ANNEX XI TO THE IMPLEMENTING ARRANGEMENT
BETWEEN THE JAPAN ATOMIC ENERGY RESEARCH INSTITUTE
AND THE UNITED STATES DEPARTMENT OF ENERGY
ON COOPERATION IN FUSION RESEARCH AND DEVELOPMENT
FOR THE
DOE-JAERI COLLABORATIVE PROGRAM
ON THE TESTING OF NEGATIVE ION SOURCES AND ACCELERATORS
FOR NEUTRAL BEAM INJECTORS

1. INTRODUCTION AND TERMS OF REFERENCE

Whereas the United States Department of Energy (hereinafter referred to as "DOE"), and the Japan Atomic Energy Research Institute (hereinafter referred to as "JAERI") have cooperated on the development of high power negative ion neutral beam plasma heating technology;

Whereas Article III.2 of the Implementing Arrangement between DOE and JAERI on Cooperation in Fusion Research and Development of November 8, 1983, subsequently extended by notes on February 1, 1990, (hereinafter referred to as "Implementing Arrangement") provides for additional activities through written Annexes to the Implementing Arrangement;

Whereas DOE and JAERI have successful and beneficial experience with joint collaboration in the development of negative ion sources and accelerators and wish to continue to advance the application of negative ion sources for heating and current drive of plasmas and identify the technical characteristics of the next generation neutral beam injector, through joint experiments;

Whereas DOE and JAERI have experimental test facilities that can perform the required negative ion source and accelerator experiments at increasing levels of performance;

Whereas DOE and JAERI have negative ion sources and accelerators that can be used together to achieve increasing levels of performance;

DOE and JAERI (hereinafter referred to as the "Parties") agree to a program of collaborative activities to test negative ion sources and accelerators for neutral beam injectors (hereinafter referred to as the "Collaborative Program") in accordance with the provisions of the Implementing Arrangement as follows.

2. OBJECTIVE

The objective of the Collaborative Program is to perform joint experiments using the test facilities at Lawrence Berkeley Laboratory (hereinafter referred to as "LBL") and JAERI to optimize the production and acceleration of hydrogen and deuterium negative ion beams, which would be applicable to the next generation of fusion experimental devices.

3. COLLABORATIVE PROGRAM

3.1 The collaborative program is a joint program of research on the development of high energy negative ion based neutral beam

injectors. The Collaborative Program shall use neutral beam facilities at LBL, and JAERI, and shall be consistent with programs approved by DOE and JAERI.

3.2 The activities of this collaboration will include:

(a) Planning the experiments to test the negative ion sources and accelerators at increasing levels of performance.

(b) Provision of negative ion sources and accelerators by DOE through LBL and by JAERI.

(c) Installation and testing of the ion sources and accelerators at appropriate test facilities at LBL and JAERI.

(d) Optimization of negative ion production and acceleration through the conduct of joint experiments at LBL and JAERI.

(e) Exchange of personnel and information necessary to carry out the Collaborative Program.

3.3 The program shall include a task testing the JAERI negative ion source with an LBL electrostatic quadruple accelerator at LBL. The responsibilities of the Parties for this test are as follows:

3.3.1 JAERI shall:

(a) Develop a negative ion source that can produce convergent beams suitable for experiments of ESQ acceleration.

(b) Test a negative ion source using hydrogen and provide LBL with the source whose physical dimensions are compatible with the LBL Test Facility.

(c) Provide LBL, as agreed by the Parties, with instruments, repair parts, and information which are necessary to operate and maintain the ion source.

(d) Assign personnel to LBL for a duration as agreed by the Parties. The assignee(s) shall aid in the assembly, installation, and operation of the ion source and shall join in the planning and conduct of the experiments for the duration of the assignment.

3.3.2 DOE shall:

(a) Provide JAERI with necessary information to install and operate the JAERI negative ion source.

(b) Assemble and install the JAERI negative ion source aided by JAERI's assignee(s).

(c) Operate the JAERI negative ion source in deuterium aided by JAERI's assignee(s).

(d) Maintain the JAERI negative ion source aided by JAERI's assignee(s).

(e) Install necessary instruments and repair parts provided by JAERI.

3.3.3 DOE and JAERI shall:

(a) Jointly develop the experimental plans and conduct the experiments in the LBL Test Facility.

(b) Evaluate the results of the experiments in order to establish the design bases of the next generation neutral beam injector.

3.4 Through agreement by the Steering Committee provided for in paragraph 4.3 of this Annex, the parties shall develop and conduct additional activities under the collaborative program as follows:

(a) DOE and JAERI will develop plans for further activities to test negative ion sources and accelerators at increasing levels of performance at LBL and JAERI.

(b) In conducting experiments at the LBL and JAERI test facilities, DOE and JAERI shall:

(1) Provide negative ion sources and accelerators as agreed to by the Steering Committee.

(2) Provide instruments, repair parts, and information which are necessary to operate and maintain the experimental equipment supplied.

(3) Assign personnel for a duration as agreed to by the Parties. The assignee(s) shall aid in the assembly, installation, and operation of the ion source and shall join in the planning and conduct of the experiments for the duration of the assignment.

(4) Make available test facilities as agreed to by the Steering Committee.

(5) Jointly develop the experimental plans and conduct the experiments in the LBL and JAERI test facilities.

(6) Evaluate the results of the experiments in order to establish the design bases of the next generation neutral beam injector.

4. MANAGEMENT

A Steering Committee shall be established by the Parties and be responsible for management of the Collaborative Program.

4.1 The Steering Committee shall be composed of four members, two each to be assigned by DOE and JAERI. The Steering Committee shall have the functions as described in paragraph 4.3 below.

4.1.1 DOE and JAERI each shall identify a person to serve as co-chairman of the Steering Committee. Official communications shall be channeled through these co-chairmen or their designees.

4.1.2 DOE and JAERI shall designate an appropriate alternate who shall serve if a member is unable to do so, and each shall inform the other in writing of all such designations. DOE and JAERI shall each have one vote in the Steering Committee, and all decisions shall be by unanimity. The Steering Committee shall be chaired by the host country of the Steering Committee meeting.

4.2 The Steering Committee shall meet as required on a date and at a location mutually agreed upon. An exchange of letters may serve as a substitute for a meeting of the Steering Committee.

4.3 The functions of the Steering Committee shall include:

(a) Planning of the Collaborative Program.

(b) Making decisions on development and conduct of additional activities under the Collaborative Program.

(c) Reviewing progress in preparation for, and during conduct of experiments.

(d) Evaluating the results of the Collaborative Program.

(e) Reporting to the US-Japan Coordinating Committee on Fusion Energy through contact persons described in Article I of the Exchange of Letters between the Science and Technology Agency of Japan and DOE on January 25, 1983.

(f) Reaching agreement on the assignee(s)provided for in paragraph 3.4(b)(3) above and paragraph 7.

(g) Discussing other matters necessary for conduct of the Collaborative Program.

The Steering Committee shall be responsible for periodically evaluating the Collaborative Program's relevance to both the DOE and JAERI fusion programs

and shall report these evaluations as needed to the US-Japan Coordinating Committee on Fusion Energy.

5. FINANCE

Except when otherwise mutually agreed in writing, each Party shall bear the costs of its activities in accordance with its responsibilities as described in this Annex. The activities to be conducted under this Annex shall be subject to the availability of appropriated funds in each country.

6. INFORMATION AND PATENTS

6.1 Each Party shall provide the other Party with necessary information on the equipment supplied by DOE and JAERI to install, check out, and run at the other Party's test facility. This information shall be non-proprietary and shall not include detailed manufacturing know-how.

6.2 Each Party shall provide the other Party with all information resulting from the experiments.

6.3 Each Party shall provide the other Party with information resulting from the evaluation of the experimental results on the optimization of the negative ion production.

6.4 Each Party shall support the widest possible dissemination of information in Articles 6.1, 6.2, 6.3, and 6.4 above for any and all purposes whatsoever, subject to Article 6.11.

6.5 Business-Confidential Information

(a) For the purpose of this Annex, "business-confidential information" means any know-how, technical data, or technical, commercial, or financial information that meets all of the following conditions:

(i) It is of a type customarily held in confidence for commercial reasons;

(ii) It is not generally known or publicly available from other sources;

(iii) It has not been previously made available by the owner to others without an obligation concerning its confidentiality; and

(iv) It is not already in the possession of the recipient without an obligation concerning its confidentiality.

(b) Any business-confidential information will be furnished or, when created in the course of the cooperative activities under this Agreement, transferred only by mutual written agreement of the Parties to the cooperative activity concerned and will be given

full protection in accordance with the laws and regulations of their respective countries.

(c) Any business-confidential information will be appropriately identified before it is furnished in the course of the cooperative activities under this Agreement or, unless otherwise provided in the implementing arrangements, immediately upon being created. Responsibility for identifying such information will fall on the Party which furnishes it or asserts that it is to be protected. Unidentified information will be assumed not to be information to be protected, except that a Party to the cooperative activity may notify the other Party in writing, within a reasonable period of time after furnishing or transferring such information, that such information is business-confidential information under the laws and regulations of its country. Such information will thereafter be protected in accordance with subparagraph B above.

6.6 Ownership of Intellectual Property Rights

Between each Party and nationals of its country, the ownership of intellectual property rights will be determined in accordance with its national laws, regulations and practices.

6.7 Inventions

(a) For the purpose of this Annex, "Invention" means any invention made in the course of the cooperative activities under this Agreement which is or may be patentable or otherwise protectable under the laws of the United States of America, Japan or any third country.

(b) As to an Invention, the Parties to the cooperative activity concerned will take appropriate steps, in accordance with the national laws and regulations of the respective countries, with a view to realizing the following:

(i) If an Invention is made as a result of a cooperative activity under this Agreement that involves only the transfer or exchange of information between the Parties, such as by joint meetings, seminars, or the exchange of technical reports or papers, unless otherwise provided in an applicable implementing arrangement:

(a) the Party whose personnel make the Invention (hereinafter referred to as "the Inventing Party") or the personnel who make the Invention (hereinafter referred to as "the Inventor") have the right to obtain all rights and interests in the Invention in all countries, and

(b) in any country where the Inventing Party or the Inventor decides not to obtain such rights and interest, the other Party has the right to do so.

(ii) If the Invention is made by an Inventor of a Party ("the Assigning Party") while assigned to the other Party ("the Receiving Party") in the course of programs of a cooperative activity that involve only the visit or exchange of scientists and engineers, and:

(a) in the case where the Receiving Party is expected to make a major and substantial contribution to the programs of the cooperative activity:

i. the Receiving Party has the right to obtain all rights and interests in the Invention in all countries, and

ii. in any country where the Receiving Party decides not to obtain such rights and interests, the Assigning Party or the Inventor has the right to do so;

(b) in the case where the provision in subparagraph (a) above is not satisfied:

i. the Receiving Party has the right to obtain all rights and interest in the Invention in its own country and in third countries,

ii. the Assigning Party or the Inventor has the right to obtain all rights and interests in the Invention in its own country, and

iii. in any country where the Receiving Party decides not to obtain such rights and interest, the Assigning Party or the Inventor has the right to do so.

(iii) Specific arrangements involving other forms of the cooperative activities, such as joint research projects with an agreed research work scope, will provide for the mutually agreed upon disposition, on an equitable basis, of rights to the Invention made as a result of such activities.

(iv) The Inventing Party will disclose promptly the Invention to the other Party and furnish any documentation or information necessary to enable the other Party to establish rights to which it may be entitled. The Inventing Party may ask the other Party in writing to delay publication or public disclosure of such documentation or information for the purpose of protecting its rights or the rights of the Inventor related to the Invention. Unless otherwise agreed in writing, such restrictions will not exceed a period of six months from the date of communication of such documentation or information.

6.8 Copyrights

Disposition of rights to copyright-protected works created in the course of the cooperative activities under this Agreement will be determined in the relevant implementing arrangements. The Parties to the cooperative activities concerned will take appropriate steps to secure copyright to words created in the course of the cooperative activities under this Agreement in accordance with the national laws and regulations of the respective countries.

6.9 Rights to Semiconductor Chip Layout Designs

Disposition of rights to semiconductor chip layout designs created in the course of the cooperative activities under this Agreement will be determined in the relevant implementing arrangements. The Parties to the cooperative activities concerned will take appropriate steps to secure rights to semiconductor chip layout designs created in the course of the cooperative activities under this Agreement in accordance with national laws and regulations of the respective countries.

6.10 Other Forms of Intellectual Property

For those other forms of intellectual property created in the course of the cooperative activities under this Agreement which are protected under the laws of either country, disposition of rights will be determined on an equitable basis, in accordance with the laws and regulations of the respective countries.

6.11 The provisions of Articles 6.5 shall apply mutatis mutandis to the protection of utility model and of design.

7. ASSIGNMENT OF PERSONNEL

Each Party may assign one or more persons to the other Party for a total duration as technically required. The co-chairmen of the Steering Committee shall determine the duration of the assignment(s) before the assignment(s) begin(s). Assignments of personnel shall be made in accordance with Article IX of the Implementing Arrangement. Each such assignment of personnel shall be the subject of a separate assignment agreement.

8. LOAN OF COMPONENT, EQUIPMENT, INSTRUMENT, AND MATERIAL

Each Party is responsible for the shipment of its equipment, its repair parts and necessary instrumentation. Each Party shall accept responsibility for the protection, assembling and installation of equipment on the other Party's test facility, and operation of these components after they have passed inspection upon arrival at the Party's facilities.

Paragraphs 1, 2, 3, 4, 5, 6 and 7 of Article X of the Implementing Arrangement shall apply to the supply of the components. For the duration of the Collaborative Program, components, equipment, instruments, and material

provided by JAERI shall be considered to be the property of the Government of Japan. For the duration of the Collaborative Program, components, equipment, instruments, and material provided by DOE shall be considered to be the property of the U.S. Government.

9. INCORPORATION BY REFERENCE

Articles V, VII, and VIII and paragraphs 1, 2, 3, 4, 5, 6 and 7 of Article X of the Implementing Arrangement are applicable to the Collaborative Program.

10. DURATION AND TERMINATION

The Collaborative Program shall enter into force upon signature of this Annex by the Parties and shall remain in force for a period of five (5) year or until termination of the Implementing Arrangement, whichever occurs first. This Annex may be renewed or amended by written agreement between the Parties. The Collaborative Program may be terminated at the discretion of either of the Parties upon six months advance notice in writing by the side seeking termination. Such termination shall be without prejudice to the rights which may have accrued under the Collaborative Program to either Party up to the date of such termination. Specific activities initiated hereunder but not completed at the termination of this Annex may be continued until their completion under the terms of this Annex.

In witness whereof, the Parties have executed this Annex effective as of the 16 th day of April, 1992.

for THE UNITED STATES DEPARTMENT OF ENERGY

N. Anne Davies
Associate Director
for Fusion Energy
Office of Energy Research

Date April 1, 1992

for THE JAPAN ATOMIC ENERGY RESEARCH INSTITUTE

Shozo Shimomura
President

Date April 16, 1992