

IMPLEMENTING AGREEMENT
ON A CO-OPERATIVE PROGRAMME FOR
THE INVESTIGATION OF TOROIDAL PHYSICS IN,
AND PLASMA TECHNOLOGIES OF, TOKAMAKS
WITH POLOIDAL FIELD DIVERTORS

ANNEX I

AN UNDERSTANDING

FOR THE LOWER HYBRID EXPERIMENTS ON ASDEX

BETWEEN

THE OPERATING AGENT,
THE EUROPEAN ATOMIC ENERGY COMMUNITY (EURATOM) AND
THE MAX-PLANCK-INSTITUT FUR PLASMAPHYSIK (IPP),
ACTING THROUGH IPP,

AND

THE UNITED STATES DEPARTMENT OF ENERGY (DOE)

Considering the co-operation between the operating agent, the European Atomic Energy Community (EURATOM), acting through IPP, and the U.S. Department of Energy (DOE) in the field of nuclear fusion research and development,

In fulfillment of the requirements of paragraphs 2(b)(2), 2(b)(4) and 4(j) of ANNEX I of the "IMPLEMENTING AGREEMENT ON A CO-OPERATIVE PROGRAM FOR THE INVESTIGATION OF TOROIDAL PHYSICS IN, AND PLASMA TECHNOLOGIES OF, TOKAMAKS WITH POLOIDAL FIELD DIVERTORS", for the transfer of equipment and materials,

Considering that Max-Planck-Institut fur Plasmaphysik (IPP) with its ASDEX large-scale experiment offers the ideal technical requirements for a 2.45 GHz lower hybrid experiment, and that Princeton Plasma Physics Laboratory (PPPL), as a contractor to the DOE, in providing three klystrons, enables the power to be increased from 1.5 MW to 3 MW and can thus make an essential contribution to achieving better physical results,

The Operating Agent, acting through IPP, and DOE, hereby agree upon, as an extension and technical improvement of the 2.45 GHz lower hybrid wave experiment in ASDEX, planned by EURATOM-IPP and EURATOM-ENEA, and described in the contract "Experiment on Lower Hybrid Physics on the Tokamak ASDEX" executed by EURATOM-ENEA and EURATOM-IPP at Garching on June 2, 1987, and attached as Appendix I,

the following understanding:

1. Objectives: To study the role of the current profile in determining the stability and confinement of the tokamak, principally with strong auxiliary heating, and energy confinement with high power LH heating alone in a typical tokamak density regime.
2. DOE shall put three klystrons, Varian VKS 8269, 2.45 GHz, 500 kW with focusing magnets at IPP's disposal, free of charge, for the period from January 1988 to December 1989.
 - (a) PPPL shall construct three sets of 24 waveguide front windows in accordance with the drawings prepared by ENEA.
 - (b) DOE shall delegate physicists to the 2.45 GHz lower hybrid experiment conducted jointly by IPP and ENEA.
 - (c) DOE shall negotiate an extension of the agreement if this seems appropriate to improve the scientific work and results.
3. PPPL shall act as the technical leader and coordinator for the DOE in the program described in Appendix II, "Technical Scope and Objective for the Lower Hybrid Experiments at 2.45 GHz on ASDEX".
4. IPP shall use the three Varian 2.45 GHz, 500 kW klystrons with focusing magnets in the 2.45 GHz lower hybrid experiment described in Appendix II. They shall be installed together with klystrons of the same type provided from ENEA and shall be operated under parameters mutually agreed upon by IPP and PPPL. IPP shall provide records on all applications of the loaned equipment.

(a) IPP shall devote about 30% of the available experimental time on ASDEX to the lower hybrid programme.

(b) DOE shall participate with IPP in the planning, execution, and analysis of lower hybrid experiments on ASDEX. IPP shall invite DOE to send a representative (hereafter designated a Program Coordinator as defined in Section 5(a)) as a non-voting observer to attend all the meetings of the ENEA-IPP Project Council. The Project Council is described in Article 6 of the aforementioned ENEA-IPP contract.

(c) IPP shall grant DOE prompt access, free of charge, to the research results obtained in the collaborative program.

5. Management

(a) The Contracting Parties of the "IMPLEMENTING AGREEMENT ON A CO-OPERATIVE PROGRAM FOR THE INVESTIGATION OF TOROIDAL PHYSICS IN, AND PLASMA TECHNOLOGIES OF, TOKAMAKS WITH POLOIDAL FIELD DIVERTORS" shall each nominate a Program Coordinator who together shall be responsible for the management of the IPP-DOE collaboration and report to the ASDEX Executive Committee on the activities of the lower hybrid experiments on ASDEX, described in section 4 above.

(b) The Executive Committee shall review the technical progress of the lower hybrid experiments, and make recommendations, as appropriate.

6. DOE shall bear the cost of transporting the loaned equipment from PPPL to IPP and IPP shall bear the cost of transporting it from IPP to PPPL.

7. IPP shall be liable to DOE for any damage arising from failure to treat the loaned equipment with due care and attention. In particular, they shall be liable for any damage negligently incurred as a result of using the equipment otherwise than agreed under Section 4.

IPP shall return the equipment in a condition conforming to normal depreciation.

8. DOE shall not be liable to IPP and ENEA for any damage or injury arising from the condition or operation of the loaned equipment or otherwise incurred in the implementation of the research project.

9. IPP shall ensure that the applicable U.S. Export Regulations covering the use of the loaned equipment in the ASDEX facility are observed.

10. IPP shall not be entitled, without DOE's prior written consent, to put the equipment at the disposal of Third Parties. Personnel of the ENEA research institute participating in the experiment are not Third Parties in the context of this provision.

11. Delegation of physicists by DOE in support of the work on the experiment shall be effected in accordance with Section 2(b) of ANNEX I and any other relevant provisions of the "IMPLEMENTING AGREEMENT ON A CO-OPERATIVE PROGRAM FOR THE INVESTIGATION OF TOROIDAL PHYSICS IN, AND PLASMA TECHNOLOGIES OF, TOKAMAKS WITH POLOIDAL FIELD DIVERTORS".

12. This task shall be carried out in accordance with paragraph 4 of Annex I and Article 7 of the "IMPLEMENTING AGREEMENT ON A CO-OPERATIVE PROGRAM FOR THE INVESTIGATION OF TOROIDAL PHYSICS IN, AND PLASMA TECHNOLOGIES OF, TOKAMAKS WITH POLOIDAL FIELD DIVERTORS". In accordance with paragraph 4(j) of Annex I, information and intellectual Property provisions are set forth in writing below:

- (a) Executive Committee's Powers. The publication, distribution, handling, protection and ownership of information and intellectual property provided to or arising from activities conducted under this Understanding shall be determined by the Executive Committee of the Implementing Agreement, acting by unanimity, in conformity with Annex I.
- (b) Right to Publish. Subject only to patents and copyright restrictions of Annex I, the Participants shall have the right to publish all information provided to or arising from the activities under this Understanding, except proprietary information, if any, but they shall not publish it with a view to profit except as the Executive Committee, acting by unanimity, may agree. Neither the Participants nor personnel designated by them shall introduce into the facilities of any of the Participants any proprietary information unless such information is specifically identified and the terms and conditions for its introduction are agreed upon in writing by the concerned Participants.
- (c) Proprietary Information. The Participants shall take all necessary measures in accordance with this paragraph, the laws of their respective countries and international law to protect proprietary information. For the purposes of this Understanding, proprietary information shall mean information of a confidential nature acquired prior to or outside the scope of this Understanding, such as trade secrets and know-how (for example, computer programmes, design procedures and techniques, chemical composition of materials, or manufacturing methods, processes, or treatments), which is appropriately marked, provided such information:
 - (1) Is not generally known or publicly available from other sources;
 - (2) Has not previously been made available by the owner to others without obligation concerning its confidentiality; and
 - (3) Is not already in the possession of the recipient Participant without obligation concerning its confidentiality.

It shall be the responsibility of each Participant supplying proprietary information to identify the information as such and to ensure that it is appropriately marked.

- (d) Production of Relevant Information. The Operating Agent, as described in paragraph 3, Annex I, should encourage the governments of all Agency Participating Countries to make available or to identify to the Operating Agent all published or otherwise freely available information known to them that is relevant to the activities under this Understanding. The Participants should notify the Operating Agent of all pre-existing information, and information developed independently of the activities, known to them which is relevant to the activities under this Understanding and which can be made available to the activities under this Understanding without contractual or legal limitations.
- (e) Information. Each Participant agrees to provide to the other Participants and to the Operating Agent all information utilized in the activities under this Understanding or which is necessary for practicing the results of the activities in this Understanding as well as all information listed in Annex I, paragraph 2(a)(1). All information developed in connection with and during activities carried out under this Understanding (arising information) shall be provided to each Participant and to the Operating Agent by the Participant performing the work, subject only to the need to retain information concerning patentable inventions in confidence until appropriate action can be taken to protect the rights to such inventions in accordance with paragraph (f) below. Reports containing arising information and pre-existing information necessary for and used in the activities under this Understanding, including proprietary information in accordance with paragraphs (b) and (c) above, shall be provided to the Operating Agent and to the Participants by the Participant performing the work. The Operating Agent shall provide summary reports of work performed under this Understanding and arising information therefrom, other than proprietary information, if any, to the Executive Committee. Information regarding inventions on which patent protection is to be obtained by the Participants shall not be published or publicly disclosed by the other Participants or the Operating Agent until a patent application has been filed, provided, however, that this restriction on publication or disclosure shall not extend beyond six months from the date of receipt of such information. It shall be the responsibility of the inventing Participant to appropriately mark reports which disclose inventions that have not been appropriately protected by the filing of a patent application.
- (f) Licensing of Inventions. With respect to any invention or discovery made or conceived in the course of or under this Understanding by personnel of one Participant (the Assigning Participant) or its contractors while assigned to the other Participant (the Recipient Participant) or its contractors in connection with exchanges of scientists, engineers and other specialists:

- (1) The Recipient Participant shall acquire all right, title and interest in and to any such invention or discovery in its own country and in third countries, subject to a non-exclusive, irrevocable, royalty-free license in all such countries to the Assigning Participant, its government and the nationals of its country designated by it; and
 - (2) The Assigning Participant shall acquire all right, title and interest in and to such invention or discovery in its own country, subject to a non-exclusive, irrevocable, royalty-free license to the Recipient Participant, its government and the nationals of its country designated by it.
- (g) Copyright. The Operating Agent or each Participant for its own work under this Understanding may take appropriate measures necessary to protect copyrightable material generated under the activities under this Understanding. Copyrights obtained shall be the property of that Participant or Operating Agent, provided, however, that Participants may reproduce and distribute such material, but shall not publish it with a view to profit.
- (h) Inventors and Authors. Each Participant shall, without prejudice to any rights of inventors or authors under its national laws, take all necessary steps to provide the co-operation from its inventors and authors required to carry out the provisions of this paragraph. Each Participant shall assume the responsibility to pay awards or compensation required to be paid to its employees according to the laws of its country. It is understood that, in extraordinary circumstances, EURATOM and its associate, IPP, may incur extraordinary expenses in fulfilling the requirements of this paragraph with regard to awards or compensation required to be paid to its employees. In that event, EURATOM may inform the United States Department of Energy of this difficulty and the Parties shall thereafter consult to define an appropriate course of action.
- (i) Determination of "National". The Executive Committee may establish guidelines to determine what constitutes a "national" of a Participant provided, however, in recognition of the fact that all fusion power research and development programmes of the individual Member States of the European Atomic Energy Community (EURATOM), Sweden and Switzerland are carried out jointly in the framework of EURATOM, and that EURATOM acts on behalf of itself and its fusion power research and development associated national organizations in the EURATOM Member States and Sweden, the countries referred to in this paragraph shall, with respect to EURATOM, be understood to be the countries of the Member States of EURATOM and Sweden.

13. All modifications and amendments to this understanding shall be required in writing.

Kaufmann

Executive Committee Member
for the operating agent

(Dr. M. Kaufmann)

Date: June 21, 1988

E. Oktay

Executive Committee Member
for the US DOE

(DR. E. OKTAY)

Oct 20, 1988

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