PROJECT AGREEMENT

between

THE MAX PLANCK INSTITUTE FOR PLASMA PHYSICS

and

THE UNITED STATES DEPARTMENT OF ENERGY

on

A COLLABORATIVE PROGRAM OF STELLARATOR RESEARCH
in the framework of the Wendelstein 7-X Project

CONSIDERING THAT:

1) The EUROPEAN ATOMIC ENERGY COMMUNITY (EURATOM) represented by the European Commission and the U.S. DEPARTMENT OF ENERGY (USDOE) entered into an "Agreement for Cooperation between the European Atomic Energy Community represented by the Commission of the European Communities and the Department of Energy of the United States of America in the Field of Fusion Energy Research and Development" on May 14, 2001, (hereinafter referred to as the "Agreement");

2) The bilateral cooperation in the field of fusion energy research is performed also under the framework of the U.S.-EU Energy Council Working Group-II on Technology, Research, Development and Demonstration, subgroup Fusion Energy and Science;

3) For the purposes of this Project Agreement, the USDOE acts through the Princeton Plasma Physics Laboratory (PPPL) and in coordination with Oak Ridge National Laboratory (ORNL) and Los Alamos National Laboratory (LANL); and the Max Planck Institute for Plasma Physics (IPP) as a signatory of the European Fusion Development Agreement (EFDA) and of a Contract of Association with EURATOM is responsible for the implementation of this Project Agreement; USDOE and IPP being hereinafter referred to as the Parties;

4) The W7-X stellarator at IPP is one of the world's largest and most advanced fusion research facilities. It will provide the first large-scale test of an optimized, superconducting stellarator in steady-state operation and will produce data that will impact decisions on next steps in fusion development after ITER.

5) U.S. researchers have experience and expertise in many areas of fusion science relevant to W7-X research, including plasma physics, diagnostics and data interpretation, stellarator design and engineering, and the operation of large fusion experiments. By bringing these capabilities to bear, this collaboration would improve and broaden the exploitation of the W7-X facility in ways that can benefit fusion development generally.

6) The USDOE Fusion Energy Sciences (FES) program has a strong interest in understanding the physics and control of three-dimensional, diverted toroidal plasmas due to its relevance to future next-step fusion devices. Stellarators provide an attractive platform for studying these issues. The

USDOE FES program and IPP have initiated a program to carry out collaborative research on these topics, using the Wendelstein 7-X stellarator facility.

THEREFORE the Parties agree to carry out a Collaborative Program of research on the physics and control of three-dimensional, diverted toroidal plasmas in the framework of the Wendelstein 7-X stellarator project, under the terms and conditions set forth below.

ARTICLE 1. OBJECTIVE

The objective of this Project Agreement is to establish a long-term collaboration in which U.S. fusion scientists will participate in the Wendelstein 7-X (W7-X) project. The U.S. partners will participate in the commissioning and scientific exploitation of the Wendelstein 7-X facility. In addition, the U.S. and IPP will continue their collaboration in stellarator physics, stellarator engineering, and stellarator fusion reactor studies.

ARTICLE 2. SCOPE

The scope of the USDOE-IPP collaboration on Wendelstein 7-X includes:

- Participation of U.S. researchers in W7-X commissioning.
- Participation of U.S. researchers in all aspects of W7-X experimental research, including proposing and leading experiments, carrying out experiments, analyzing data and formulating conclusions, publishing results in journals and conference presentations, and performing graduate student thesis research.
- Contribution by the U.S. participants of experimental equipment, including but not limited to equipment for diagnostics, heating, fuelling, plasma control, and divertors; and operation of that equipment by U.S. researchers and contribution of data to the W7-X data base.
- USDOE membership in the W7-X Program Committee.

ARTICLE 3. TASK AGREEMENTS

The work plans for a specific time period, such as the time span of a USDOE program funding cycle, or the time span of a W7-X campaign, will be documented as Task Agreements approved by both Parties. Task agreements will have the following content:

- Objectives
- Tasks
- Schedule
- Responsibilities
- Management

ARTICLE 4. RESPONSIBILITIES

4.1. All activities regarding the implementation of this Project Agreement shall be carried out by DOE-funded laboratories, universities, and companies, and by IPP.

4.2. USDOE designates the Princeton Plasma Physics Laboratory (PPPL) as the U.S. lead institution for the collaboration conducted under this Project Agreement, to be responsible for:

- Appointing a manager responsible for carrying out PPPL's lead institution role.
- Being the principal point of contact with IPP for all matters, including decisions, regarding the implementation of this Project Agreement.

- Coordinating the work among USDOE-funded institutions, coordination of all technical and administrative communication with IPP, and coordination of the reporting of progress and issues to USDOE.

4.3. Laboratories, universities, and companies funded by USDOE to perform work under this Project Agreement are responsible for:

- Execution and reporting of the work for which they are funded in accordance with their USDOE contract or grant provisions.
- Conforming to all local safety requirements while working on site at IPP.
- Coordination of work and communication with the U.S. lead institution, PPPL.

4.4. The USDOE Fusion Energy Sciences office shall be responsible for:

- Funding participating U.S. institutions to perform work under this Project Agreement, subject to congressional appropriations.
- Approving Task Agreements as described in Article 3.
- Providing general programmatic oversight of the U.S. scope of work.

4.5. IPP shall be responsible for:

- Ensuring that U.S. participants have access to all experimental data generated under the framework of this Project Agreement, and the possibility to propose, conduct, and analyze experiments.
- Providing appropriate safety training for U.S. collaborators working on-site at IPP.
- Ensuring that participating U.S. institutions and researchers are afforded appropriate opportunity to publish work in journals and conference presentations.
- Providing on-site scientific mentoring for U.S. students performing thesis research as part of the collaboration conducted under this Project Agreement. Such mentoring arrangements shall be approved by the student's U.S. supervisor.

ARTICLE 5. MANAGEMENT

5.1. Each Party shall appoint one Program Technical Coordinator who shall jointly be responsible for management of the program, and for proposing and recommending research objectives and work scopes to their respective authorities. If the technical context of the program undergoes significant change affecting the purpose, direction, priority and/or scope of this partnership, the Program Technical Coordinators shall inform the Coordinating Committee and seek appropriate guidance.

5.2. For IPP, the Program Technical Coordinator shall be Prof. Dr. Thomas Klinger.

5.3. For PPPL, the Program Technical Coordinator shall be Dr. Hutch Neilson.

ARTICLE 6. EXCHANGES OF PERSONNEL AND EQUIPMENT

6.1. The exchange of equipment for this collaboration shall be the subject of separate property transfer agreements between the Parties or their designated implementing agents. These agreements shall refer to this Project Agreement and comply with Article IX of the Agreement.

6.2. In the case of extended visits, the exchanges of personnel shall be the subject of separate written arrangements between the sending and host institutions. These arrangements shall refer to this Project

Agreement and comply with Article VIII of the Agreement. Any stay of United States Government or laboratory personnel at IPP shall not affect the relationship of employment so that the United States employer shall continue to be responsible for salaries including all additional services (e.g., social insurance, accident insurance). All such personnel shall remain at all times subject to the direction and supervision of their respective United States employers.

ARTICLE 7. PUBLICATIONS AND INTELLECTUAL PROPERTY

7.1. Both Parties must approve all technical papers based on physics or engineering investigations developed and experiments undertaken in the framework of this Project Agreement before being sent to a publisher. Such publications shall normally be issued in the form of joint reports by the individuals who contributed to the investigations and shall be handled in accordance with Article VII of the Agreement.

7.2. Each Party shall have equal and full access to data developed from the collaboration, except for information that is proprietary to industrial suppliers. Publications are to be clearly marked with the following caption: "This work has been performed under a Project Agreement between IPP and the [institution name] for the U.S. Department of Energy's Fusion Energy Sciences Program in the framework of the Wendelstein 7-X project under participation and co-funding of EURATOM." Other publications that make use of the unpublished results of this collaboration should make reference to this Project Agreement in an acknowledgment. All publications have to follow the W7-X Publication Rules set forth in Annex A of this Project Agreement

ARTICLE 8. GENERAL PROVISIONS

8.1. This Project Agreement is subject to and governed by the Agreement.

8.2. Unless otherwise specifically agreed in writing by the Parties, all costs and expenses of each Party resulting from or connected with this Project Agreement shall be borne by the Party that incurs them.

ARTICLE 9. DURATION, AMENDMENT AND TERMINATION

9.1. This Project Agreement shall begin upon the latter date of signature, and remain in force for ten years, a period expected to encompass the completion of W7-X construction, commissioning, and the first years of experimental research. This Project Agreement may be amended or extended by written agreement of the Parties as long as the Agreement is in force.

9.2. The Parties may terminate this Project Agreement at any time by mutual consent in writing. Alternatively, a Party that wishes to terminate its participation in this Project Agreement should provide at least six months advance notification in writing to the other Party.

9.3. In the event that, during the period of this Project Agreement, the nature of either Party's magnetic fusion program should change substantially, whether by substantial expansion, reduction or transformation, or by amalgamation of major elements with the magnetic fusion program of a third party, that Party shall immediately inform the other Party with a view to making any necessary revisions in the scope of this Project Agreement.

IN WITNESS WHEREOF, the Parties have executed this Project Agreement.

FOR THE MAX PLANCK INSTITUTE FOR PLASMA PHYSICS:	**FOR THE UNITED STATES DEPARTMENT OF ENERGY:**
Sibylle Guenter Scientific Director Christina Wenninger-Mrozek Managing Director Max-Planck Institut fuer Plasmaphysik (IPP) Garching, Germany Associated with the European Fusion Programme	Edmund Synakowski Associate Director of the Office of Science for Fusion Energy Sciences Office of Science
Date: 12. JUNI 2014	Date: April 30, 2014

Annex A

Wendelstein 7-X Publication Rules

1) General principles

The following procedure applies to all publications based on results produced on W7-X.

- The categories of publications concerned are:
  - publications in scientific journals
  - preprints
  - chapters (figures) in books
  - conference papers
  - oral presentations at conferences and workshops
  - poster presentations at conferences and workshops
  - reports containing unpublished results
  - web material for public sites
- Proposals for publications may originate from all participants in W7-X activities.
- Authors must have been involved to a significant degree in the experiment which produced the material to be reported, in the analysis or interpretation of data, in the theoretical or computational work described, in the design/construction of equipment, in operation of W7-X, a heating or a diagnostic system.
- Clearance is required for all publications reporting on W7-X material. However, ad hoc presentations of preliminary data in working meetings (small workshops) are allowed as long as the preliminary or invalidated status of the data is clearly stated.
- Publications which rely to a significant extent on results obtained with W7-X hardware developed and operated by a collaborating EURATOM-Association require their approval.
- The 'Wendelstein 7-X Team" has to be part of the author list.
- It is the responsibility of the authors to obey the publication rules of their home institution.
- Modification of this document requires the approval of the W7-X Programme Committee.

2) Journal Publication Procedure

- Prior to publication, experimental results and their interpretation should in general be presented to the W7-X team in the Wendelstein-Seminar which will be accessible via video conferencing.
- Participants in the W7-X activities propose topics for papers; on this basis the W7-X Task Force Leaders give advice in the preparation of drafts and check the proposed author list for appropriateness and completeness.
- All papers have to be approved by one of the IPP Directors.
- Prior to submission, the manuscript has to be published on the IPP web-based pinboard. This should allow for a final check of the draft publication by the W7-X team before submission. It is also the first step of the W7-X clearance procedure.
- It is the responsibility of the authors to duly initiate the clearance procedures of their home institution.

- In case no consensus is reached on a proposed publication, the final decision is up to the W7-X Programme Committee.

3) Conference Publication Procedure

- Draft abstracts have to be published on the IPP web-based pinboard for comments in order to ensure the overall scientific coherence of all publications and the appropriateness of authorship at least two weeks before the submission deadline.
- For oral presentations (especially for invited talks) rehearsals must be organised in due time either at IPP Greifswald or by video conferencing.
- In the selection process due consideration will be given to a balanced representation of institutions involved in W7-X activities and to attendance to other conferences, as well as to financial boundary conditions.
- It is the responsibility of the authors to duly initiate the clearance procedures of their home institution and to resolve financial issues.
- For conference papers equivalent to journal publications the procedure of the previous section applies.

4) Style of Publications

- All posters, oral viewgraphs should follow a common format. The official logos for IPP and W7-X have to be used. The use of these logos should not exclude the use of additional ones from EURATOM Associations and other collaborating institutions, in particular when they have played a leading role. Formatting instructions are available on the IPP internal webpage.
- Papers and figures have to be prepared by the authors.
- All papers are centralised in a data base (numbering and archiving) at IPP which is accessible to all collaborators.

5) Cost of Publications

- Internal reports: the production of internal reports should be carried out by the lead Institution(s).
- Conference participation: conference fees (which usually include the cost of reproducing contributed papers) are normally included in the mission expenses which should be carried by the home Institution.
- Publications in journals: in general the related costs should be charged to the lead Institution(s) unless otherwise agreed between involved institutions.