

Implementing Agreement

between

the Federal Ministry of Education and Research

of the Federal Republic of Germany

and

the Department of Energy

of the United States of America

on Collaboration in the Field of Dense Plasma Physics

The Federal Ministry of Education and Research  
of the Federal Republic of Germany  
and  
the Department of Energy  
of the United States of America

Recognizing that the Federal Ministry of Education and Research of the Federal Republic of Germany and the Department of Energy of the United States of America entered into an Agreement on Cooperation in Energy Research, Science and Technology and Development on February 20, 1998;

Desiring to collaborate in exploring the basic science of dense plasma physics using intense ion and laser beams;

Believing that such collaboration will mutually benefit the Parties by providing new opportunities for the international study of plasma physics, thereby advancing more rapidly the state of knowledge in this field,

Have agreed as follows:

## ARTICLE 1

### Purpose

(1) The purpose of this Agreement between the Federal Ministry of Education and Research of the Federal Republic of Germany and the Department of Energy of the United States of America (hereinafter referred to as „the Parties,“) is to provide a framework for collaboration between the Parties in the field of dense plasma physics on the basis of reciprocity and mutual benefit.

(2) This Agreement is subject to all the terms and conditions of Article 1 and of Article 4 – 13 of the aforementioned Agreement on Cooperation in Energy Research, Science and Technology and Development of February 20, 1998.

## ARTICLE 2

### Scope

Collaboration may include the following:

1. the study of plasma properties in extreme regimes of density and temperature,
2. the study of energy deposition, x-ray conversion and transport of radiation in dense plasmas,
3. the study of the production and spectroscopy of highly charged ions,

4. research on the interaction of intense laser light with overdense plasmas,
5. experiments on heavy ions; and
6. the development of a database on bunch-compression, focusing, and target plasma interaction physics using intense, multi-Gigaelectronvolt heavy-ion beams.

### ARTICLE 3

#### Forms of Cooperation

The forms of cooperation under this Agreement may include the following:

1. Exchange of scientists, engineers and other specialists for participation in agreed research, development, analysis, design, and experimental activities conducted in research centers, laboratories, and other facilities and enterprises of the Parties or their contractors;
2. Short-term visits by staff or assignments of staff to facilities of the Parties or their contractors;
3. Organization of and participation in seminars, workshops and other meetings;
4. Exchange of information and data on scientific and technical activities, developments, practices, methods and results;

5. Exchange and provision of equipment, including samples, materials, instruments and components for experiments, testing, and evaluation;
6. Execution of joint projects, including joint experiments, studies, design, construction and operational activities; and
7. Such other forms of cooperation to be mutually agreed by the Parties in writing.

#### ARTICLE 4

##### Project Agreements

(1) The Parties shall execute a written Project Agreement for each joint project which they agree to undertake pursuant to Article 3 (6) (hereinafter referred to as „Project Agreements“). Each Project Agreement shall be subject to the provisions of this Agreement and shall contain suitable provisions covering technical scope, management, total costs, cost sharing and schedule, as appropriate.

(2) The Project Agreements will be agreed by exchange of letters between the Parties.

#### ARTICLE 5

##### Additional Organizations

(1) In accordance with Article 4 of the Agreement referenced in Article 1 (2), the Parties will invite the following organizations to participate in activities under this Agreement:

1. the Lawrence Livermore National Laboratory (LLNL) and the Lawrence Berkeley National Laboratory (LBNL) and the Princeton Plasma Physics Laboratory (PPPL) in the United States, who are collaborating as the Heavy-Ion Fusion Virtual National Laboratory in the specialist area to which this Agreement relates, and
2. the Gesellschaft für Schwerionenforschung (GSI) in the Federal Republic of Germany.

(2) The Parties, by mutual written agreement, may invite additional public or private organizations in their respective countries, hereinafter referred to as „cooperative entities“, to participate in activities under this Agreement. Each cooperative entity shall participate at its own expense and in accordance with the terms and conditions specified by the Parties.

## ARTICLE 6

### Management

(1) Each Party shall name a Principal Coordinator to supervise activities under this Agreement. The Principal Coordinators shall meet annually, alternately in Germany and in the United States, or at any other suitable location agreed upon by the Parties, to evaluate the status of cooperation under this Agreement. This evaluation will include review of the achievements, problems, and effectiveness of activities under this Agreement. The Principal Coordinators also will consider future program opportunities with a view to maximizing the

mutual benefits of cooperation. The Principal Coordinators will prepare and agree upon an annual program of work covering all bilateral activities, both those requiring individual Project Agreements and those envisioned under the other forms of cooperation pursuant to Article 3.

(2) The Principal Coordinators may appoint one or more Technical Coordinators from each Party who shall manage specific cooperative activities initiated under this Agreement and to establish and maintain working contacts at staff level.

## ARTICLE 7

### General Provisions

- (1) The Parties shall conduct cooperation under this Agreement in accordance with the applicable laws and regulations. The obligations of each Party are subject to the availability of appropriated funds and personnel.
- (2) Except as otherwise agreed by the Parties in writing, all costs resulting from the implementation of this Agreement shall be borne by the Party that incurs them.
- (3) All questions regarding the interpretation of this Agreement shall be resolved consensually by the Parties.
- (4) Nothing in this Agreement shall affect other Agreements concerning cooperation between the Parties applicable on the date this Agreement enters into force.
- (5) Both Parties agree to the timely publication of any scientific results obtained in the course of cooperation under this Agreement.
- (6) In addition to the written Project Agreements required for the conduct of "joint projects" as stated in Article 4 (1) and the annual program of work as stated in Article 6 (1), the respective governments and participating institutions may also request further documentation for proposed exchanges of personnel, equipment, computer codes, information, etc. The Parties will make their best efforts to facilitate prompt completion and satisfaction of any such documentation requests by participating organizations and cooperative entities.



## ARTICLE 8

### Entry into Force, Duration and Termination

- (1) This Agreement shall enter into force upon the date of signature and shall remain in force for five years. This Agreement shall be renewed automatically for additional five (5) year periods unless either Party notifies the other in writing at least three months before the expiration date of its intention to permit this Agreement to expire.
- (2) The Parties may amend this Agreement in writing by mutual written agreement.
- (3) Either Party may terminate this Agreement at any time by notifying the other Party in writing six (6) months in advance.
- (4) Joint activities and experiments which are not completed upon the expiration or termination of this Agreement may be continued until their completion under the terms of this Agreement, provided the Parties have agreed in writing.

Done at *Washington* on *July 24* 2001 in duplicate in the German and English languages, both texts being equally authentic.

*Rüdiger*  
For the Federal Ministry of Education and  
Research of the  
Federal Republic of Germany

*James F. Esch*  
For the Department of Energy  
of the  
United States of America