

Memorandum of Understanding

for the

RD50 Collaboration

between

The EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH, “CERN”,
an Intergovernmental Organization having its seat at Geneva, Switzerland,
as Host Laboratory

on the one hand,

and

the Collaborating Institutions/Funding Agencies of the RD50 Collaboration

on the other hand.

WHEREAS

A group of institutes from CERN Member and non-Member States, and CERN, (“the Collaborating Institutions”), listed in **Annex 1**, have proposed to CERN to carry out a research and development programme for the development of **Radiation hard semiconductor devices for very high luminosity colliders** (“the R&D Programme”). For this purpose, it has been agreed to form the RD50 Collaboration (“the Collaboration”). The Institutions have secured the support of their Funding Agencies to enable them to participate in the RD50 Collaboration;

On the basis of an R&D Proposal (“the R&D Programme Proposal”) submitted in February 2002 (CERN-LHCC-2002-003), and a detailed review of the scientific merits of the Experiment, the technological feasibility and estimates of the resources needed, the LHCC Committee (LHCC) has recommended approval of the Proposal to the CERN Research Board;

Based on the recommendation by the LHCC, the Research Board recommended to the Director General of CERN to approve the R&D Programme under the reference number RD50;

The Director General accepted the Research Board recommendation and approved the R&D Programme (CERN/DG/Research Board 2002-338, Minutes 159, 26 June 2002);

The execution of the R&D Programme is subject to the General Conditions applicable to Experiments at CERN (“the General Conditions”). The General Conditions define the representation of the parties involved in the Experiment and the basic documents that govern its execution, and set out in general terms the organisation of the Collaboration, CERN’s obligations as Host Laboratory and the obligations of the Collaborating Institutions. They also address the questions of liability and dispute resolution, as well as matters related to intellectual property. The General Conditions are an integral part of the MoU and the current version, dated 20 February 2008, is attached as **Annex 7**;

As provided for in the General Conditions, agreement on the responsibilities for the execution of the RD50 research programme is effected through identical Memoranda of Understanding (“MoU”) between CERN as the Host Laboratory and each Collaborating Institution (including CERN), represented for the purpose of signature, as the case may be, by their Funding Agencies;

IT IS HEREWITH UNDERSTOOD AS FOLLOWS:

Article 1. Parties to the MoU

- 1.1 The parties to the MoU are CERN as Host Laboratory, and the Collaborating Institutions listed in **Annex 1** (“the Parties”). **Annex 2** lists the Funding Agencies of the Collaboration. A Funding Agency may be a Collaborating Institution or a body acting on behalf of one or more Collaborating Institutions in the conclusion of the MoU.
- 1.2 The admission of new Collaborating Institutions is subject to approval by the Collaboration Board (CB) following the procedure described in **Annex 5**, and such newly admitted Institutions shall sign this MoU in accordance with Article 12.

Article 2. Purpose of the MoU

This MoU:

- 2.1 Defines the common research and development programme of the Collaboration.

- 2.2 Defines the mechanisms by which the charges and responsibilities for the execution of the Collaboration programme are distributed amongst the Parties.
- 2.3 Sets out organizational, managerial, financial guidelines and publication policies to be followed by the Collaboration.
- 2.4 Defines the use of common infrastructure.
- 2.5 Defines the Common Collaboration Fund account.
- 2.6 Sets out rules governing intellectual property and dispute resolution.

Article 3. CERN's Obligations

- 3.1 CERN's general obligations as Host Laboratory are set out in the General Conditions.
- 3.2 As a collaborating Institute CERN is subject to the responsibilities described in Article 5.
- 3.3 CERN shall maintain and operate a proton irradiation facility (like present IRRAD facility of the EP-DT group) and grant access to the RD50 Collaboration.
- 3.4 CERN shall maintain and operate a semiconductor laboratory (like present SSD laboratory of the EP-DT group) and grant RD50 access for the preparation of test beams and irradiation campaigns including the possibility to perform simple measurements on sensors like Capacitance-Voltage and Current-Voltage characterizations.

Article 4. Responsibilities of the Collaborating Institutions

Each Collaborating Institution (henceforth called "Institute") shall, subject to the provisions in this MoU:

- 4.1 Make a substantial contribution to the Collaboration Programme, taking clear commitments in at least one Research Line, described in **Annex 3**, in agreement with the Research Line Convener(s);
- 4.2 Contribute to the Common Collaboration Fund (CCF), described in Article 6;
- 4.3 Seek financial support for contributing to the Collaboration Programme beyond the CCF, e.g. to finance common sensor production runs;
- 4.4 Nominate a Institute Representative (IR) to represent the Institute in the Collaboration and Collaboration Board, who will be responsible for the activity of the Institute and its members in the RD50 Collaboration;
- 4.5 Sign or have signed Non-Disclosure Agreements (NDA) in case the Institute requires access to confidential technologies in execution of its contribution to the Collaboration, and ensure that all members of the Institute know and comply with the obligations imposed by the NDA;
- 4.6 Ensure that all RD50 members of the Institute are registered in the CERN greybook.

- 4.7 The general obligations of CERN in its role as Host Laboratory and of the Institutes (including CERN in this role) are contained in the General Conditions, which in case of contradiction or ambiguity shall prevail over the main body of this MoU.

Article 5. Structure of the RD50 Collaboration

- 5.1 The bodies responsible for the management of the Collaboration are the Collaboration Board, the Spokesperson(s) and/or his/her deputy, the Research Line Conveners, the Budget Holder of the Common Collaboration Fund, and the CERN contact person.
- 5.2 Collaboration Board
- 5.2.1 The Collaboration Board is the highest decision-making body. It defines the Research Programme of the Collaboration including the number and topics of the Research Lines.
- 5.2.2 All Institutes shall nominate an Institute Representative to the Collaboration Board.
- 5.2.3 The Spokesperson(s) and/or his/her deputy, the Research Line Conveners, the Budget Holder of the Common Collaboration Fund, and the CERN contact person are ex-officio members of the Collaboration Board. The Collaboration Board chair can appoint further ex-officio members.
- 5.2.4 The Collaboration Board elects its chair and his/her deputy among the Collaboration members for a period of two years.
- 5.2.5 Every institute has one vote in the Collaboration Board.
- 5.2.6 The Collaboration Board reviews and agrees on the budget.
- 5.2.7 The Collaboration Board decides on the membership of the Collaboration. It appoints the Spokesperson(s) and/or his/her deputy, the Budget Holder of the Common Collaboration Fund, and the CERN contact person from within the members of the Collaboration. It approves the Research Line Conveners on the proposal by the Spokesperson(s). Nominations are for a period of two years.
- 5.3 Spokesperson(s)
- 5.3.1 The Collaboration Board can elect either two Co-Spokespersons or a Spokesperson and a Deputy Spokesperson.
- 5.3.2 The Spokesperson(s) is/are responsible for officially representing the Collaboration and of liaising with official CERN bodies such as the LHC Experiments Committee (LHCC), the Research Board etc.
- 5.3.3 The Spokesperson(s) nominate the Research Line Conveners; the nomination must be approved by the Collaboration Board.
- 5.3.4 If two Co-Spokespersons are elected and they are not able to reach a consensus on a decision, the subject shall be brought for decision to the Collaboration Board and the Collaboration Board can decide to dismiss the spokespersons.

5.4 Research Line Conveners

5.4.1 The Research Line Conveners are responsible for co-ordinating the activities of the Research Line as defined by the Collaboration Board.

5.5 Details on tasks and procedures of the Collaboration bodies responsible for its management are described in **Annex 3**.

Article 6. Common Collaboration Fund (CCF)

6.1 The Common Collaboration Fund (CCF) is set up to finance activities of common interest, e.g. workshops and meetings of the collaboration, training and mobility, and support to research projects.

6.2 The CCF will be opened in the name of the Collaboration at CERN. All payments made by CERN on behalf of the Collaboration and the related receipts will be shown in that account.

6.3 Every Collaborating Institution contributes to the CCF. The regular annual contribution per institution is described in **Annex 6**. The CB can accept in-kind contributions.

6.4 Funding requests for financial contributions from the CCF to specific research projects can be submitted by any Collaboration member to a review committee composed by the Spokesperson(s) and/or his/her deputy and research line conveners. The review committee will take a decision on the request. The decision is made available on the RD50 intranet and reported on the CB meeting following the decision. Further regulations on the procedure and grant of funding are given in **Annex 6**.

6.5 The Spokesperson(s) and the Research Line Conveners propose the annual budget (main investments and other expenditures), which is submitted to the CB for endorsement.

6.6 The CB decides on the approval of the annual financial report of the budget holder.

Article 7. Intellectual Property

In addition to Article 7 of the General Conditions, the following clauses apply:

7.1 Each Party shall, prior to entering into this MoU, identify to the best of its knowledge at the time, the protected intellectual property ("IP") it owns and contributes to the Collaboration for the execution of the RD-50 programme, and list such IP in **Annex 8** together with any applicable restrictions ("Included Background IP"). A Party wishing to transfer its Included Background IP listed in **Annex 8** to a third party shall notify the other Parties of such transfer and ensure that the rights of the Parties under this MoU are adequately safeguarded.

7.2 For the avoidance of doubt, it is hereby clarified that all Background IP (as such term is defined below) not listed in **Annex 8**, is hereby explicitly excluded from the definition of "Included Background IP" under this MoU and from any rights that otherwise would have been granted under this MoU to the Parties.

7.3 For the purpose of this MoU, "Background IP" shall mean any information and scientific and/or technical knowledge i.e. know-how, secret processes, trade secrets, data, software in its source code version or in its object code version, files, plans, diagrams and figures, designs, formulae

and/or any other type of information, in any form, whether it is patentable or not and/or whether it is patented or not, as well as copy rights and other intellectual property rights pertaining to such information, which belongs to or is held by a Party prior to the entry into force of this MoU and/or which is developed outside the scope of the Collaboration.

- 7.4 Any IP developed in the execution of the RD-50 programme (“Foreground IP”) shall belong to the Party having generated such Foreground IP. Such Party shall be free to decide whether to protect and/or exploit the same at its own cost and risk, subject always to the provisions of this MoU.
- 7.5 In case Foreground IP has been generated by more than one Party, and either their respective share of the Foreground IP cannot be distinguished, or cannot be dissociated for the purpose of its protection, such Foreground IP shall be owned jointly by the Parties having generated it, unless agreed otherwise in writing by such Parties. In such case, the Parties 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, through the representative of the offices of technology transfer or their equivalent, 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 Foreground IP, and the share of each of the Parties in its development, all subject to the provisions of this MoU.
- 7.6 The conditions of access to IP of a Party for the purpose of executing the RD-50 programme are set out in the General Conditions. Access for all other users, including but not limited to commercial exploitation, shall be the subject of a separate written agreement involving the Parties concerned and shall be at the sole discretion of the Party/Parties owning the IP.
- 7.7 For avoidance of doubt, the Parties have no obligation to spend any amount in order to protect their IP; however, a Party that did not participate in the costs of an enforcement action of IP which is jointly owned shall not be entitled to any reward collected therein.
- 7.8 Any publication by a Party relating to the execution and results of the RD-50 programme shall acknowledge the contribution of the other Parties.

Article 8. Theses, Publications and Conference Contributions

- 8.1 One copy of any Ph.D. thesis or similar academic document relating to the RD50 Research Programme must be sent by the Collaborating Institution(s) concerned to the CERN Library for inclusion in its collection.
- 8.2 The results of the research work of the Collaboration can be published in the following forms:
- Regular status reports requested by the LHCC. All members of the Collaboration are authors. The members of the Collaboration Board maintain the list of authors from their Institute.
 - Publications in scientific journals.
 1. Reviews covering the research programme of the whole Collaboration. All members of the Collaboration are authors. Where author lists are subject to a length limitation, it is permissible to use, as authors list, the name of the author only, along

with the statement “On behalf of the RD50 Collaboration” and a footnote indicating the web page where the complete authors list is given.

2. Reviews and specialized articles describing the research work of one or several research projects approved through the procedure described in article 6.4. The Conveners concerned discuss the contents and, if required, decide on the list of authors in agreement with the involved Institutes.
3. Papers produced in the framework of the activity of RD50. Before publication the authors signing for the paper must inform the corresponding Conveners and insert the manuscript in a dedicated list linked to the RD50 home web site. The paper should be published with the explicit notation: "This work has been performed in the framework of the RD50 Collaboration" or “This work has partly been performed in the framework of the RD50 Collaboration”.

- Internal RD50 notes.

8.3 The review of part or all the results of the research work of the Collaboration can be presented at workshops and conferences as:

- Contributed talks. The speaker discusses the abstract with the Conveners. Written proceedings are treated as normal publication (see above).
- Invited talks. In the case that the invitation is received by the Collaboration, the choice of the speaker is the responsibility of the Spokespersons in agreement with the Conveners. Written proceedings are treated as normal publication (see above).

Where presentations are subject to a length limitation, it is permissible to use, as authors list, the name of the speaker only, along with the statement “On behalf of the RD50 Collaboration” and a footnote indicating the web page where the complete authors list is given.

Article 9. Observance of the MoU and the General Conditions

9.1 Save for the provisions of the General Conditions, the MoU is not legally binding, but the Parties recognise that the success of the Collaboration depends upon their adherence to its provisions. Any default under its provisions shall be dealt with by the Collaboration in consultation with the CERN Management.

Article 10. Duration of the MoU and its Extension

10.1 This MoU is valid until the end of 2023.

10.2 The MoU may be extended at any time by mutual agreement of the Parties. Any extension requires the approval by the CERN Research Board.

Article 11. Withdrawal of Funding Agencies or Collaborating Institutions

11.1 Any Collaborating Institution may withdraw from the Collaboration by giving at least six months’ notice in writing to the Collaboration Board Chair and the Spokesperson(s). In such an event, the Collaborating Institution shall, in accordance with the General Conditions, settle its

outstanding commitments under the MoU and its engagements taken within the Collaboration prior to the effective date of its withdrawal.

Article 12. Participation of additional institutions

- 12.1 Subject to the agreement of the Parties, additional institutes may join the Collaboration at any time during the lifetime of the MoU. Each such event shall give rise to an **Addendum** to the MoU setting out the specific terms of collaboration for the institute(s) concerned and with explicit mention that the terms of the MoU (including all existing Addenda and Amendments) apply. The terms of collaboration shall be negotiated by the Collaboration (which reserves the right to request additional contributions from such institutes). The Addendum shall be signed by CERN as Host Laboratory, by the Spokesperson(s) as representative of the Collaboration, and by the institute(s), for the purposes of signature represented, as the case may be, by their Funding Agency/Agencies.

Article 13. Industrial Partners

- 13.1 The CB can grant the status of “Industrial Partners” to collaborating industrial partners.
- 13.2 Industrial partners are not represented in the Collaboration Board.
- 13.3 Industrial partners do not contribute to the Common Collaboration Fund.
- 13.4 Team members of industrial partners are listed as co-authors on common publications (same rules as applicable to all other collaboration members).
- 13.5 Industrial partners are listed in **Annex 1**.
- 13.6 Institutions that have to finance themselves partly by commercial income can still become full members of the Collaboration (i.e. “Collaborating Institutions”). These Institutes shall be listed in **Annex 1**. In cases where conflicts could arise with their commercial interests, e.g. when the collaboration is going to tender products which they are able to sell, the CB shall decide to not allow them to discuss and vote about these issues in the CB.

Article 14. Relation to other Experiments

- 14.1 RD50 can collaborate with other experiments or R&D collaborations to perform specific developments in line with the RD50 research programme. The activities shall be discussed and approved by the CB. Membership in the RD50 Collaboration does not establish any constraints on Collaborating Institutes to join other experiments or collaborations.

Article 15. Amendments

- 15.1 The MoU may be amended at any time in accordance with the General Conditions.
- 15.2 Any amendment is subject to prior agreement of the CB. No amendment shall be valid unless it has written form, and is signed by the Parties.

- 15.3 Notwithstanding the foregoing it is agreed that the CB shall have authority to decide on any update of information in the Annexes, without the need for signature of a corresponding amendment.
- 15.4 The Collaboration Management will make very effort to ensure that the information contained in the Annexes to this MoU is kept up-to-date. To this end it shall review the information at least annually.

Article 16. Annexes

- 16.1 All Annexes are an integral part of this MoU.

This MoU is produced in 60 original documents, each pair signed by CERN as Host Laboratory and by a Collaborating Institution.

Signed in Geneva

Signed in _____

on _____

on _____

For CERN

For

Eckhard Elsen

Director of Research and Computing

ANNEXES

- 1. List of Collaborating Institutes**
- 2. List of Funding Agencies and names of MoU Signatories**
- 3. Details on tasks and procedures of the Collaboration bodies responsible for its management**
- 4. List of persons currently holding management and other senior positions within the Collaboration**
- 5. New Institutes joining, Industrial Partners, Observers and Relation to other Experiments**
- 6. Institutes Contribution to the Common Collaboration Fund and Common Project Funding**
- 7. General Conditions applicable to Experiments at CERN**

Annex 1 Collaborating Institutes in the Collaboration and the names of their Contact Persons

No.	Country	Town	Institute	Contact Person
1.	Austria	Vienna	Austrian Academy of Sciences, Institute for High Energy Physics (HEPHY)	Thomas Bergauer
2.	Belarus	Minsk	Belarusian State University	Leonid Makarenko
3.	China	Beijing	Institute of High Energy Physics, Chinese Academy of Sciences	Xin Shi
4.	Croatia	Zagreb	Ruder Boškovic Institute	Jaakko Härkönen
5.	Czech Republic	Prague	Institute of Physics, Academy of Sciences of the Czech Republic	Marcela Mikestikova
6.	Czech Republic	Prague	Charles University, Faculty of Mathematics and Physics	Peter Kodys
7.	Czech Republic	Prague	Czech Technical University	Michael Solar
8.	Finland	Helsinki	Helsinki Institute of Physics	Panja Luukka
9.	Finland	Lappeenranta	Lappeenranta University of Technology	Tuure Tuuva
10.	France	Marseille	Centre de Physique des Particules de Marseille	Marlon Barbero
11.	France	Orsay	Laboratoire de l'Accélérateur Linéaire Centre Scientifique d'Orsay	Abdenour Lounis
12.	France	Paris	Laboratoire de Physique Nucléaire et de Hautes Energies, UPMC and Université Paris-Diderot and CNRS/IN2P3	Giovanni Calderini
13.	Germany	Bonn	University of Bonn	Norbert Wermes

14.	Germany	Dortmund	Technische Universitaet Dortmund, Lehrstuhl Experimentelle Physik IV	Andreas Gisen
15.	Germany	Freiburg	University of Freiburg	Ulrich Parzefall
16.	Germany	Göttingen	University of Göttingen	Arnulf Quadt
17.	Germany	Hamburg	Deutsches Elektronen Synchrotron (DESY)	Doris Eckstein
18.	Germany	Hamburg	Institute for Experimental Physics, University of Hamburg	Eckhart Fretwurst
19.	Germany	Karlsruhe	Institut für Experimentelle Teilchenphysik, Karlsruhe Institute of Technology	Alexander Dierlamm
20.	Germany	Munich	Max-Planck-Institut fuer Physik	Francesco Guescini
21.	Germany	Munich	Semiconductor Laboratory of the Max-Planck-Society	Ladislav Andricek
22.	Greece	Demokritos	NCSR Demokritos Institute of Nuclear and Particle Physics	Dimitris Loukas
23.	India	Delhi	Center for Detector and Related Software Technologies, Department of Physics & Astrophysics,	R.K. Shivpuri
24.	Israel	Tel Aviv	Tel Aviv University	Arie Ruzin
25.	Italy	Bari	Dipartimento Interateneo di Fisica & INFN - Bari	Donato Creanza
26.	Italy	Perugia	I.N.F.N. and Università di Perugia	Gian Mario Bilei
27.	Italy	Pisa	Università di Pisa and INFN sez. di Pisa	Alberto Messineo
28.	Italy	Torino	INFN Torino	Roberta Arcidiacono
29.	Italy	Trento	Fondazione Bruno Kessler - FBK	Maurizio Boscardin

30.	Lithuania	Vilnius	Institute of Photonics and Nanotechnology, Vilnius University	Juozas Vidmantis Vaitkus
31.	Netherlands	Amsterdam	National Institute for Subatomic Physics (Nikhef)	Martin van Beuzekom
32.	Poland	Krakow	AGH - University of Science and Technology, Faculty of Physics and Applied Computer Science	Agnieszka Oblakowska-Mucha
33.	Romania	Magurele	National Institute of Materials Physics (NIMP)	Ioana Pintilie
34.	Russia	Moscow	Institute for Theoretical and Experimental Physics of the National Research Center "Kurchatov Institute"	Eugene Grigoriev
35.	Russia	St. Petersburg	Ioffe Institute	Elena Verbitskaya
36.	Slovenia	Ljubljana	Department of Experimental Particle Physics, Jožef Stefan Institute and Department of Physics, University of Ljubljana	Marko Mikuz
37.	Spain	Barcelona	Centro Nacional de Microelectrónica (IMB-CNM, CSIC)	Giulio Pellegrini
38.	Spain	Barcelona	Institut de Física d'Altes Energies (IFAE)	Sebastian Grinstein
39.	Spain	Barcelona	University of Barcelona, Department of Electronics and Biomedical Engineering	Oscar Alonso
40.	Spain	Santander	Instituto de Física de Cantabria (IFCA)	Ivan Vila Álvarez
41.	Spain	Sevilla	Grupo de Ingeniería Electrónica (GIE)-Escuela Técnica Superior de Ingenieros-Universidad de Sevilla	Francisco Rogelio Palomo Pinto

42.	Spain	Sevilla	Centro Nacional de Aceleradores	Joaquin Gomez Camacho
43.	Spain	Valencia	Instituto de Fisica Corpuscular (IFIC)	Salvador Martí-García
44.	Switzerland	Geneva	CERN	Michael Moll
45.	Switzerland	Villigen	Paul Scherrer Institut, Laboratory for Particle Physics	Tilman Rohe
46.	Switzerland	Zurich	University of Zurich	Ben Kilminster
47.	UK	Birmingham	University of Birmingham	Philip Allport
48.	UK	Glasgow	Dept. of Physics & Astronomy, Glasgow	Richard Bates
49.	UK	Lancaster	Department of Physics, Lancaster University	Daniel Muenstermann
50.	UK	Liverpool	Department of Physics, University of Liverpool	Gianluigi Casse
51.	UK	Manchester	School of Physics and Astronomy, The University of Manchester	Marco Gersabeck
52.	UK	Oxford	University of Oxford	Daniela Bortoletto
53.	UK	Harwell	UK Research and Innovation (UKRI) acting through Rutherford Appleton Laboratory	Fergus Wilson
54.	USA	Upton, NY	Brookhaven National Laboratory	Alessandro Tricoli
55.	USA	Providence	Brown University, Physics Department. Elementary	Ulrich Heintz
56.	USA	Batavia	Fermilab	Artur Apresyan
57.	USA	Berkeley	Berkeley Experimental Particle Physics Center	Benjamin Nachman

58.	USA	Albuquerque	Department of Physics and Astronomy, University of New Mexico	Sally Seidel
59.	USA	Santa Cruz	Santa Cruz Institute for Particle Physics	Vitaliy Fadeyev
60.	USA	Syracuse	Experimental Particle Physics Group, Syracuse University	Marina Artuso

Industrial Partner Status (see **Annex 5**):

- CiS Forschungsinstitut für Mikrosensorik GmbH, Erfurt, Germany,

**Annex 2 Funding Agencies of the Collaboration and their Representatives
or
Responsibles for MoU Signatures for the Collaborating Institutes acting on behalf
of the Funding Agencies**

No.	Country	Town	Agency	Represented by
1.	Austria	Vienna	Austrian Academy of Science	Univ. Prof. Dipl.-Phys. Dr. Jochen Schieck Director of Research and Scientific Computing Director of the Institute of High Energy Physics at the Austrian Academy of Sciences Univ.Doiz. Priv.Doiz.Dr.Christoph Schwanda; Deputy Director of the Institute of High Energy Physics at the Austrian Academy of Sciences
2.	Belarus	Minsk	Belarusian State University	Vice-rector V.G. Safonov
3.	China	Beijing	Institute of High Energy Physics, Chinese Academy of Sciences	Prof. Yifang Wang, Director of IHEP
4.	Croatia	Zagreb	Ruder Boškovic Institute	David Matthew Smith, Director General (RBI)
5.	Czech Republic	Prague	Institute of Physics, Academy of Sciences of the Czech Republic	Michael Prouza, Director of the Institute of Physics, CAS
6.	Czech Republic	Prague	Charles University, Faculty of Mathematics and Physics	Jan Kratochvil, Dean of the Faculty of Mathematics & Physics

7.	Czech Republic	Prague	Czech Technical University (CTU)	Ivan Stekl, Director of IEAP CTU, Institute of Experimental and Applied Physics
8.	Finland	Helsinki	Helsinki Institute of Physics	Katri Huitu, Director of Helsinki Institute of Physics
9.	Finland	Lappeenranta	University of Technology	Tuure Tuuva
10.	France	Marseille	Centre de Physique des Particules de Marseille	Marlon Barbero
11.	France	Orsay	Laboratoire de l'Accélérateur Linéaire Centre Scientifique d'Orsay	Abdenour Lounis
12.	France	Paris	Laboratoire de Physique Nucléaire et de Hautes Energies, UPMC and Université Paris-Diderot and CNRS/IN2P3	Giovanni Calderini
13.	Germany	Bonn	University of Bonn	Holger Gottschalk, Provost of the University
14.	Germany	Dortmund	Technische Universität Dortmund, Lehrstuhl Experimentelle Physik IV	Andrea Bartkowski Deputy Head of Department 5: Finance and Procurement, Head of Department 5.3: External Funding and Contract Management
15.	Germany	Freiburg	University of Freiburg	Prof. Dr. Stefan Dittmaier, Geschäftsführender Direktor des Physikalischen Instituts, Albert-Ludwigs- Universität Freiburg

16.	Germany	Göttingen	University of Göttingen	Arnulf Quadt II.Physikalisches Institut Georg-August-Universität Göttingen
17.	Germany	Hamburg	Deutsches Elektronen Synchrotron (DESY)	Joachim Mnich (Director of Particle Physics) Christian Harringa (Director of Administration)
18.	Germany	Hamburg	Institute for Experimental Physics, University of Hamburg	Erika Garutti, Head of the laboratory for Detector R&D of the Institute for Experimental Physics, University of Hamburg
19.	Germany	Karlsruhe	Institut für Experimentelle Teilchenphysik, Karlsruhe Institute of Technology	Thomas Muller, Head of the institute
20.	Germany	Munich	Semiconductor Laboratory of the Max-Planck-Society	Jelena Ninkovic Head of Laboratory
21.	Germany	Munich	Max-Planck-Institut fuer Physik	Prof. Dieter Lust
22.	Greece	Athens	General Secretary of Research and Technology	Dr. Patricia Kyprianidou
23.	India	Delhi	Center for Detector and Related Software Technologies, Department of Physics & Astrophysics, University of Delhi	R.K. Shivpuri

24.	Israel	Tel Aviv	Tel Aviv University	Arie Ruzin
25.	Italy	Bari	Dipartimento Interateneo di Fisica & INFN - Bari	Prof. Antonio Zoccoli (President INFN)
26.	Italy	Perugia	I.N.F.N. and Università di Perugia	
27.	Italy	Pisa	Università di Pisa and INFN sez. di Pisa	
28.	Italy	Torino	INFN Torino	
29.	Italy	Trento	Fondazione Bruno Kessler - FBK	Gianluigi Casse
30.	Lithuania	Vilnius Institute of Photonics and Nanotechnology, Vilnius University	Lithuanian Academy of Sciences	President Prof. Juras Banys
31.	Netherlands	Amsterdam	National Institute for Subatomic Physics (Nikhef)	Arjen van Rijn Institute manager
32.	Poland	Krakow	AGH University of Science and Technology AGH - University of Science and Technology, Faculty of Physics and Applied Computer Science	Professor Andrzej R. Pach Vice-Rector for Science Marek Ciechanowski, Administrative Director Faculty of Physics and Applied Computer Science, AGH UST

33.	Romania	Magurele	National Institute of Materials Physics (NIMP)	Ionut Enculescu, General Director
34.	Russia	Moscow <i>Institute for Theoretical and Experimental Physics of the National Research Center "Kurchatov Institute"</i>	Ministry of Science and High education of RF	Grigory Trubnikov, Vice Minister
35.	Russia	St. Petersburg	Ministry of Science and High education of RF Ioffe Institute	Grigory Trubnikov, Vice Minister Prof. Sergei Lebedev Vice Director
36.	Slovenia	Ljubljana	Department of Experimental Particle Physics, Jožef Stefan Institute and Department of Physics, University of Ljubljana	Marko Mikuz
37.	Spain	Barcelona	Centro Nacional de Microelectrónica (IMB-CNM, CSIC)	Giulio Pellegrini
38.	Spain	Barcelona	Institut de Física d'Altes Energies (IFAE)	Sebastian Grinstein
39.	Spain	Barcelona	University of Barcelona, Department of Electronics and Biomedical Engineering	Oscar Alonso

40.	Spain	Santander	Instituto de Física de Cantabria (IFCA)	Ivan Vila Álvarez
41.	Spain	Sevilla	Group of Electronic Engineering, Dept. of Electronic Engineering, Escuela Técnica Superior de Ingenieros, Universidad de Sevilla	Francisco Rogelio Palomo Pinto
42.	Spain	Sevilla	Centro Nacional de Aceleradores	Rafael Garcia-Tenorio Centro Nacional de Aceleradores
43.	Spain	Valencia	Instituto de Física Corpuscular (IFIC)	Salvador Martí-García
44.	Switzerland	Geneva	CERN	Eckhard Elsen, Director of Research
45.	Switzerland	Villigen	PSI	Bohdan Kotlinski Tilman Rohe
46.	Switzerland	Zurich	University of Zurich	Ben Kilminster
47.	UK	Birmingham	University of Birmingham	Prof Paul Newman Head of Particle Physics Group
48.	UK	Glasgow	Dept. of Physics & Astronomy, Glasgow University	Richard Bates
49.	UK	Lancaster	Department of Physics, Lancaster University	Daniel Muenstermann
50.	UK	Liverpool	University of Liverpool	Gianluigi Casse

51.	UK	Manchester	School of Physics and Astronomy, The University of Manchester	Stefan Söldner-Rembold
52.	UK	Oxford	University of Oxford	Daniela Bortoletto
53.	UK	Harwell	UK Research and Innovation (UKRI) acting through Rutherford Appleton Laboratory	Tamasin Dorosti
54.	USA	Upton, NY	Brookhaven National Laboratory	Alessandro Tricoli
55.	USA	Providence	Brown University, Physics Department. Elementary Particle Experiment group	Ulrich Heintz
56.	USA	Batavia	Fermilab	Artur Apresyan
57.	USA	Berkeley	Berkeley Experimental Particle Physics Center	Benjamin Nachman
58.	USA	Albuquerque	Department of Physics and Astronomy, University of New Mexico	Sally Seidel
59.	USA	Santa Cruz	Santa Cruz Institute for Particle Physics	Steven Ritz (Director)
60.	USA	Syracuse	Experimental Particle Physics Group, Syracuse University	Marina Artuso

Annex 3 Details on tasks and procedures of the Collaboration bodies responsible for its management

3.1. Collaboration Board

The Collaboration Board (CB) is composed of one nominated Institute Representative (IR) per Institute. The spokesperson(s) and/or his/her deputy, the CB chair and his/her deputy, the Research Line Conveners, the Budget Holder of the CCF and the CERN contact person attend the CB as ex-officio members; the CB chair can invite additional experts as ex-officio members.

- 3.1.1.** In case a nominated IR cannot attend a CB meeting, he/she can nominate an IR delegate (proxy) representing the institute and carrying all rights and duties of the IR. The Institute shall inform the CB chair in advance of the meeting.
- 3.1.2.** The CB elects among the members of the Collaboration the CB Chair and the CB Chair Deputy.
- 3.1.3.** Every Institute, represented by the IR or a proxy, has one vote. Ex-officio members do not have voting rights in their capacity as such.
- 3.1.4.** A CB vote is valid if at least one third of the voting members are present except in the case described in 3.1.5. The decision is taken by a simple majority of the members present; if there is a tie, the vote of the person chairing the meeting is the deciding one.
- 3.1.5.** A vote on a change of the Annexes of the MoU requires a majority of the members of the CB to participate in the vote.
- 3.1.6.** To start a procedure to change of parts of the MoU other than the Annexes (see Article 15), requires that 2/3 of the Collaborating Institutions participate in the vote.
- 3.1.7.** The CB elects the Spokesperson(s) and/or his/her deputy by secret vote(s). Proposals can either nominate a single person as a candidate Spokesperson, or two persons as candidate co-Spokespersons. Every voting CB member has one vote to be cast for a proposal. A proposal is elected if it gets the majority of the submitted votes. Failing majority, the election is repeated with the two proposals that got the most and second most votes in the first round, eliminating all other proposals. In case the elected proposal nominates a single person as Spokesperson, the procedure is repeated for the election of a Deputy Spokesperson.
- 3.1.8.** Other elections, votes and nominations are performed openly unless one or more CB member(s) request a secret procedure, in which case the election, vote or nomination must be held secretly.
- 3.1.9.** The CB can ask at any time for oral or written progress reports, minutes or other information from the committees or persons it has appointed.
- 3.1.10.** The CB can revoke any appointment at any time, if it is not satisfied with the quality or progress of the work.
- 3.1.11.** In case of institutes that fail to contribute actively to the Collaboration, the CB can request the spokesperson to contact that institute to enquire about the possibility or intention to provide a

more active participation. In the case this latter could not be achieved, the institute is asked by the CB chair to resign from the collaboration or dismiss the institute from the collaboration.

- 3.1.12.** Draft minutes of the CB meetings shall be distributed no later than one month after the meeting, and be submitted for approval to the following meeting.

3.2 CB Chair

- 3.2.1. The CB Chair calls the CB meetings, prepares and distributes the draft agenda at least one week in advance of the respective meeting, and chairs the CB meetings.
- 3.2.2. The CB Chair handles requests for changes of the Collaboration membership.
- 3.2.3. The CB Chair helps the Spokesperson(s) maintain the communication with the Institutes.

3.3 CB Chair Deputy

- 3.3.1. The CB Chair Deputy replaces the CB Chair in case of absence or unavailability.
- 3.3.2. The CB Chair Deputy serves as scientific secretary of the CB and in particular writes the minutes.
- 3.3.3. In case the CB Chair Deputy is replacing the CB Chair, he nominates a member of the CB to write the minutes.

3.4 Spokesperson(s) and/or Spokesperson Deputy

- 3.4.1. In case of single Spokesperson: The Spokesperson is assisted in his/her tasks by the Spokesperson Deputy. In case of Co-Spokespersons: The Co-Spokesperson take all decisions in mutual agreement (see Article 5.3.2)
- 3.4.2. The Spokesperson(s) officially represent the RD50 Collaboration.
- 3.4.3. The Spokesperson(s) execute the decisions taken by the CB.
- 3.4.4. The Spokesperson(s) ensures the co-ordination with in the Collaboration.
- 3.4.5. The Spokesperson(s) nominate the Conveners of the Research Lines for approval by the CB. The Conveners must be Collaboration members with relevant experience and expertise proven by outstanding contributions in the field, who can overview the overall quality of the research products of the respective projects.
- 3.4.6. The Spokesperson(s) promotes diversity and harmony within the collaboration, also by fair and equal representation of each institute regardless of its financial status; direct and profitable contacts among the different research projects; continuous and direct exchange of information,

data, literature within the Collaboration to optimise the achievement of the intended results; close collaboration with other R&D projects and experiments at CERN and outside.

- 3.4.7. The Spokesperson(s) chair(s) the review committee on funding requests.
- 3.4.8. In case the Spokesperson is permanently based at CERN, he/she will also be the CERN contact person.

3.5 Research Line Conveners

- 3.5.1. Research Line Conveners (RLC) coordinate the activities of the respective Research Line. They identify the needs of the groups working within this activity to fulfill the goals.
- 3.5.2. RLCs stimulate exchanges of information, literature, data and samples within the groups involved in the project, and advance towards common publications.
- 3.5.3. RLCs contribute to the status reports of the collaboration
- 3.5.4. RLCs ensure that the publication policy is correctly followed. If needed, they arrange for an internal refereeing system to ensure correct citations and author listing.
- 3.5.5. RLCs ensure fruitful and continuous connections with the other Research Lines.
- 3.5.6. RLCs can, with the agreement of the Spokesperson, nominate project leaders for specific subtasks within the Research Line.

Annex 4 Persons holding management positions within the Collaboration

4.1 Persons currently holding Management and other senior positions within the Collaboration

Spokespersons	Dr. Gianluigi Casse (University Liverpool/FBK Trento) Dr. Michael Moll (CERN)
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Technical Coordinator	Dr. Michael Moll (CERN)
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GLIMOS (EXSO)	Dr. Michael Moll (CERN)
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CB Chair	Dr. Gregor Kramberger (JSI, Ljubljana)
CB Chair Deputy	Dr. Juosaz Vaitkus (Vilnius University)

Research Line Conveners

Defect and Material Characterization	Dr. Ioana Pintilie (NIMP, Magurele)
Detector Characterization	Dr. Eckhart Fretwurst (Hamburg University)
New Detector Structures	Dr Giulio Pellegrini (INB-CNM, CSIC Barcelona)
Full Detector Systems	Dr. Gregor Kramberger (JSI, Ljubljana)

Annex 5 New Institutes joining, Industrial Partners, Observers and Relation to other Experiments

The collaboration maintains strong ties with LHC collaborations and serves as a platform for more efficient use of resources for semiconductor detectors R&D.

Joining Collaboration

RD50 is open to all research institutions interested in radiation hard semiconductor detector technologies. The institute applying for membership is required to file in the application which has to include short description of the following points:

- Name of the institution and contact person
- Names of group members and fraction of their time devoted to RD50 activities.
- Current and past research activities
- Fields of interest within RD50 collaboration
- Available resources (instrumentation, irradiation facilities, design and manufacturing facilities etc.)

The application form should be sent to the CB chair at least two weeks before the next CB meeting. The joining institution representative is required to present the group at the CB meeting. The group becomes a member after being approved by a majority of the CB.

Leaving Collaboration

The membership is terminated by:

- a member decision to leave by a notification of CB of leaving. The outstanding contributions to CCF should be settled before that.
- non-paying to CFF for three years
- major violations of “General agreement” described in **Annex 7**
- in cases of long term absence of scientific contribution from member institutes, the CB chair shall approach the institutes to understand their commitment to RD50

Collaboration observer

An observer to collaboration is an institution who shares interest in topic of research, but it is not ready to full commitment of a member. The observer institution is not contributing to CCF and takes not part in decisions taken by the collaboration. They can take part in the common projects and can be invited to present their work at collaboration meetings. They are not co-authoring common RD50 publications involving all the collaboration unless they contributed to the scientific work presented in the publication.

Industrial partner

Industrial partner is a commercial enterprise with which has the rights of the observer. They are co-authors to common RD50 publications involving all the collaboration.

Annex 6 Contributions to the Common Fund and Common Project Funding

Common Collaboration Fund

Every Collaborating Institute contributes to the Common Collaboration Fund (CCF). Regular annual contribution fee is 2000 CHF per institution and is subject to change by the CB. The CCF is used to finance common projects and to support common activities of collaboration which provide mutual benefits and promote the collaboration. Expenditures should be approved by the CB.

The CB can grant a reduced contribution to very small research groups or groups from economically weak institutes upon a formal request for a period of three years.

The CB can accept in-kind contributions. For specific project funding (the scientific activity within projects, e.g. material acquisition, processing costs) additional contribution could be asked to participating institutes.

Payment to the CCF is a requirement for keeping status of a member institution. After missing two yearly contributions the non-paying institute is downgraded to observer status for the following year. The membership (observe/full member) is terminated upon failing to contribute to CCF for three years. Older outstanding contributions to CCF are settled first.

The institution that ceased to be a member because of missing payments can rejoin the collaboration upon settling all outstanding fees or reaches any other agreement with CB.

Funding of common projects

The projects proposed by collaborating institutes can benefit from CCF, where the following rules should be respected for each common project:

- A project is eligible for CCF contribution if proposed by a minimum of three member institutes excluding observers and industrial partners.
- A maximum contribution from CCF is limited to 5000 CHF per participating member.
- A maximum of 50% of the total project cost can be covered by CCF. In-kind contributions can be part of the total project budget.
- With approval of the CB up to 70% can be funded from the CCF.

Any project considered for CCF participation should be submitted to the spokesperson(s). The project is reviewed by the Spokesperson(s) and research line conveners. Upon positive review it is accepted for funding and the CB chair is informed. The project as well as its evaluation is made available on the Collaboration intranet. The project is presented at the CB meeting following the approval to the CB. The projects funded from CCF have to report on their progress at collaboration meetings and shall at the end of the project present the list of publications/conference contributions/technical reports that arose from it.

Annex 7

General Conditions applicable to Experiments at CERN

Laboratoire Européen pour la Physique des Particules European Laboratory for Particle Physics

GENERAL CONDITIONS

APPLICABLE TO EXPERIMENTS AT CERN

20 February 2008

TABLE OF CONTENTS

Article Title Page

1,	SCOPE OF APPLICATION,	1
2.	PARTIES AND THEIR REPRESENTATION	1
3.	BASIC DOCUMENTS GOVERNING THE EXECUTION OF THE EXPERIMENT	2
4.	ORGANISATION OF THE COLLABORATION	3
5.	CERN'S OBLIGATIONS AS HOST LABORATORY	4
6.	OBLIGATIONS OF THE COLLABORATING INSTITUTIONS	6
7.	INTELLECTUAL PROPERTY	9
8.	FINAL PROVISIONS	10
	Definitions	12

GENERAL CONDITIONS

applicable to

Experiments at CERN

(Terms with a particular meaning in the context of this document are defined at the end – their first occurrence in the document is indicated with a reference number thus: term^a).

The mission of the European Organization for Nuclear Research (“CERN”) is to sponsor international scientific research in high-energy physics.

This document (the “General Conditions”) sets out the rules and procedures in organisational, managerial and financial matters, which apply to the participation by Universities and Research Institutions (the “Collaborating Institution(s)”) in experiments at CERN. The Collaborating Institutions jointly constitute the “Collaboration”. They provide, and are responsible for, the Visiting Research Teams¹ (the “Team(s)”) carrying out the experiment.

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

Any reference made in the General Conditions to a specific document shall be to its most recent version.

1. SCOPE OF APPLICATION

The General Conditions apply to Approved Experiments² (the “Experiment(s)”) carried out on the CERN site³. They do not apply to Recognised Experiments⁴.

2. PARTIES AND THEIR REPRESENTATION

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

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

2.2. Each Party shall have a representative:

- CERN as Host Laboratory shall be represented by its Director of Research, acting on behalf of the Director-General;
- The Collaboration shall appoint a Spokesperson, who shall represent the Collaboration to the outside, including to CERN as Host Laboratory, and co-ordinate its work. Where the Spokesperson is not stationed full-time at CERN, the Collaboration shall also appoint a Contactperson at CERN;
- Each Collaborating Institution shall appoint a Team Leader who shall represent it in its relations with CERN as Host Laboratory. The Team Leader's responsibilities are detailed in the “Appointment of Team Leader” form (available on the Users' Office Web site – see Article 5.7).

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 the CERN Research Board on the recommendation of the Experiment Committee dealing with the appropriate part of the physics programme (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 CERN as Host Laboratory and the Collaborating Institutions, for the purpose of signature represented, as the case may be, by their Funding Agencies⁵. 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 CERN as Host Laboratory

4.1. In its internal relations, the Collaboration shall be free to take such organisational decisions as deemed necessary, always subject to the terms of the MoU and the General Conditions. Any financial arrangements between CERN as Host Laboratory and the Collaboration shall be subject to the Financial and Administrative Provisions for Visiting Research Teams.

Co-ordination in matters of safety

4.2. The Leader of the CERN Department responsible for the physics programme of which the Experiment is part 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 document "Safety Policy at CERN -SAPOCO/42".

Finance Review Committee/Resources Review Board

Initial Decision

4.3. For Experiments involving large capital investments, a Finance Review Committee (FRC) or a Resources Review Board (RRB) may be set up by agreement of CERN as Host Laboratory and the Collaboration.

Membership

4.4. The FRC/RRB shall consist of one representative of each Funding Agency, along with the Managements of CERN and the Collaboration. It shall be chaired by the CERN Director of Research.

Terms of reference

4.5. The role of the FRC/RRB 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 Projects⁶ and the use of the Common Funds⁷;
- 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 FRC/RRB on technical, managerial, financial and administrative matters, and on the composition of the Collaboration.

5. CERN'S OBLIGATIONS AS HOST LABORATORY

PRINCIPLES

Installation

5.1. The Collaboration shall ensure that the Equipment and counting rooms meet the CERN Safety Rules. Provided that this is the case, CERN shall agree in writing to their installation in the appropriate experimental area.

Duration

5.2. CERN shall agree to keep the Equipment on-site during the data-taking for the experimental programme approved by the CERN Research Board.

Network connections

5.3. CERN shall agree that computers and peripherals belonging to the Collaboration, which are needed for the operation of the Equipment, may be connected to the CERN computer network, provided they meet its compatibility and security standards, including as set out in the document "Operational Circular No 5 – Use of CERN Computing Facilities" and subsidiary rules.

Insurance

-Property

5.4. CERN 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 CERN site, added to the Ownership Inventory (Article 6.10) and accepted in writing by CERN. CERN 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. CERN shall at its expense insure the members of the Collaborating Institutions against third party liability incurred by them at CERN 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 CERN's insurance policies. Any risk or amount not covered by such policies shall be for the exclusive account of the Collaboration. CERN does not warrant or accept liability as to the sufficiency of its insurance policies in relation to the risks incurred by the Collaboration.

SERVICES

User support, Users' Office and ACCU

5.7. CERN operates a Users' Office as a point of contact with the user community. Documentation for users is maintained on the Users' Office Web site, which can

be accessed through the CERN home page (<http://www.cern.ch>). CERN shall provide access to its services, as described in the “CERN Guide for Newcomers” (available from the Users’ Office Web site). The Users’ Office provides assistance on questions concerning access to the services provided by CERN.

The Advisory Committee of CERN Users (ACCU) promotes links between CERN Management and the User Community and advises CERN Users on the working conditions and the arrangements for technical support.

Standard services and facilities

5.8. CERN 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 Experiment Committee;
- 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. CERN 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, geometrical survey and alignment, as well as transport of the Equipment on and between the parts of the CERN site and inside the experimental areas;
- i) mechanical infrastructure, local infrastructure for the supply of mains electricity, raw cooling water, compressed air and standard connections to the CERN communication network;

Computing

- j) central computing resources for the Collaboration, in amounts to be decided in accordance with the applicable CERN allocation procedures;

Transport of persons

- k) basic transportation for personnel between the main parts of the CERN site, including the experimental areas;

Safety services

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

Administrative services

- m) access to its administrative services to assist the Collaboration in financial matters, in accordance with the Financial Rules and the Financial and Administrative Provisions for Visiting Research Teams;

Purchasing services

- n) access to its purchasing services to assist the Collaboration in placing purchase orders and contracts for its account, in accordance with the CERN Financial Rules and the CERN Purchasing Procedures. In such cases there is immediate automatic transfer of ownership to the Collaborating Institution(s) for which the purchase is made. This(These) Institution(s) shall hold CERN free and harmless from liability arising from such assistance;

Maintenance and operation

- o) the resources needed to operate and maintain the standard infrastructure and other equipment supplied by CERN as Host Laboratory.

Special services

5.9. 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

5.10. Any additional infrastructure equipment to be provided by CERN, as well as the obligations of CERN 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. In their capacity as members of the personnel of CERN⁸, the Team Members shall be subject to the authority of the Director-General of CERN and shall comply with the rules and regulations in force at CERN. Items brought onto the site by the Collaboration are subject to the rules and regulations in force at CERN.

Status of personnel

6.2. Each Collaborating Institution shall ensure that its Team Members shall for the duration of their Contract of Association⁹ with CERN (the “*Contract of Association*”) 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.

6.3. 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. The social insurance must include cover against the financial consequences of illness and accidents that is adequate in the Host States of CERN for the duration of the Contract of Association.

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

Medical surveillance and certificates

6.5. 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), shall supply to the CERN Medical Service a certificate of medical fitness, for the first time on registration of the Team Member at CERN and then every two years thereafter (a form for such certificates is available on the Users’ Office Web site – Article 5.7).

Safety briefings and inspections

6.6. The Collaborating Institutions, in conjunction with the CERN Department responsible for the physics programme of which the Experiment is part, shall ensure the safety of the Team Members and the Equipment. The Collaborating Institutions shall participate in safety meetings and studies of the Experiment. They shall ensure compliance by the Team Members with the CERN Safety Rules.

Each Team Member has specific safety responsibilities and obligations, as defined in the document “Safety Policy at CERN -SAPOCO/42”. The Team Members shall attend the CERN safety course(s) for newcomers, any compulsory CERN safety course, and all specific safety courses deemed necessary by the Collaboration.

The CERN safety personnel shall be entitled to carry out safety visits, checks and inspections as well as other safety measures set out in the document “Safety Policy at CERN - SAPOCO/42”.

Supply of Equipment

6.7. The Collaborating Institutions shall make available on the CERN 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 CERN Director of Research of any material failure to meet the agreed schedule. For experiments with an FRC/RRB, this body shall monitor such matters.

Transport, installation and dismantling of Equipment

6.8. Each Collaborating Institution supplying Equipment shall be responsible for its delivery to and removal from the CERN 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

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

Ownership inventory

6.10. As a condition of coverage by CERN's insurance policy, the Collaboration shall provide CERN with a list of the Equipment which it brings on the CERN 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 CERN promptly of any modifications.

Maintenance and operation of Equipment

6.11. 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 programme.

Assignment of Equipment

6.12. 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

6.13. The Collaboration may request the removal from the CERN 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

6.14. Space allocated for construction and assembly shall be released when these activities have terminated. As Host Laboratory, CERN reserves the right to change the 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 CERN for reallocation.

Removal of Equipment

6.15. Equipment shall be removed from the CERN site under the responsibility of the owning Collaborating Institution(s) within six months following a request from

the Leader of the CERN Department responsible for the physics programme of which the Experiment is part.

6.16. The dismantling and removal of the Equipment must respect the CERN 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 CERN, the associated costs shall be borne by the Collaboration.

7. INTELLECTUAL PROPERTY

Publication and use of data and knowledge

7.1. CERN 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 Access¹⁰ journals. Where the copyright in an article shall be transferred to the publisher, each Collaborating Institution shall ensure that it has the necessary internal authorisations to approve such a transfer.

7.3. Subject to Articles 7.4 and 7.5, each Collaborating Institution and CERN as Host Laboratory 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 licence 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 licence 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 CERN as Host Laboratory of such changes. For experiments with an FRC/RRB, 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 the CERN Research Board and the Director-General. 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 the CERN Director of Research, in agreement 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 recognise 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 CERN Management and if necessary then by the FRC/RRB (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.

Arbitration

8.7. If a dispute within the Collaboration or between the Collaboration and CERN as Host Laboratory cannot be resolved amicably, it shall be referred by any party to the dispute for arbitration to the President of the CERN Council, whose decision shall be binding and final, without right of revision or appeal.

Relevant documents

8.8. The following documents apply to the execution of the MoU:

-the CERN Guide for Newcomers; -Financial and Administrative Provisions for Visiting Research Teams; -Use of CERN Computing Facilities - Operational Circular No 5 (<http://cern.ch/ComputingRules/>); -the Safety Guide for experiments at CERN (<http://cern.ch/SafetyGuide/>); -the Safety Policy at CERN - SAPOCO/42; - Purchasing Rules and Procedures for Experiments at CERN

Definitions

- ¹ **Visiting Research Team:** A Collaborating Institution's personnel involved in the Experiment.
- ² **Approved Experiment:** An Experiment approved by the CERN Research Board and the Director-General 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.
- ³ **CERN site:** All parts of CERN's fenced-in domain and all of its underground works.
- ⁴ **Recognised Experiment:** An experiment in fields allied to particle physics, such as astroparticle physics, the full definition of which was decided by the CERN Research Board (CERN/DG/RB 99-285). The conditions applicable to such experiments are decided by the CERN Research Board on a case-by-case basis.
- ⁵ **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
- ⁶ **Common Project:** A project that the Collaboration has decided to manage jointly under the authority of the Collaboration Management.
- ⁷ **Common Funds:** Funds contributed by the Funding Agencies to joint accounts administered by the Collaboration Management.
- ⁸ **Member of the personnel of CERN:** All Team Members who are not employed by CERN are required to sign a Registration Form, in which they apply to become an associated member of the personnel of CERN.
- ⁹ **Contract of Association:** The contract defined in Article RI 2.04 of the Staff Rules and Regulations of CERN.
- ¹⁰ **Open Access:** The free, irrevocable, worldwide right of access to, and use of, a work in any digital medium for lawful purposes, subject to proper attribution of authorship.