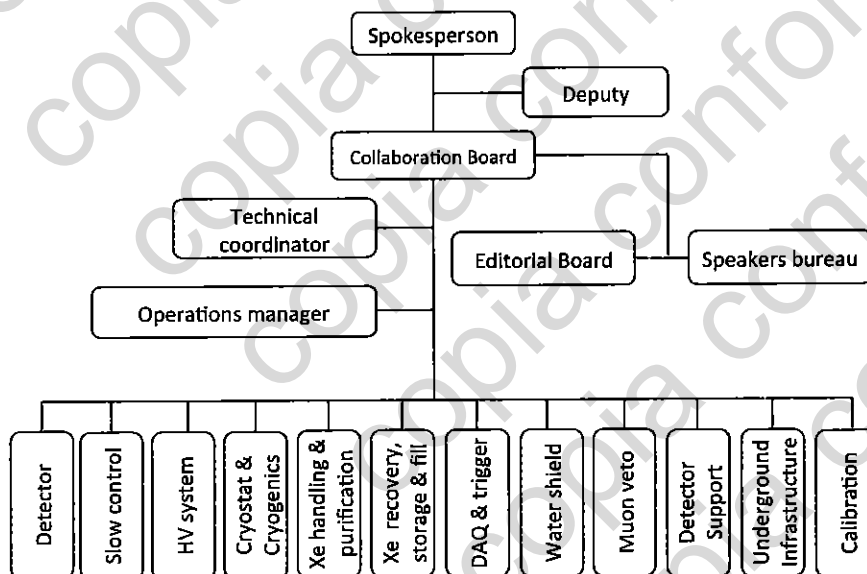


Figure 1: Organizational chart of the XENON Collaboration

## **Appendix C: XENON Common Fund**

### **16.11 Establishment of the Common Fund**

The Common Fund will be established through the possibility of bank transfers to the hosting institution, the INFN. The INFN will identify the money received for XENON and tag it accordingly, by creating a dedicated account in the INFN accounting system.

The Collaboration Board will decide on the principles how the Common Fund will be used. Each institution shall contribute to the Common Fund with a sum proportional to the number of researchers holding a Ph.D. and of permanent technical staff members who participate in XENON and sign its papers.

Use of the money deposited in the Common Fund will occur through the norms and regulations of INFN, respecting also the rules of the institutes which make the payments. The Collaboration Board will designate a responsible person who will manage the account according to those rules. The hosting institution will guarantee that the funds will only be available for the experiment. In particular, any remaining funds will roll-over from one financial year to the next.

### **16.12 Contribution to the Common Fund**

Contribution to the Common Fund will be possible in two ways:

1. Direct transfer to the INFN bank account with the description 'XENON COMMON FUND'. This is the standard method.
2. 'In kind' payment of materials or services. This must be done with the approval of the Collaboration Board.

### **16.13 Accounting**

One member of the Collaboration Board will act as Accountant of the Common Fund, recording all its inputs and outputs and showing them on request of the Collaboration Board.

### **16.14 Expenses to be covered with the Common Fund**

#### **16.14.1 Detector Maintenance**

Detector Maintenance includes all activities necessary to maintain all experimental systems, components and spare parts in good working condition during the execution of the XENON program. All costs necessary to ensure adequate detector maintenance, e.g. replacement or repairing of defective parts will be covered by the Common Fund or by the owner of the equipment, whatever is more appropriate. The CB will decide in cases which require discussions. Consumables and data storage are, however, always covered by the Common Fund.

#### **16.14.2 Consumables and Services**

As a general rule, consumables and services of a general-purpose nature, indispensable for the operation of the XENON detectors, will be paid through the Common Fund.



These include:

- Withdrawal of materials from the LNGS warehouse.
- Consumption of gases and cryogenic liquids such as LN2
- Costs of shipping.
- Payments to local contractors for maintenance work.

### 16.14.3 Contracts for on site personnel

Depending on the operational needs of the experiment, the Common Fund may be used to cover the expenses for on site personnel. In particular, the salary of the Operations Manager may be covered through the Common Fund using a contract type as currently used by the hosting institution, INFN. The Collaboration Board will decide the duration and the contract term. The Collaboration Board may at any time review or modify the contract conditions, always conforming to the rules of the hosting institution.

### 16.15 Sharing scheme

Each collaborating Institution is expected to participate in the Common Fund in a measure proportional to the number of their scientific members holding a PhD and engineers that sign XENON papers. The Collaboration Board shall annually establish a budget for the Common Fund of the following year. Under special circumstances, the Collaboration Board may allow the temporary suspension, in total or in part, of the Common Fund contribution for some Institution.

The XENON100 common fund contributions for 2011 are listed below.

<b>Institute</b>	<b>Contribution (k€)</b>
Columbia University, USA	6.0
Rice University, USA	1.0
University of California, Los Angeles, USA	9.0
University of Zurich, Switzerland	5.0
University of Coimbra, Portugal	5.0
University of Bologna, and INFN Bologna, Italy	6.0
INFN Torino, Italy	1.5
INFN/LNGS, Italy	1.0
Subatech, France	7.5
University of Münster, Germany	6.0
Johannes Gutenberg University Mainz, Germany	4.0
Max Planck Institute for Nuclear Physics, Heidelberg, Germany	7.5
Shanghai Jiao Tong University, China	1.0
Weizmann Institute, Israel	3.0
Nikhef, the Netherlands	4.5
<b>TOTAL</b>	<b>67.0</b>

## Appendix D: Institutional Responsibilities for the XENON1T Construction

The following lists the tasks and the primary institute and PI responsible for a given task.

### PRELIMINARY – to be updated

<b>WP1 Detector (TPC)</b>	<b>UCLA</b>	<b>H.Wang</b>
Grids design and tests	Rice	P. Shagin
Fabrication of all grids	Rice	P. Shagin
PMT testing	UCLA	Pantic
PMT assembly	UCLA	H. Wang
PMT frontend analog readout electronics	WIS	L. Levinson
Liquid level meters design and construction	Rice	P.Shagin
Drift field shaping electrodes design and construction	Zurich	M. Schumann
PTFE structure and bell design and construction	Zurich	M. Schumann
Drift field mapping	Coimbra	S. Orrigo
Screening of all internal construction materials	Zurich	A. Ferella
Internal signal and HV cable and connection design	Columbia	R.Budnick
TPC light collection simulation	Columbia	R. Lang
LED Calibration System	Zurich	T. Marrodan
<b>WP2 Slow Control</b>	<b>Coimbra</b>	<b>J. Cardoso</b>
Slow control hardware design	Coimbra	J. Cardoso
Slow control software design	Coimbra	J. Cardoso
Overall system monitoring	Coimbra	J. Cardoso
Integration of all subsystems controls	WIS	L. Levinson
<b>WP3 HV system</b>	<b>Columbia</b>	<b>K. Giboni</b>
Cathode HV feed through design, construction and testing	Columbia	K.Giboni
Power supply and distribution	Columbia	K. Giboni
<b>WP4 Cryostat and Cryogenics system</b>	<b>Columbia</b>	<b>G. Tajiri</b>
Cryostat material screening	Zurich	M. Schumann
Vessels design	Nikhef	A. de Snaijer
Vessel construction	Columbia	G. Tajiri
Mechanical evaluation and certification	Nikhef	A. de Snaijer

Cooling system design and Construction	Columbia	K. Giboni
Interface between cryostat, cryogenics and recovery system	Columbia	G. Tajiri
<b>WP5 Xenon handling and purification</b>	<b>Munster</b>	<b>C. Huhmann</b>
Xenon purification system design and construction	Munster	C. Huhmann
Water, Oxygen and Rn monitors	MPIK	H. Simgen
Test of Xenon Inventory Purity Level	LNGS	F. Arneodo
<b>WP6 Xenon fill, recovery and storage system</b>	<b>Subatech</b>	<b>H. Carduner</b>
Validation of mechanical and cryogenics design	Subatech	H. Carduner
Design and construction of closed circuit gas circulation	Subatech	W-T. Chen
Cryogenic valve and transfer line design and construction	Subatech	W-T. Chen
Oversee construction of system	Subatech	H. Carduner
<b>WP7 DAQ and Trigger Electronic</b>	<b>ZURICH</b>	<b>M. Schumann</b>
Software and hardware development (on/off line)	Zurich	M. Schumann
Trigger system	Zurich	M. Schumann
Data recording and storage	Nikhef	P. Decowski
Computer farm	Nikhef & WIS	P. Decowski & L. Levinson
Communication links	LNGS	F. Arneodo
<b>WP8 Water Shield</b>	<b>WIS</b>	<b>Meir Shoa</b>
Water tank design and construction	WIS	Meir Shoa
Water purification system	WIS	Meir Shoa
Water delivery and discharge	LNGS	F. Arneodo
Interface with cryostat support structure	Nikhef	A. de Snaijer
Interface with cryostat cryogenic system	Columbia	G. Tajiri
<b>WP9 Muon Veto</b>	<b>Bo-Mainz</b>	<b>R. Othegraven</b>
Muon Veto System design and construction	Bo-Mainz	R. Othegraven
PMT testing	Bo-Mainz	M. Selvi
PMT HV, electronic and trigger system	Torino	W. Fulgione
Muon Veto calibration and monitoring	Mainz	R. Othegraven
Muon Veto simulation	Bologna	M. Selvi
<b>WP10 Rn emanation and Kr removal</b>	<b>MPIK</b>	<b>H. Simgen</b>
Rn control and monitoring system	MPIK	H. Simgen
Filtering in xenon purification loop	MPIK	H. Simgen

Filtering in clean room	MPIK	H. Simgen
Material screening	MPIK	H. Simgen
Kr distillation column design and construction	Munster	C. Huhmann
Kr assaying and monitoring	MPIK	H. Simgen
<b>WP11 Detector support infrastructure</b>	<b>Nikhef</b>	<b>A. de Snaijer</b>
Cryostat support structure and assembly platform	Nikhef	A. de Snaijer
<b>WP12 Underground Operation and Infrastructure</b>	<b>LNGS</b>	<b>F. Arneodo</b>
Service buildings	LNGS	F. Arneodo
Subsystem installation and coordination	common	D. Biare
Commissioning	common	D. Biare
Safety and Operation Procedure	common	D. Biare
GLIMOS	common	D. Biare
<b>WP13 Calibration</b>	<b>WIS &amp; Zurich</b>	<b>L. Levinson &amp; T. Marrodan</b>
Overall strategy of detector calibration	WIS	L. Levinson & T. Marrodan
Calibration sources (Gamma and Neutron)	WIS	L. Levinson & T. Marrodan

## 15 Appendix E: Intellectual Property Rights (IPR)

Terms and phrases not specifically defined in this appendix shall have the meaning ascribed to them in the MoU to which this appendix is attached.

The following definitions apply in this appendix:

**“Intellectual Property [“IP”]**” includes inventions (whether patentable or not), patents, patent applications, registered designs and applications thereof, copyright material including computer software, technical information and know-how.

**“Pre-existing know-how”** shall mean any IP which is held by one party or more (jointly) prior to the conclusion of the MoU.

The Pre-existing know-how shall remain or be further on the property of this Institute or Institutes. Such Pre-existing know-how is explicitly excluded from the scope of the Collaboration and from any rights of the other Institutes under the Collaboration unless specifically agreed in writing and in advance between the institutions concerned, at the owning Institution’s sole and absolute discretion (“Included Pre-existing know-how”).

It is hereby agreed that in any event the Included Pre-existing know-how shall be limited to Pre-existing know-how accumulated and developed solely within the specific research group directly involved in carrying out the project under the Collaboration on behalf of

each Institution and not, for removal of any doubt, any other know-how accumulated and developed within the entire Institution.

Each Institution shall disclose in confidence to the other institutions the results generated during the term of the MOU under the Collaboration, including inventions, patents, copyrights, know how and technical documents (hereinafter referred to as "Results").

Results shall be owned:

(a) Solely by the Institution who generated the Results or engaged or employed the person or persons who made or conceived the Results. The Institution who owns the Results retains all rights to file and prosecute patent applications and to process the commercial exploitation of any and all of its owned Results at its sole discretion; or

(b) Jointly by the institutions who generated the Results together or engaged or employed the person or persons who made or conceived the Results. In such case, the institutions concerned shall jointly apply to obtain and/or maintain the relevant intellectual property rights and shall strive to set up amongst themselves, in good faith, a co-ownership agreement in order to do so. These co-ownership agreements shall specify the allocation of expenses and royalties in connection with the jointly owned Results, and the share of each of the institutions in its development. Neither party to such jointly owned Results shall be free to use or otherwise exploit (other than for scholarly purposes) the joint invention without the other party's consent.

Should a particular party to such jointly owned Results decides not to participate in the expenses in respect of some of the patenting activities, including but not limited to patent prosecution or infringement procedures, undertaken by the other joint owners in regard to joint Results, then the non-participating party shall be deemed to have relinquished his rights to receive consideration from the exploitation of the invention in respect of such patent/s, and to the extent permitted by law shall assign to the continuing party/ies all right and title relating to such patent, and hereby undertakes (subject to any applicable law) to take such steps and/or execute all documents as may be necessary to give effect to aforesaid assignment.

For avoidance of any doubt it is clarified that the non-participating party shall forfeit its rights to receive consideration from the exploitation of the invention in respect of such patent/s.

Use of IPR: Each Institute grants to the other institutions a non-exclusive, royalty-free licence to:

– use its Results, if Required for their own internal scholarly research and development purposes but not for the purposes of commercial exploitation and

– subject to any existing third-Party obligations, use its Included Pre-existing know-how if Required for the purpose of the performance of his undertaking under the project and within the Collaboration but not for any commercial exploitation.

the term "Required" shall mean that carrying out tasks in the responsibility of the requesting party under the project would be impossible, significantly delayed or require significant additional financial or human resources not envisioned in the research program.

In the event that any Institute wishes to exploit commercially the Results owned by another Institute, the owner of the Results and the requesting shall enter into good faith discussions to reach a commercial agreement between them. The appropriate terms in relation thereto, including royalties or other financial compensation, indemnification etc. shall be subsequently specified in the license agreement between the relevant parties on a case-by-case basis. It is hereby clarified however that the owning party shall not be obliged by any way to enter into such agreement.

In the event that different Institutes are jointly responsible for generating the Results and want to exploit it commercially, they will sign a specific agreement in order to specify the terms of this exploitation.



ISTITUTO NAZIONALE DI FISICA NUCLEARE (I.N.F.N.)

## GENERAL CONDITIONS

Applicable to experiments at INFN National Laboratories

(versione 2.3 - 3 marzo 2010)

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# **GENERAL CONDITIONS**

## ***applicable to Experiments at INFN National Labs***

*(Terms with a particular meaning in the context of this document are underlined and defined at the end)*

The mission of INFN is to perform research in Nuclear, Particle and Astroparticle Physics and to develop cutting-edge technologies applicable in experiments and eventually in the general society.

This document (the “*General Conditions*”) sets out the rules and procedures organizational, managerial and financial matters, which apply to the participation by Universities and Research Institutions (the “*Collaborating Institution(s)*”) in experiments at INFN National Laboratories (NL) site. The Collaborating Institutions jointly constitute the “*Collaboration*”. They provide, and are responsible for, the Visiting Research Teams (the “*Team(s)*”) carrying out the experiment.

The General Conditions also define INFN's role as Host Institution of the experiment, which must be distinguished from its role as a Collaborating Institution, as the case may be.

## **1. SCOPE OF APPLICATION**

The General Conditions apply to Approved Experiments (the “*Experiment(s)*”) carried out on the INFN NL and large enough to justify a structured agreement between the Collaborating Institutions and INFN as hosting Institution. For all other experiments, generally characterized by a short duration, individual agreements will be set-up between the Director of the relevant NL and each of the interested participating group.

## **2. PARTIES AND THEIR REPRESENTATION**

2.1. The parties involved in the Experiment (the “*Party*” or the “*Parties*”) are:

- INFN as Host Institution;
- The Collaborating Institutions (including, as the case may be, INFN).

2.2. Each Party shall have a representative:

- INFN as Host Institution shall be represented by its President;
- The Collaboration shall appoint a Spokesperson, who shall represent the Collaboration to the outside, including to INFN as Host Institution, and coordinate its work;
- Each Collaborating Institution shall appoint a Team Leader who shall represent it in its relations with INFN as Host Institution.

2.3. Each Collaborating Institution shall ensure that the members of its Team (the “*Team Member(s)*”) comply with the General Conditions.

### 3. BASIC DOCUMENTS GOVERNING THE EXECUTION OF THE EXPERIMENT

3.1. The following documents shall constitute the formal basis for the Experiment:

3.1.1. the **EXPERIMENTAL PROPOSAL**, after its approval by INFN after recommendation of the Program Advisory Committee (PAC) or Scientific Committee (SC) of the relevant NL (the "Experiment Committee");

3.1.2. the **TECHNICAL DESIGN REPORTS**, where appropriate;

3.1.3. the **MEMORANDUM OF UNDERSTANDING** (the "**MoU**"), which sets out the detailed arrangements specific to the Experiment and which shall be agreed and signed by INFN President and the Collaborating Institutions, for the purpose of signature represented, as the case may be, by their Funding Agencies. Through the signature of the MoU, the Collaborating Institutions accept its terms;

3.1.4. the **GENERAL CONDITIONS**.

#### Contents of the MoU

3.2. The MoU may be a single document setting out the arrangements for construction, installation, maintenance and operation, or it may comprise two documents, one for construction and installation and the other for maintenance and operation. As a guide, the essential parts of the MoU are the following:

- a) a list of the Collaborating Institutions responsible for the Teams carrying out the Experiment;
- b) a list of the Funding Agencies of the Collaboration;
- c) details of the persons with specific responsibilities in the Experiment;
- d) the obligations of the Parties for:
  - i) construction and installation
    - the obligations for construction and installation of the detector components and the auxiliary equipment (jointly the "*Equipment*");
    - a breakdown of the funding requirements for the Equipment, together with the contributions of the Parties;
    - a timetable for the construction and installation of the Equipment;
  - ii) maintenance and operation
    - the obligations for maintenance and operation of the Equipment;
- e) an explicit statement that the General Conditions apply;
- f) references to any specific agreements and Protocols relevant to the Experiment, copies of which shall be included as Appendices to the MoU.

### 4. ORGANISATION OF THE COLLABORATION

## **Internal autonomy and co-ordination with INFN as Host Institution**

4.1. In its internal relations, the Collaboration shall be free to take such organizational decisions as deemed necessary, always subject to the terms of the MoU and the General Conditions.

### **Co-ordination in matters of safety**

4.2. The Director of the relevant INFN NL shall appoint a Group Leader in Matters of Safety (GLIMOS), on the proposal of the Spokesperson. The rights and responsibilities of the GLIMOS are defined in the safety documents issued by each INFN NL.

### **Finance Review Committee/Resources Review Board Initial Decision**

4.3. For Experiments involving large capital investments, a Review Committee (RC) may be set up by agreement of INFN as Host Institution and the Collaboration.

### **Membership**

4.4. The RC shall normally consist of one representative of each Funding Agency, along with the Management of INFN and the Collaboration. It shall be chaired by the Director of the relevant INFN NL.

### **Terms of reference**

4.5. The role of the RC includes:

- reaching agreement on the MoU;
- approving any modification of, or addition to, the Experiment that would require amending the MoU;
- monitoring the supply of Equipment according to the agreed schedule;
- monitoring the Common Projects and the use of the Common Funds;
- monitoring the general financial and manpower support;
- approving a maintenance and operation procedure and monitoring its functioning;
- approving the annual construction and installation budgets as well as those for maintenance and operation.

4.6. The Collaboration Management reports to the RC on technical, managerial, financial and administrative matters, and on the composition of the Collaboration.

## **5. INFN'S OBLIGATIONS AS HOST INSTITUTION**

## **PRINCIPLES**

### **Installation**

5.1. The Collaboration shall ensure that the Equipment and counting rooms meet the INFN Safety Rules if more restrictive than Italian law. Provided that this is the case, INFN shall agree in writing to their installation in the appropriate experimental area.

### **Duration**

5.2. INFN agrees to keep the Equipment on-site during the data-taking for the experimental program approved by the INFN after recommendation of the appropriate PAC/SC.

### **Network connections**

5.3. INFN agrees that computers and peripherals belonging to the Collaboration, which are needed for the operation of the Equipment, may be connected to the INFN computer network, provided they meet its compatibility and security standards, including as set out in the document "General rules for access and use of the INFN computer resources" herewith enclosed as Annex 1.

### **Insurance**

#### ***- Property***

5.4. INFN shall at its expense insure against the risks of fire, explosion, natural disaster and water damage all items belonging to the Collaboration or a Collaborating Institution, once they have been delivered to the INFN NL site, added to the Ownership Inventory (Article 6.10) and accepted in writing by INFN. INFN shall not insure such items against the risks of transport, crane or rigging accidents. It may however offer the possibility that such insurance is taken out at the expense of the Collaborating Institution(s) concerned.

#### ***- Third party liability***

5.5. INFN shall at its expense insure the members of the Collaborating Institutions against third party liability incurred by them at INFN in the execution of the Experiment.

#### ***- Limitation of coverage***

5.6. The insurance covers defined in Articles 5.4 and 5.5 are subject to the provisions, including the specified deductibles, exclusions and limits, of INFN's insurance policies. Any risk or amount not covered by such policies shall be for the exclusive account of the Collaboration. INFN does not warrant or accept liability as to the sufficiency of its insurance policies in relation to the risks incurred by the Collaboration.

## **SERVICES**

### **Standard services and facilities**

5.7. INFN normally provides, free of charge and within the limits and constraints imposed by the available resources and schedules of accelerators the following standard services and facilities for the duration of the Experiment:

#### ***Particle beams and equipment***

- a) particle beams and related shielding, monitoring equipment and standard communication with the accelerator control rooms;
- b) beam time allocation and scheduling, in accordance with the recommendations of the PAC/SC;
- c) test-beam time for testing prototypes and calibrating final detector components, subject to the applicable scheduling and allocation procedures;

#### ***Space***

- d) floor space in the experimental area(s) for the Equipment;
- e) laboratory and hall space for construction, testing and assembly of the Equipment;
- f) temporary short-term storage space for spare parts, handling and assembly tools and Equipment that is awaiting installation or removal. INFN reserves the right to charge the cost of longer-term storage of the above items to the Collaborating Institution(s) concerned;
- g) office space, equipped with standard furniture and infrastructure facilities including network connections, telephones and electricity;

#### ***Supplies and installations at the Experiment***

- h) assistance with the installation and removal of the Equipment, such as the provision of crane and rigging services;
- i) local infrastructure for the supply of mains electricity, raw cooling water, compressed air and standard connections to the INFN communication network;

#### ***Safety services***

- j) access to its safety services for advice, inspection and verification, and first aid or other emergency help;

#### ***Maintenance and operation***



k) the resources needed to operate and maintain the standard infrastructure and other equipment supplied by INFN as Host Agency.

### **Special services**

5.8. A variety of services other than those specified above may be provided to the Collaboration on request, subject to the availability of resources. Such services shall be charged according to the applicable conditions.

### **Special equipment**

5.9. Any additional infrastructure equipment to be provided by INFN, as well as the obligations of INFN and the Collaborating Institutions with regard to the construction, installation, maintenance and operation of such equipment, shall be explicitly mentioned in the MoU.

## **6. OBLIGATIONS OF THE COLLABORATING INSTITUTIONS**

### **Basic obligations**

6.1. Team Member(s) shall be subject to the authority of the relevant INFN NL Director and shall comply with the rules and regulations in force at the relevant INFN NL. In particular each Collaborating Institution shall require its researchers, employees and agents, participating in the Experiment, to read the applicable procedures established by the relevant INFN NL and to agree in writing to comply with such safety procedures.

6.2 Items brought onto the site by the Collaboration are subject to the rules and regulations in force at INFN.

### **Status of personnel**

6.3. Each Collaborating Institution shall ensure that its Team Members shall for the duration of their stay at the INFN NL remain employed by, and receive a salary from, their Collaborating Institution. It is understood that where they are students, the Team Members shall remain enrolled at their Collaborating Institution, and where they have a sponsor, they shall remain under contract with, and continue to be financed by, their sponsor.

6.4. Each Collaborating Institution shall ensure the provision of adequate social and third party liability insurance cover to its Team Members and the members of their family accompanying them.

6.5. Each Collaborating Institution shall be liable to INFN for any cost or expense resulting from the situation where its Team Members have insufficient insurance cover.

6.6. Each Collaborating Institution shall evaluate the risks to the safety and

health of its Team Member, taking into account the nature of the activities. Subsequent to this evaluation shall implement the preventive measures to reduce the risks including training in matter of safety and radiation protection.

### **Medical surveillance and certificates**

6.7. Each Collaborating Institution shall remain responsible for the medical surveillance of its Team Members and, in the case of Team Members who are to work in conditions which are deemed to pose special risks (e.g. radiation controlled areas or works at a height), shall supply to the INFN Medical Service a certificate of medical fitness.

### **Supply of Equipment**

6.8. The Collaborating Institutions shall make available on the INFN NL site, according to an agreed timetable and in working order, the Equipment that they have undertaken to supply and commission. The Spokesperson shall promptly inform the Director of the relevant INFN NL of any material failure to meet the agreed schedule. For experiments with a RC, this body shall monitor such matters.

Equipments shall satisfy the relevant provisions of European Directive and must not endanger the health and safety of persons (technical documentation and user and maintenance guide must be made available).

### **Transport, installation and dismantling of Equipment**

6.9. Each Collaborating Institution supplying Equipment shall be responsible for its delivery to and removal from the INFN NL site, always in compliance with applicable export laws and restrictions. All such Equipment shall be properly documented to indicate its ownership status (Article 6.10) handling requirements and any potential hazards that it may pose. The Collaborating Institutions shall be collectively responsible for the installation and dismantling of the Equipment.

### **Ownership of Equipment**

6.10. Except as may be agreed in writing by the owner and INFN as Host Agency, the delivery of Equipment to the INFN NL site or its handling on the INFN NL site shall not affect its ownership. The owner and INFN as Host Institution may agree in writing to transfer to INFN the ownership of equipment which is no longer required by the Collaboration.

### **Ownership inventory**

6.11. As a condition of coverage by INFN's insurance policy, the Collaboration shall provide INFN with a list of the Equipment which it brings on the INFN NL site, specifying for each item the owning Collaborating Institution(s) or joint ownership by the Collaboration. It shall keep the list up-to-date and inform INFN promptly of any modifications.

#### **Maintenance and operation of Equipment**

6.12. The Collaborating Institutions shall be collectively responsible for the maintenance and operation of the Equipment, and for providing the resources necessary to carry out the experimental program.

#### **Assignment of Equipment**

6.13. Any Collaborating Institution providing Equipment shall continue to make it available to the Collaboration until the Experiment has been declared completed (Article 8.2).

#### **Early removal of Equipment**

6.14. The Collaboration may request the removal from the INFN NL site under the responsibility of the owning Collaborating Institution(s) of any Equipment which in the opinion of the Collaboration is no longer required for the Experiment.

#### **Release of space**

6.15. Space allocated for construction and assembly shall be released when these activities have terminated. As Host Institution, INFN reserves the right to change this space allocation during the lifetime of the Experiment. As soon as the Experiment has been declared completed (Article 8.2), all space used by the Collaboration, including office and laboratory space, and the space used for testing and running the Experiment, shall be made available to INFN for reallocation.

#### **Removal of Equipment**

6.16. Equipment shall be removed from the INFN NL site under the responsibility of the owning Collaborating Institution(s) within six months following a request from the Director of the relevant INFN NL.

6.17. The dismantling and removal of the Equipment must respect the INFN Safety Rules and the laws of the countries through which the dismantled Equipment will transit during the removal, including the country

of its final destination (e.g. transport, disposal, elimination of special or radioactive waste). Except as may be agreed in writing by the Collaboration and INFN, the associated costs shall be borne by the Collaboration.

## **7. INTELLECTUAL PROPERTY**

### **Publication and use of data and knowledge**

7.1. INFN, as national public Institution, is bound by its Convention to publish or otherwise make generally available the results of its experimental and theoretical work.

7.2. The Collaborating Institutions shall strive to publish any data and knowledge resulting from the experiment through Open Access journals. Where the copyright in an article shall be transferred to the publisher, each Collaborating Institution shall ensure that it has the necessary internal authorizations to approve such a transfer.

7.3. Subject to Articles 7.4 and 7.5, each Collaborating Institution and INFN as Host Institution shall be entitled to use any data and knowledge resulting from the Experiment for its own scientific non-military purposes.

### **Contribution of proprietary information**

7.4. A Collaborating Institution contributing proprietary information to the Collaboration shall ensure that it has or has procured the rights to use, and to contribute to the Collaboration for use by the other Collaborating Institutions, such proprietary information for the execution of the Experiment. The term "use" shall include any integration, modification, enhancement and redistribution. Where the use of proprietary information is subject to restrictions, the contributing Collaborating Institution shall disclose them in writing when making its contribution available to the Collaboration. The obligations defined in this article shall apply whether or not the proprietary information is pre-existing or developed in the execution of the Experiment, and whether or not it was developed individually or jointly with one or more other institution(s).

### **Use of proprietary information**

7.5. The contribution by a Collaborating Institution of any proprietary information, including information protected by trademark, patent or copyright, shall not create any right in respect of such information for the other Collaborating Institutions, other than a free, irrevocable and non-exclusive license to use such information in the execution of the Experiment.

## **Publication and disclosure of proprietary information**

7.6. Subject to the intellectual property rights of the Collaborating Institutions having contributed the proprietary information and taking into account any potential for commercial exploitation, the Collaborating Institutions shall strive to publish and make publicly available all proprietary information contributed to the Collaboration. In particular, they shall consider making any software available under Open Source license conditions.

## **Limitation of liability**

7.7. The Collaborating Institutions provide no warranties or representations of any kind to each other. Each Collaborating Institution shall use the data and knowledge resulting from the Experiment and the proprietary information contributed to the Collaboration at its own risk. The Collaborating Institutions shall have no liability to each other with respect to the subject matter of this Article 7.

## **8. FINAL PROVISIONS**

### **Modification of the Experiment and amendment to the MoU**

8.1. The Collaboration shall agree on any modification of or addition to the Experiment that would require amending the MoU and shall inform INFN as Host Institution of such changes. For experiments with a RC, such changes shall also be approved by this body. Where the changes constitute a substantial change to the Experiment, they shall be submitted to the Experiment Committee for approval by INFN. Any amendment to the MoU shall be signed by the representatives of the parties to the MoU.

### **Duration of applicability of the MoU**

8.2. Unless another duration is specified in the MoU, the MoU shall remain in force until INFN, after consultation with the Spokesperson, has declared the Experiment completed, the Equipment has been dismantled and the arrangements for its disposal agreed in writing.

8.3. Notwithstanding the foregoing, the General Conditions shall remain in force.

### **Observance of the MoU and the General Conditions**

8.4. The MoU is not legally binding but the parties to the MoU recognize that the success of the Collaboration depends upon their adherence to its

provisions. Any default under its provisions shall be dealt with, in the first instance, by the Collaboration in consultation with the Director of the relevant NL and if necessary then by the RC (where such a body exists).

8.5. Notwithstanding the foregoing, the provisions of the General Conditions are binding.

### **Liability**

8.6. Except as specifically stipulated in the General Conditions, the Parties shall not be liable to each other for any loss or damage arising in connection with the Experiment.

### **Disputes**

8.7. If a dispute within the Collaboration or between the Collaboration and INFN as Host Institution cannot be resolved amicably the disputing Parties shall discuss and consider submitting the dispute to the Italian court jurisdiction.



## Definitions

- **Visiting Research Team:** A Collaborating Institution's personnel involved in the Experiment.
- **Approved Experiment:** An Experiment approved by INFN after consideration of a written proposal submitted to the appropriate Experiment Committee, taking into account scientific interest, technical feasibility and the constraints imposed by available resources.
- **INFN National Laboratory site:** All parts of INFN NL's fenced-in domains and all of their underground works.
- **Funding Agency:** A body providing resources to one or more of the Collaborating Institutions for the purpose of participation in the Experiment. A Collaborating Institution may itself be a Funding Agency.
- **Common Project:** A project that the Collaboration has decided to manage jointly under the authority of the Collaboration Management.
- **Common Funds:** Funds contributed by the Funding Agencies to joint accounts administered by the Collaboration Management.
- **Open Access:** The free, irrevocable, worldwide right to access to, and use of, a work in any digital medium for lawful purposes, subject to proper attribution of authorship.

## ANNEX 1

### GENERAL RULES FOR ACCESS AND USE OF THE INFN COMPUTER RESOURCES

#### The Purpose and Scope of this Measure

The purpose of this measure is to define the rules for access and use of the computing resources and the networks of INFN, in order to ensure their efficiency and security.

#### Definitions

**Computing resources and network services** include the following:

- a.) computers, printers and other peripherals (scanners, and storage systems) owned by the Institute or in any way connected to the Institute's network,
- b.) equipment and network infrastructure owned by or otherwise connected to the Institute networks.
- c.) software and data purchased or produced by INFN.

The following **subjects** are identified:

1.) **User:** every individual who has access to the computing resources and network services of INFN, in relation to the functions and activities pursued within the Institute. The user, who is in possession of a privileged password of multi-user operating systems (such as Unix/Linux, Windows XP o MacOS-X) or uses single-user software systems (such as Windows 95/98/ME and MacOS), is identified as the *System Administrator*;

2.) **System Administrator:** an individual entrusted with the task of supervising the operating system of a computer or database and giving permission for their use;

3.) **Computing and Network Services:** the service which has the responsibility for the management as well as the care, installation and development of central computing infrastructure, ensuring network connection within and outside the Structure, and providing support for users to access network resources; moreover, the service has the responsibility of ensuring security for all the computing resources of the Structure;

4.) **Director of the Structure:** the individual who is responsible for ensuring the scientific, organizational and administrative functioning of the structure, according to the guidelines approved by the Board of Directors.

In relation to the specific organization of each Structure there can also be identified one or more **Representative(s) of user groups**, who, according to the instructions of the Computers and Networks Services Department, coordinate the users as well as the use of the local resources of one or more groups, experiments or services.

#### **Access and Use of Computer Resources and Network Services: General Rules**

The computing resources and network services of INFN are essential resources, made available by the Institute exclusively for the achievement of its technological and scientific research goals. The collaboration of all authorized users is crucial in order to preserve the system's integrity and to ensure its smooth operation.

Therefore the following are prohibited:

- activities against the law or otherwise prohibited by regulations and customs of network use and the services accessed;
- unauthorized commercial activities;
- any activity which might compromise the security of the Institute's computer resources or cause damage to third parties.

INFN promotes a collaborative approach between the partners, advocates a respectful behaviour and recommends the adoption of the customs of "netiquette".<sup>1</sup>

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<sup>1</sup> <http://www.rfc-editor.org/rfc/rfc1855.txt>

## **Access to Computing Resources and Network Services**

Access to the computing resources and network services of INFN is permitted to employees, associates, and collaborators, visitors, graduate students, interns, contract researchers, fellows and undergraduates on authorization by their respective supervisors.

Access to the computing resources connected to the Internet is permitted only after identification of users. Users, whose personal particulars have not yet been formally established in connection with a contract of employment, collaboration, association, scholarship or research grant, shall have to identify themselves via a document of identification

In order to ensure the security of computing resources it is prohibited to:

- enter without permission the premises of the Computers and Networks Services Department, as well as the premises and areas reserved for network equipment;
- connect computing resources to the local network without the authorization of the Computers and Networks Services Department;
- cable up, connect or modify network equipment without the permission of the Computers and Networks Services Department;
- use Internet addresses and names not explicitly assigned to the user;
- install modems configured for remote access from outside of the structures of INFN and wireless access points without the express prior authorization from the Director of the Institute;
- divulge information concerning the structure and the configuration of INFN computer resources, with particular reference to the location of wireless equipment, telephone numbers and passwords managed by the Computers and Networks Services Department;

- take any other action intended to degrade the resources of the system, prevent authorized users from having access to the resources, obtain resources superior to those already allocated and authorized, accede to computing resources by violating security measures.

## **Use of the Computer Network and Network Services: Specific Rules**

### **Users**

- must properly take into account the indications of the Computers and Networks Services Department in their choice of the IT tools they use, especially as far as security is concerned, favouring systems and procedures that offer the highest levels of protection;
- are expected to act in accordance with the law and the Institute's policy regarding security, ensuring the confidential processing of personal data by meticulously observing the rules of conduct on the processing of personal data as delineated by INFN;
- are responsible for the software they install on the computers assigned to them: they conduct a thorough preliminary assessment of the software to be installed and they do not install software without a regular license;
- must protect their computers against unauthorized access to the data used and / or stored on them and in the systems they have access to;
- are required to follow the directions of the Computers and Networks Services Department and regularly save the programs and data used;
- are obliged to protect their accounts by periodically changing passwords and by choosing passwords that are not obvious; moreover, it is recommended to use different passwords on different systems;
- must not disseminate or divulge their password or allow others to use their account;
- are required to immediately report any accidents, suspected abuse and violations of security to their supervisor and to the Computers and Networks Services Department;
- are required to use updated antivirus programs for the operating systems they utilize, taking care to scan files and software downloaded from the Internet as well as removable media by antivirus programs;
- must not keep unused remote connections open nor leave the workplace with an open unsecured connection;
- are required to consult the guidelines relevant to the various systems, written and regularly updated by the Computers and Networks Commission of the Institute.

### **System Administrators**

System administrators, in addition to being required to comply with all the regulations for users:

- are responsible for the software they install on the computers assigned to them: they make a careful preliminary assessment of the software to be installed and they do not install software that lacks the regular software licenses;
- are required to maintain the systems at the level of security appropriate to their use;
- are required to regularly check the integrity of the systems;
- are required to monitor and maintain system logs for the time necessary to verify the maintenance of safety standards;
- are required to immediately report accidents, suspected abuse or violations of safety to the Computers and Networks Services Department and participate in their management;
- are required to install and regularly update antivirus programs for the operating systems they are entrusted with;
- are required to consult the guidelines relevant to the various systems, managed, written and regularly updated by the Computers and Networks Commission of the Institute.

#### **Computers and Networks Services Department**

The Computers and Networks Services Department, in order to maintain, in relation to the technological developments in the sector, the highest level of security within the local networks:

- ensures that the remote access to the local resources are made only through the use of protocols that provide authentication and encryption of the transmitted data; moreover, limits the internal use of services and/or programs that transmit the passwords in clear text;
- ensures that non-essential services are deactivated on the machines it operates, restricts the number of privileged users to the minimum that is absolutely necessary for the coordination, monitoring and control of the network and other, related, services;
- carries out at least one assessment of the accounts per year;
- monitors the systems that manage and record privileged access, any changes to system files and unauthorized use of network services;



- installs filtering and logging systems on the perimeters of the network;
- provides support to maintain and improve the security of the resources entrusted to users;
- consults the guidelines relevant to the various systems, managed, written and regularly updated by the Computers and Networks Commission of the Institute.

### **The Representative**

The Representative:

- informs the members of its group of the indications of the Computers and Networks Services Department related to the security-of resources and their correct use;
- provides the Computers and Networks Services Department with information or access to computing resources for his/her group if necessary.

### **Violation of the Regulations**

Any conduct contrary to the law or executed in violation of this measure, in addition to having criminal, civil and/or disciplinary consequences, will result in the suspension of access to the IT resources, by way of informing the Director of the Institute.