

**INTERNATIONAL
COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENT
FOR
BASIC SCIENCE COOPERATION**

(HEREINAFTER "CRADA") NO. FRA-2017-0046

BY AND AMONG

FERMI RESEARCH ALLIANCE, LLC
UNDER ITS U.S. DEPARTMENT OF ENERGY CONTRACT
NO. DE-AC02-07CH11359
TO MANAGE AND OPERATE
FERMI NATIONAL ACCELERATOR LABORATORY
(HEREINAFTER "LABORATORY")

AND

UNIVERSIDAD AUTONOMA DE MADRID (UAM)
(HEREINAFTER "PARTICIPANT")
LABORATORY AND PARTICIPANT COLLECTIVELY REFERRED TO
AS THE "PARTIES" AND SEPARATELY AS A "PARTY"

ANNEX A
VISITS AND ASSIGNMENTS OF SCIENTIFIC AND TECHNICAL PERSONNEL
(HEREINAFTER "Project")

AUGUST 2017

PROJECT DESCRIPTION:

This purpose of this Annex is to establish the procedures, standards and policies for visits and assignments of scientific and technical personnel, including student exchanges, between Fermi National Acceleratory Laboratory (Fermilab) and Instituto de Fisica Teorica (IFT) as research center within the Universidad Autonoma de Madrid (UAM).

This Task Order is subject to and governed by CRADA No. FRA-2017-0046 ("CRADA") between the Parties and all the terms, conditions, definitions, and provisions of said CRADA are hereby incorporated by reference. The Parties agree to perform their respective obligations related to this Project in accordance with the terms and conditions of this Task Order and other documents attached or incorporated by reference, which together constitute the entire Task Order. In the event of any conflict between the provisions of this Task Order and the provisions of the CRADA, the CRADA shall control.

STATEMENT OF WORK ("SOW")

The Parties agree that visits and assignments of scientific and technical personnel between institutions, including student exchanges, are an important first step in establishing the basis for a long-term, mutually beneficial, research partnership.

Visits and Assignments of Scientific and Technical Personnel

In addition to the general obligations in Article VII: ASSIGNMENT OF PERSONNEL:

- a) Each Party shall ensure the selection of qualified personnel, such as faculty, staff and postdoctoral researchers, with skills and competence necessary for the specific visit, assignment, or exchange program.
- b) Each such visit, assignment, or exchange shall be agreed in advance by an exchange of letters between the Parties referencing this CRADA.
- c) Each invitation letter will specify any funding support that will be provided by the host institution rather than the home institution, including housing, transportation, or other living expenses.
- d) The home institution shall have primary responsibility for assisting their personnel in obtaining the necessary visa or work permits for the visit or assignment and for securing required medical coverage.
- e) The host institution shall assist in arranging for adequate accommodations for the visiting personnel on a mutually agreeable and reciprocal basis.
- f) Each Party shall provide necessary staff assistance to the other Party in regards to administrative formalities, such as making travel arrangements, securing required medical coverage, obtaining work permits, or executing required facility access agreements.

Student Exchange Programs

Premise

Each Party reserves the right to assess the application of their students, as home institution, and each Party reserves the authority to approve, as host institution, candidates nominated by the home institution that fulfill the prerequisites established in this Annex.

Application prerequisites

To be able to apply for this program, a student must:

- a) Meet any language and program requirements established by the host institution.

Application submission

Applications must be submitted according to the calendar that will be defined each year by the Parties.

Length of the exchange period

Students will be accepted to visit the host institution for no less than one month or more than two academic years.

Number of students per year

Both institutions agree to initially exchange an average of three (3) students per academic year, with the possibility to increase this number if deemed of mutual interest.

General Obligations:

Both institutions agree to:

- a) Proceed with the exchange observing the number of students per year that may be established in mutual accordance;
- b) Establish annually, in mutual accordance, the programs that will host the exchange students;
- c) Inform the home institution immediately about any academic, disciplinary or health issues related to the exchange students, respecting their privacy and dignity;
- d) Waive any tuition fees for exchange students who are performing activities under this Annex.

Obligations of the host institution

The host institution agrees to:

- a) Send the acceptance letter for visa procedures for the exchange students;
- b) Provide appropriate local housing and access to transportation for the exchange students;

- c) Financially support the local expenses (which may include housing, local transportation, per diem) incurred by the exchange students during their visits, to the extent not already covered by fellowships or programs that may already be supporting the students, subject to available funding, and in accordance with the policies and procedures of the host institution;
- d) Allow the exchange students the use of facilities and services at the same conditions of other scientific visitors;
- e) Designate, whenever applicable, an advisor for the tasks or projects to be undertaken by the students.

Obligations of the home institution

The home institution agrees to:

- a) Select the candidates through a rigorous process, considering their academic achievements;
- b) Submit the applications within the deadlines agreed upon with the host institution;
- c) Assist students in preparing work plan, selecting the activities to be carried out at the host institution;

Coordination

The individuals to be responsible by the execution of this Annex are:

For Participant: Dr. Luis E. Ibáñez Santiago, Deputy Director, IFT

For the Laboratory: Dra. Marcela Carena, Head of the Theoretical Physics Department, International Relations, Directorate, Fermilab.

CRADA Amendments

For the purposes of work performed under this project specific Task Order the following amendments apply.

ARTICLE I: DEFINITIONS

The following definitions are added to Article I:

- L. "Home institution" means the institution that is sending scientific and technical personnel to the other institution for temporary visits and assignments at the other institution.
- M. "Host institution" means the institution where the visit or assignment will occur.

ARTICLE II: STATEMENT OF WORK, TERM, FUNDING AND COSTS

The following terms are added to Article II:

- E. Unless otherwise agreed to by the Parties in the form of a written modification to this Task Order, each Party shall bear the cost of its participation, which shall be subject to the availability of funds.

NET BENEFITS STATEMENT

The following Net Benefits Statement (NBS) applies:

Background

The benefits that result from basic scientific research are well established: new insights and knowledge, inspiration of the next generation of talent, and economic growth through new technologies and innovation. International scientific collaboration drives more rapid scientific advances, by combining the expertise, intellectual resources, and infrastructure of different countries.

The U.S. Department of Energy (DOE) supports basic and fundamental research increasingly in collaboration with international partners that can help both share the cost of large-scale projects as well as add valuable capabilities and expertise that may not exist within U.S. For mega-projects like the Long Base Neutrino Facility (LBNF) and the Deep Underground Neutrino Experiment (DUNE), there is a realization by the international community that the next-generation of long-baseline neutrino experiments would require previously independent efforts to converge in way that harnesses the unique capabilities of hundreds for collaborators around the world. While the potential benefits of international collaboration are often obvious for large scale projects like LBNF/DUNE, they can be equally important for small scale basic science projects that help bring together scientists from around the world to better learn about and understand fundamental science. Often, these partnerships begin with the exchange and support of students, faculty, and other research personnel.

Net Economic Benefits

Develop the next generation of scientists and engineers

Student participation in international science is essential as students bring fresh perspectives, tough questions, and a commitment to learn and challenge and grow – the very basic principles of successful research.

Improve research quality and productivity

Through this Agreement, researchers will have access to unique research facilities and capabilities that are not available in their home country or institution. By collaborating with researchers with different skills sets and national backgrounds, the resulting research will be more effective and more successful.

Drive economic growth

The exchange of scientific and technical personnel results in spending by one or both institutions to support travel and living expenses of the exchange personnel while in the host country. This spending has a multiplier effect on the local economies surrounding the host institutions, increasing employment in the local community.

Investments in scientific facilities and experiments that may arise under this Agreement may be made in the form of equipment, components, or materials contributions, rather than cash contributions.

For larger-scale projects like LBNF/DUNE, these collaborations will also create new high quality domestic jobs during both the construction and operational phases of the project, jobs that would not be possible without international collaboration.

Although the primary purpose of the Agreement is to perform basic research and broadly disseminate the results of that research, technology may be developed during the course of the Agreement by one or more Participants that may also have commercial value, potentially resulting in new jobs, new companies, and even new industries.

Net Benefit Determination

One of the goals of this CRADA is to enable better key international basic-science collaborations while also ensuring these collaborations benefit the United States economy and the economies of the international collaborators in a way that makes sense for all of the parties involved. In order to achieve this result, this CRADA was created with a symmetrical disposition of intellectual property rights using cross-licensing and sub-licensing provisions to maximize benefit to the economies of both Parties. Through these cross-licensing provisions both Parties are receiving rights to intellectual property that they would not have under a traditional CRADA which will encourage further development of the technology in their respective countries.

Given the collaborative and basic science nature of this CRADA, DOE has determined that a non-exclusive disposition of rights achieved through the cross-licensing provisions of the International Basic Science CRADA will best enable the Parties to fulfill the activities outlined in the statement of work and will also provide a net benefit to the economies of both Parties.

FOR LABORATORY:


Name: **Dr. Nigel Lockyer**
Title: **Director**

Date: 1/16/18

FOR PARTICIPANT


Name: **Dr. José Manuel González Sancho**
Title: **Vice-rector for Research**

Date: 1/23/18