Status of ISHPDB
(International Stellarator/Heliotron Profile Database)

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10th CWGM
6 Jun. 2012  IPP Greifswald
Outline

- Purpose and Present Status of ISHPDB
- ISHPDB public and working
- Security Levels of accessing to the data
- Status of Each Physics Topic
- Usage of ISHPDB
- Summary
The Purpose and Present Status of ISHPDB

- The purpose of ISHPDB is to clarify the physical phenomena which are commonly observed in the stellarators/heliotrons by comparing the data among different devices.

- The present ISHPDB started as a collection of UFILEs on the WWW servers.
  - IPP Greifswald: http://www.ipp.mpg.de/ISS
  - NIFS: http://ishpdb.nifs.ac.jp

- ISHPDB consists of the public and working databases.

- Three security levels are proposed.
  (1) ISHPDB_public: without any restriction.
  (2) ISHPDB_working: restricted to the stellarator/heliotron community.
  (3) ISHPDB_working: the data access is restricted with individual passwords for each device. (For example, the equilibrium data of LHD)
Projects/Groups
International Stellarator-Heliotron Profile Database

Under auspices of the IEA Implementing Agreement for Cooperation in Development of the Stellarator Concept (2.10.1992)

Jointly hosted by Max-Planck-Institut für Plasmaphysik (Greifswald, Germany) and National Institute for Fusion Science (Toki, Japan)

Stellarator-Heliotron research aims at an alternative fusion reactor concept.

An important task in the development of such devices is the intermachine comparison of confinement and transport. In order to enhance the effectiveness of the international cooperation in this area, a joint database has been established. The general philosophy of the International Stellarator-Heliotron Profile Database (ISHPDB) is to collect and assess contributions for a concise documentation of Stellarator-Heliotron performance.
International Stellarator-Heliotron Profile Database

Public Data

Disclaimer
The International Stellarator-Heliotron Database is pursued under the auspices of IEA Implementing Agreement for Cooperation in Development of the Stellarator-Heliotron Concept (2.10.1992).
The content of this website is the intellectual property of the International Stellarator-Heliotron Profile Database collaboration.
Any publication from material stored on this website requires agreement from the collaborators.
As for the access to LHD data, LHD_DataUsageAgreement, ResearchProposal, should be sent to yokoyama@hd.nIFS.ac.jp.

Welcome to the ISHPDB Public page

ISHPDB Public Data
This database is intended to compare confinement, transport and various physical phenomena which may be commonly observed among several stellarator-heliotron devices.
The general philosophy of the International Stellarator-Heliotron Profile Database (ISHPDB) is to collect and assess contributions for a concise documentation of stellarator-heliotron performance.
ISHPDC public data consist of the published data. The data are included each physics topics.
The profile data are provided in the UF1LE format, which is adopted in the ITER profile database.
All profile data in ISHPDB public are accessible. The configuration data are in the restricted area.
Any publication from material stored on this website requires agreement from the collaborators.

Physics Topics

Confinement Data
Confinement data are included in ISHCDB (International Stellarator-Heliotron Confinement Database).
Assessments of the energy confinement are expressed in terms of International Stellarator Scales, ISS.

CERC
Core Electron Root Confinement (CERC)

High Beta
High beta data

High Performance
Data in the high performance group have high nT in principle.

H-mode
H-mode

Edge Turbulence
Edge Turbulence
Welcome to the ISHPDB Working page
All data in ISHPDB working are in the restricted area.

ISHPDB Working Data
This database is intended to compare confinement, transport and various physical phenomena which may be commonly observed among several stellarator-helliotron devices. In order to use the data in ISHPDB working, it is required to agree with the regulation for the collaborative research of each device. The profile data are provided in the UFLE format, which is adopted in the ITER profile database. Any publication from material stored on this web-site requires agreement from the collaborators.

Physics Topics
Transport Validation
LHD_20110922

Reference Plasmas
The data in Reference Plasmas are used for the ISS04 scaling.

High Beta
High beta data
Welcome to the ISHPDB Public page

**ISHPDB Public Data**

This database is intended to compare confinement, transport and various physical phenomena which may be commonly observed among several stellarator-heliotron devices. The general philosophy of the International Stellarator-Heliotron Profile Database (ISHPDB) is to collect and assess contributions for a concise documentation of stellarator-heliotron performance.

ISHPDB public data consist of the published data. The data are included each physics topics. The profile data are provided in the UFILE format, which is adopted in the ITER profile database. All profile data in ISHPDB public are accessible. The configuration data are in the restricted area. Any publication from material stored on this web-site requires agreement from the collaborators.

**Physics Topics**

**Confinement Data**

Confinement data are included in ISHCD (International Stellarator-Heliotron Confinement Database). Assessments of the energy confinement are expressed in forms of International Stellarator Scaling, ISS.

**CERC**

Core Electron Root Confinement (CERC)

**High Beta**

High beta data

**High Performance**

Data in the high performance group have high nt in principle.

**H-mode**

H-mode

**Edge Turbulence**

Edge Turbulence
**Two Databases: ISHPDB_public and ISHPDB_working**

**ISHPDB_public**
- The data are opened to public without limitations.
- This database shows the output of ISHCDB/ISHPDB activities, such as the confinement database and CERC.

**ISHPDB_working**
- The UFILEs of the profile data is registered for the collaborative research among the Stellarator community.
- The access is limited by a common password or individual password for each device.
- Physics Topics: Reference Plasmas, High Beta, Transport Validation, ... (The data format is not only UFILE-type.)
Three Levels of Security for Accessing to the Data

- In the case of LHD, the data can be accessed through the collaborative research.
- The collaborators outside NIFS can get the data through a contact person in NIFS, who should grasp how they are used.
### Current status

<table>
<thead>
<tr>
<th>Topic</th>
<th>To do</th>
<th>Status</th>
<th>Last activity/Involved persons</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global Confinement</strong></td>
<td>- Prepare LHD dataset (high beta) to create ISHCDB_26</td>
<td><strong>in progress</strong></td>
<td>S. Sakakibara, ... , A. Kus</td>
</tr>
<tr>
<td></td>
<td>- Prepare TJ-II dataset (NBI + wall coating) to create ISHCDB_27</td>
<td><strong>in progress?</strong></td>
<td>E. Ascasibar, A. Kus</td>
</tr>
<tr>
<td></td>
<td>- Enrique hat noch etwas angekündigt</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CERC</strong></td>
<td>- Data available from LHD, W7;AS, TJ-II, HSX</td>
<td><strong>done</strong></td>
<td>M. Yokoyama, R. Wilcox</td>
</tr>
<tr>
<td><strong>High Beta</strong></td>
<td>- Data available from LHD, W7-AS</td>
<td><strong>done</strong></td>
<td>H. Funaba</td>
</tr>
</tbody>
</table>
## Current status (cont.)

<table>
<thead>
<tr>
<th>Topic</th>
<th>To do</th>
<th>Status</th>
<th>Last activity/involved persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Performance</td>
<td>Data available from LHD, W7-AS</td>
<td></td>
<td></td>
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<tr>
<td>High _Ti</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H-Mode</td>
<td>Data available from CHS, LHD, TJ-II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edge Turbulence</td>
<td></td>
<td>Data available from AUG, HSX, MAST, TJ-K, U3-M, WEGA</td>
<td></td>
</tr>
<tr>
<td>Stellarator Turbulence</td>
<td></td>
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</tr>
</tbody>
</table>
## Last activities in the database management

<table>
<thead>
<tr>
<th>Topic</th>
<th>To do</th>
<th>Status</th>
<th>Last activity/involved persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database management</td>
<td>New ISHPDB homepage at NIFS</td>
<td>Done</td>
<td>Apr. 2012 H. Funaba</td>
</tr>
<tr>
<td></td>
<td>https access to the database</td>
<td>Done</td>
<td>Sept. 2011 S. Gross, A. Kus</td>
</tr>
<tr>
<td></td>
<td>Secure access to the configuration data</td>
<td>Done</td>
<td>Dec. 2011 M. Yokoyama, A. Kus</td>
</tr>
<tr>
<td></td>
<td>Update and manage the publication list</td>
<td>done</td>
<td>Apr. 2012 M. Yokoyama, A. Kus</td>
</tr>
<tr>
<td></td>
<td>Define access to the Working Area</td>
<td>In progress?</td>
<td>A. Kus, H. Funaba</td>
</tr>
<tr>
<td></td>
<td>Create Working Area webpage (IPP side)</td>
<td>In progress?</td>
<td>A. Kus, H. Funaba</td>
</tr>
<tr>
<td></td>
<td>New page <em>LHD Standard Plasmas</em></td>
<td>In progress</td>
<td>H. Funaba, A. Kus</td>
</tr>
</tbody>
</table>

10th CWGM
6 Jun. 2012 IPP Greifswald
Usage of ISHPDB

In order to develop ISHPDB, the usage of ISHPDB is considered.

**ISHPDB_public**
- One can get information and data of other devices from ISHPDB_public.
- In order to start the collaborative research, the name of the contact person can be known from the listed references.

**ISHPDB_working**
- In the collaborative research, the data can be transferred through ISHPDB_working. In practice, the data are transferred directly between the collaborators.
- In the case of LHD, the forms for the collaborative research are provided on the WWW servers.
Summary

- The present structure of ISHPDB is shown.
  It consists of two databases; ISHPDB_public and ISHPDB_working.

- Three types of the data access are proposed.
  (1) ISHPDB_public : published data, without any restriction.
  (2) ISHPDB_working : restricted to the stellarator/heliotron community.
  (3) ISHPDB_working : the data access is restricted with individual passwords under the regulation of each device.

- ISHPDB_public shows the output of the research collaborations which have been made in the stellarator community.
  ISHPDB_working can be used as the data server for the research collaboration.

- Please discuss about requirements for ISHPDB.