

**Memorandum of Understanding
for providing a framework for the
implementation of experiments within the
GRADE Programme**

(15 April 2016)

between

The EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH, an Intergovernmental Organization having its seat at Geneva, Switzerland, ('CERN'), as the Host Laboratory of the Generic detector pre-R&d At CERN iDEAsquare ('GRADE') Programme at IdeaSquare,

on the one hand,

and

The Institutions and the Funding Agencies participating in the GRADE Programme,

on the other hand,

Preamble

Considering that:

CERN as the Host Laboratory and various Institutions and Funding Agencies have expressed their interest in carrying out together long-term detector R&D for future physics experiments at CERN (e.g. HL- LHC, ILC, FCC, etc.), which also includes an educational component;

These pre-R&D detector activities share a commonality in that they are generic by nature, potentially comprise initial computer simulations, concept sub-module design, (rapid) detector component prototyping testing and integration, potential end-user need analysis and more, and are to be performed at CERN's IdeaSquare facility.

The pre-R&D detector activities at IdeaSquare are known collectively as the "GRADE" Programme whose objective is to explore new detector technologies for future physics experiments at CERN, while engaging students from different fields of interest and industry;

If the GRADE Programme proves successful, it may, in due course, result in a formal proposal for larger-scale follow-up programmes or experiments at CERN;

Depending on the case, there may be activities involving industrial partners, to be laid down in separate collaboration agreements on terms consistent with this MoU and/or the MoU governing any future follow-up programmes or experiments.

Likewise, there may be opportunities for contributions by students that are not linked to any of the parties, similarly on terms that are consistent with the applicable MoU;

On 9 December 2015 the CERN Research Board approved the GRADE Programme, subject to a number of comments concerning governance that are reflected in the terms of this MoU;

Through this MoU (including its Annexes and Amendments) the parties' obligations in the implementation of the GRADE Programme are defined:

It is understood as follows:

Article 1: Purpose

- 1.1 This MoU defines the terms of participation of the parties in the GRADE Programme, always for non-military purposes only.
- 1.2 Except as otherwise stated, the implementation of an experiment within the framework of the GRADE Programme is subject to the General Conditions applicable to Experiments at CERN ("the General Conditions"), attached to this MoU as **Annex 2**.
- 1.3 Experiments are admitted to the GRADE programme on the basis of a proposal submitted to the Director of Research and Computing, who will be advised by a small standing committee that will be convened as appropriate.
- 1.4 With the exception of Article 7 and **Annex 2**, this MoU is not binding upon the parties, but it is recognised by the parties that adherence to its provisions is fundamental for the success of the GRADE Programme.

Article 2: Parties

The parties are CERN as the Host Laboratory and the Institutions participating in an experiment within the framework of the GRADE Programme and, as the case may be, their Funding Agencies. For each experiment a specific Addendum will be drawn up and the parties signing the form set out in **Annex 1** will thereby become a party to this MoU. The current list of such Institutions and/or Funding Agencies and their representatives is given in **Annex 3**.

Article 3: Duration

This MoU will remain in force until/inclusive completion of the GRADE Programme, or the ceasing of its approval by the CERN Research Board.

Article 4: Scope of Work

- 4.1 The scope of activities for each experiment within the GRADE Programme, and each party's contribution thereto, which may include modest financial contributions to common expenses, are set out in the Addendum covering that particular experiment. The parties to each experiment shall agree between themselves on the detailed specifications of the work, which they may decide to define in Annexes to the Addendum.
- 4.2 Any in-kind contributions shall be deemed to have no financial value.
- 4.3 A party may withdraw from an experiment, and thereby from this MoU, by giving six months' written notice to the Chairperson of the Collaboration Board of the experiment.

Article 5: Responsibilities of CERN as Host Laboratory

- 5.1 The obligations of CERN as the Host Laboratory of the GRADE Programme are set out in the General Conditions.
- 5.2 CERN's specific support as the Host Laboratory includes granting access to the CERN IdeaSquare premises (i.e. shared offices and laboratory space), coordination support across related activities and limited material resources agreed on a case-by-case with the IdeaSquare Program Coordinator and the CERN Director of Research and Computing.

Article 6: Governance

- 6.1 Each experiment within the GRADE Programme shall be managed by a Collaboration Board, consisting of one representative from each party to the experiment, including the IdeaSquare Programme Coordinator, or any other representative appointed by CERN to represent it as the Host Laboratory.
- 6.2 Each Collaboration Board shall elect from among its members a Chairperson for that board.
- 6.3 Each Collaboration Board shall define project milestones for its experiment which will be monitored by the standing committee referred to in Article 1.3. CERN's Director for Research and Computing shall

annually report progress of the experiments in the GRADE Programme and progress of the GRADE Programme itself to the CERN Research Board.

Article 7: Intellectual Property

- 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 Except as otherwise agreed, the parties shall publish and make publicly available all results from the experiments within the GRADE Programme and all proprietary information, whether pre-existing or developed in the course of the experiment, that it has contributed to the experiment. In particular, they shall make software available under Open Source license conditions, hardware designs available under Open Hardware licenses, and results from the experiment available through Open Access publications.
- 7.3 Ownership of results shall be vested in the party of their author. The publishing or making available of results or proprietary information under Article 7.2 above shall not amount to a transfer of ownership in such information.
- 7.4 A party contributing proprietary information to an experiment shall ensure that it has or has procured the rights to use, and to contribute such proprietary information for the use set out in Article 7.2.

Article 8: Default and Disputes

The primary mechanism for resolution of any default or disputes shall be negotiation within the Collaboration Board in respect of each experiment in the first instance, followed, if necessary, by resolution through the mechanism set out in Article 8.7 of the General Conditions.

Article 9: Amendment

The parties shall make every effort to ensure that the information contained in the Annexes to this MoU is kept up-to-date. To this end they shall review the information periodically.

ANNEX 1

**The European Organization for Nuclear Research (CERN)
as the Host Laboratory of the GRADE Programme**

and

**..... participating in the [.....]
experiment within the GRADE Programme**

declare that this Addendum and the Memorandum of Understanding for providing a framework for the implementation of experiments within the GRADE Programme, govern the implementation of the experiment.

Done in Geneva on

.....

for CERN

by Eckhard Elsen
Director of Research and Computing

Done in on

for

by [Team Leader]

ANNEX 2

General Conditions applicable to Experiments at CERN

ANNEX 3

**List of Institutions, Funding Agencies, including their representatives
participating in the GRADE Programme (tentative)**

University of Geneva

Aalto University

**The European Organization for Nuclear Research (CERN)
as the Host Laboratory of the GRADE Programme**

and

**..... participating in the [.....]
experiment within the GRADE Programme**

declare that this Addendum and the Memorandum of Understanding for providing a framework for the implementation of experiments within the GRADE Programme, govern the implementation of the experiment.

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