9th International Conference on Grey Literature
-Grey Foundations in Information

# Dissemination of JAEA R&D Reports via the Internet

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## **Summary**

- JAEA is the comprehensive R&D organization in the fileds of nuclear energy such as right table.
- 300 technical reports (grey literatures) and 1,000 peer-reviewed papers are published / submitted a nnually by JAEA staff.
- JAEA Library is making efforts to provide R&D info rmation including full text of technical reports.

## JAEA's Mission, Activities

Long-term Energy
Security
Countermeasures to
Environmental Problems

**Nuclear Fuel Cycles** (FR Cycle)

**Geological Isolation of HLW** 

Creation of Advanced Science and Technology with Competitive Edges

**Nuclear Fusion** 

**Quantum Beam Technology** 

**Nuclear Safety and Securities** 

Decommissioning, Treatment & Disposal of LLW

**Common Bases of Science and** 

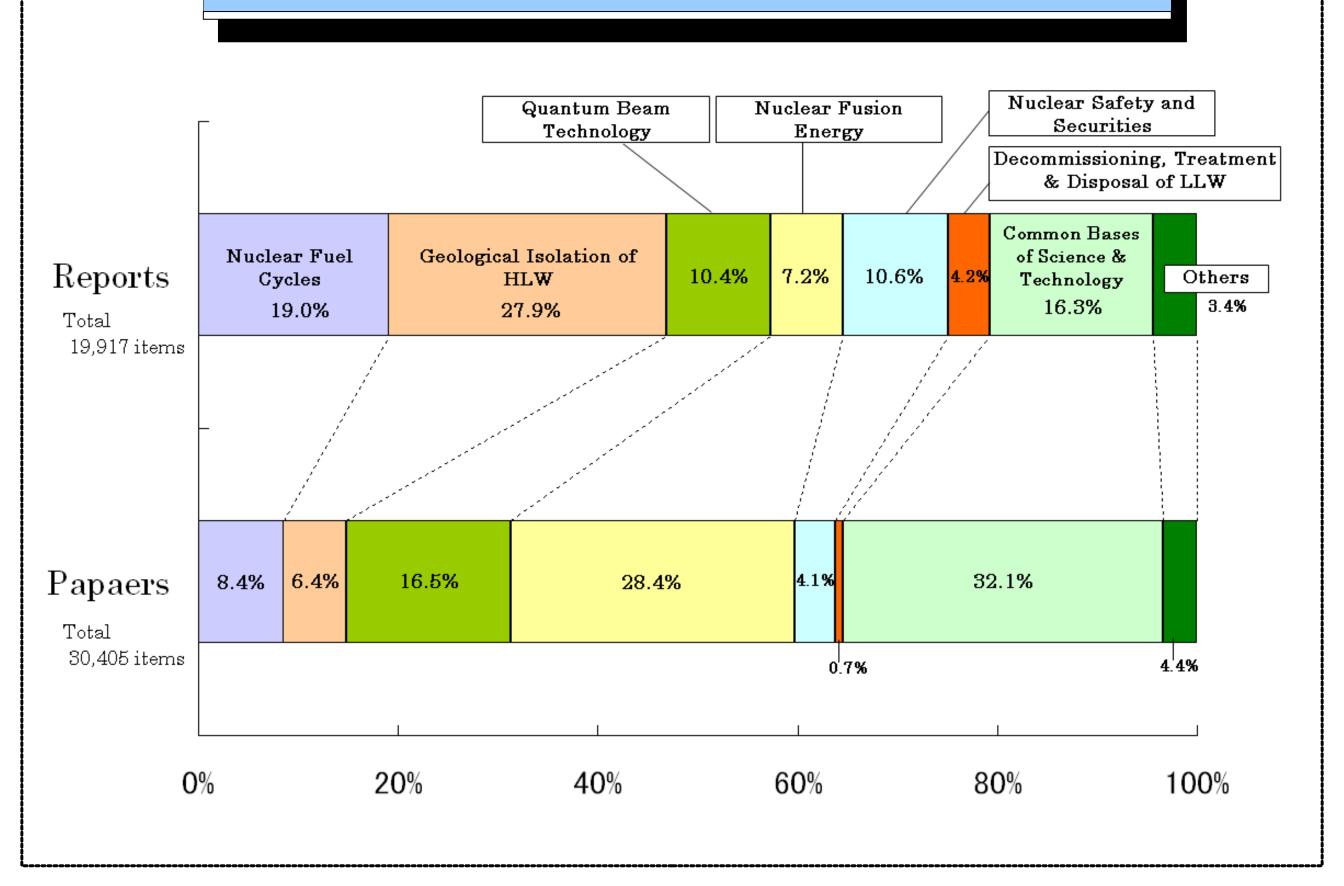
Technology

**Basic Nuclear Engineering Research . Advanced Basic Research** 

# Statistics of Accumulated R&D Results

	Reports	Papers	Remarks
Japan Atomic Energy Agency (JAEA)	462	2,350	Oct.2005 ~
Japan Atomic Energy Research Institute (JAERI)	7,810	23,473	Jun.1956 ~ Sep.2005
Japan Nuclear Cycle Development Institute (JNC)  Power Reactor and Nuclear Fuel Development Corporation (PNC)	11,645	4,582	(JNC) Oct.1998 ~ Sep.2005  (PNC) Oct.1967 ~ Sep.1998
Total	19,917	30,405	

## **Breakdown by Research Fields**



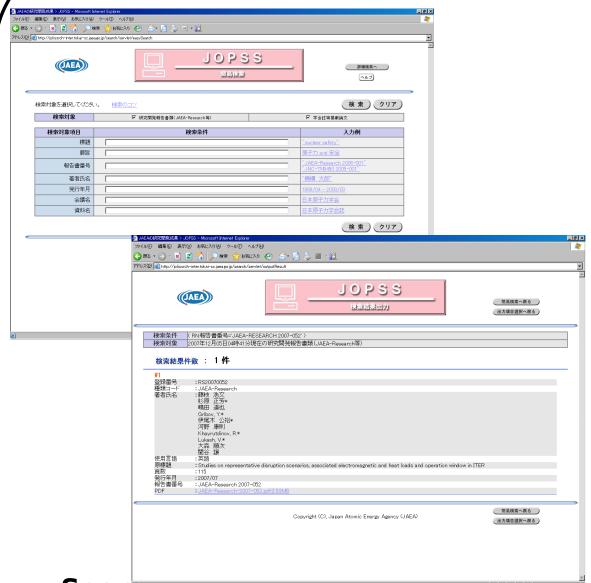
## **Portal**

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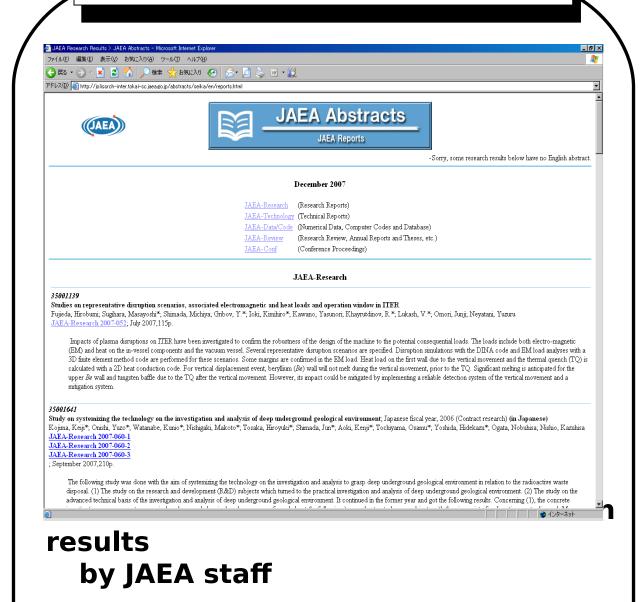
(http://jolisfukyu.tokai-sc.jaea.go.jp/ird/index.html)

## **Searching System**



- Searching an Dibnographic information accumulated for past 50 years
- Hyperlink to full text of JAEA R&D Reports
- Japanese only

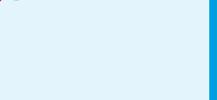
### **Current Awareness**



- Hyperlink to full text of JAEA R&D Reports
- Possible to hit using popular search engines
- Monthly update and accumulation
- Increase in reference and citation

## **PDF Server**

#### (Cover)



Studies on Representative Disruption Scenarios, Associated Electromagnetic and Heat Loads and Operation Window in ITER

Hirobumi FUJIEDA, Masayoshi SUGIHARA\*, Michiya SHIMADA Yuri GRIROV\*, Kimihiro IOKI\*, Yasunori KAWANO, Rustan KHAYRUTDINOV\* Victor LUKASH\*, Junii OHMORI and Yuzuru NEYATANI

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#### (Abstract)

Studies on Representative Disruption Scenarios, Associated Electromagnetic and Heat Loads and Operation Window in ITER

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> > (Received April 20, 2007)

The impacts of plasma disruptions on ITER have been investigated in detail to The impacts of plasma disruptions on ITER have been investigated in detail to firm the robustness of the design of the machine to the potential consequential loads. The is include both electromagnetic (EM) and heat loads on the in-vessel components and the sum vexcel (VV). Several representative disruption scenarios are specified based on newly wed physics guidelines for the shortest current quench time as well as the maximum that of halo current fraction and toroidal peaking factor aixing from disruptions in ITER, uption simulations with the DNA code and EM load analyses with a 3D finite element load (FEM) code are performed for these scenarios. Some margins are confirmed in the load on in-vessel components due to induced eddy and halo currents for these exentative scenarios. However, the margins are not very large. The best load on various to of the first wall due to the vertical movement and the thermal quench (TQ) is calculated a 2D heat conduction code based on the database of heat deposition during disruptions simulation results with the DINA code. It is found that the beryllium (Be) wall will not thing the vertical movement. Significant melting is anticinated for the numer. Be wall simulation results with the DINA code. It is found that the beryllium (Be) wall will not during the vertical movement. Significant melting is anticipated for the upper Be wall tangeten divertor baffle due to the TQ after the vertical movement. However, its impact doe substantially unitigated by implementing a reliable detection system of the vertical movement and a mitigation system, e.g., massive noble gas injection (MGI). Some melting of upper Be wall is anticipated at major disruptions (MD). At least several tens of integrated disruptions must be considered even if an advanced prediction/unitigation system uplemented. With these unmitigated disruptions, the loss of Be layer is expected to be in  $\approx 30-100$  nm/event out of 10 mm thick Be first wall. Various post processing programs are results simulated with the DINA code, which are developed for the design work, are aimed in the appendix.

ords: Disruption, Current Quench, Electromagnetic Load, Thermal Load, Mitigation, Tokamak, ITER

esearch Staff on Loan TER Organization, Cadarache JWS, France TRINITI, Russian Federation

\*3 Kurchatov Institute. Russian Federation

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JAEA- Research 、

**.** Technology **.** Testing

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Conf Data/Code Evaluation Review

JAEA-Research 2007-052

ations of EM and heat loads under various disruption condition ssential to check the robustness of the design against the potential bustness of the VV and large in-vessel components, such as the and divertor cassette, are particularly important since they are directly on of the machine against mechanical damage. Robustness for the heat l vertical displacement event (VDEs), which may cause a possible cing components (PFCs), is another important point.

ainst both loads must be reserved for the representative scenarios. In margin against the mechanical stress is of primary importance for the hine. This requirement is stressed, since, even if any disruption em is implemented, the system cannot be expected to be 100% ptions will unavoidably occur. On the other hand, the heat load on lifetime and the prediction/mitigation system will be very effective for reducing the damage of the PFCs due to the thermal load during the less, it is also essential to reserve a reasonable duty cycle by avoiding

ck the robustness, a proper specification of representative disruption ailed assessment of the database is essential, since such loads strongly plasma behaviour [1]. Of particular importance for the assessment of ssel components is the shortest current quench time [2, 3], and the halo current fraction  $(I_{b,min}/I_{a0})$  and toroidal peaking factor (TPF). . As for the VV, the EM load induced by the halo current is important rith largest halo current, which are generated during downward VDEs nch, must be examined. Details of the plasma behaviour are also valuate the effect of the heat load on PFCs due to the TQ and plasma during VDEs. To these plasmas, it is necessary to properly apply the al energy content at the TQ, the energy deposition width and time though it is still limited [9-12].

of the disruption prediction/mitigation systems is remarkable. It is ow the robustness of ITER is improved with implementing the most

advanced system so far developed. Among the mitigation techniques so far proposed, the

## Web-based Application System



**Registration** 



**Facing Issues** 

 Compliance with OAI-PMH (International Standard) of Bibliographic Data

 Creation of Complete Institutional Repository

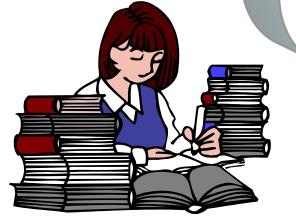


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<u>User</u>



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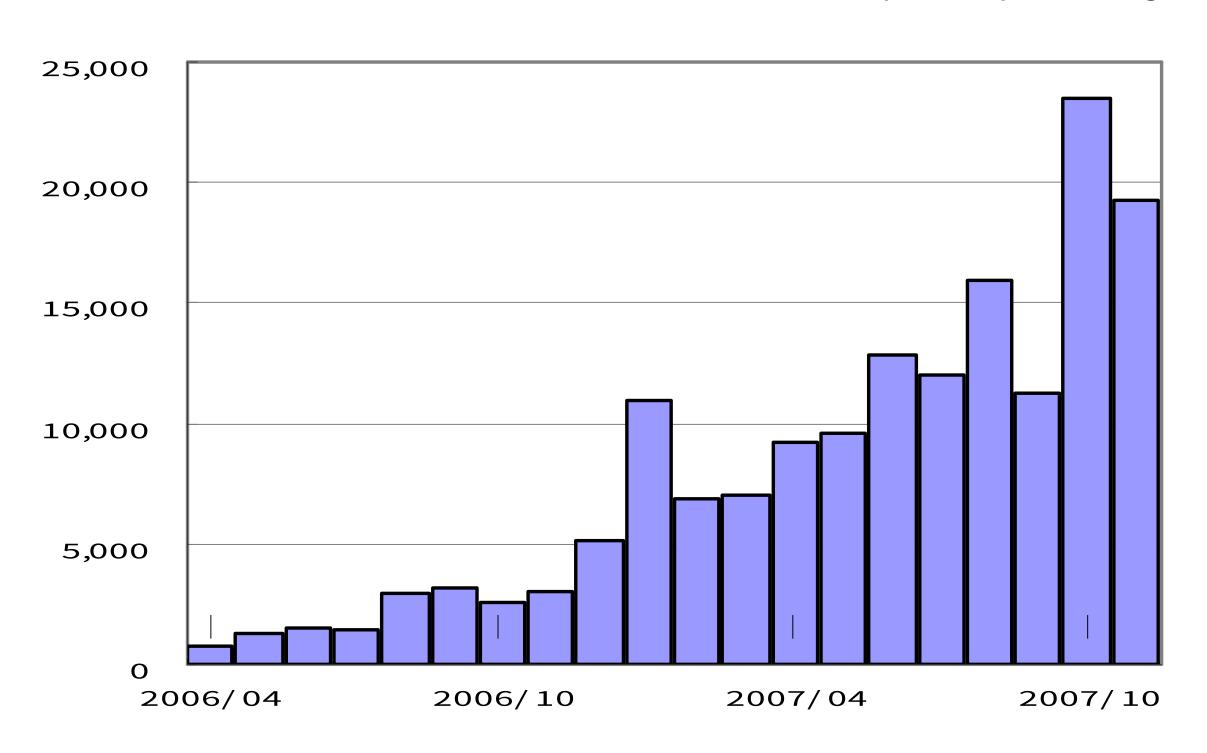
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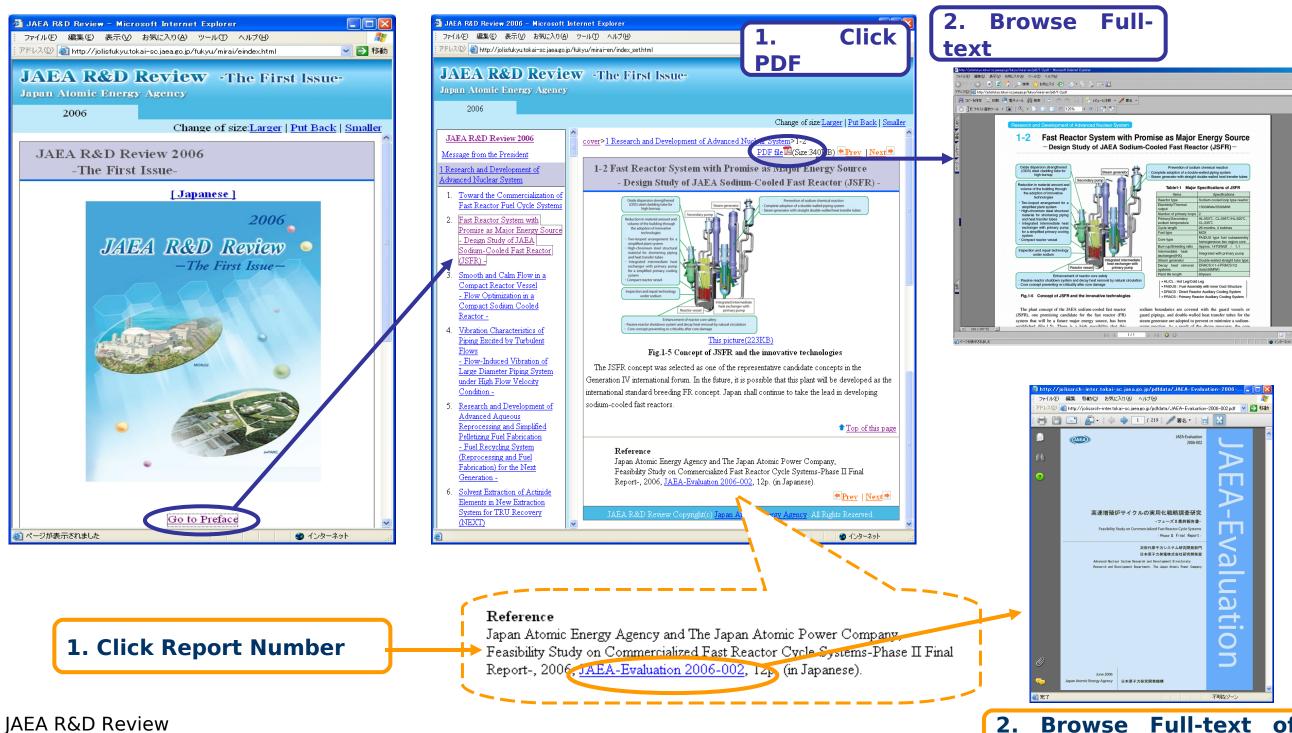


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N₀	Report No.	DL Count	Title	Publication Date
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2	JAEA-Research 2007-047	6,195	Research on the State-of-the-art of Accident Consequence Analysis Method for Non-reactor Nuclear Facilities (I)	2007/06
3	JAEA-Research 2006-031	5,999	Study on the Corrosion Assessment of Overpack Welds -II (Joint Research)	2006/06
4	JAEA-Research 2007-045	5,896	Horonobe Underground Research Laboratory Project Synthesis of Phase I Investigation 2001 - 2005 Volume "Geological Disposal Research"	2007/03
5	JAEA-Research 2006-042	4,120	Feasibility Study on Commercialized Fast Reactor Cycle Systems; Technical Study Report of Phase II -(1) Fast Reactor Plant Systems-	2006/06

#### **JAEA R&D Review**

"JAEA R&D Review" provides the current topics of R&D of JAEA. You can also download full-text data (PDF format) of "JAEA R&D Review".

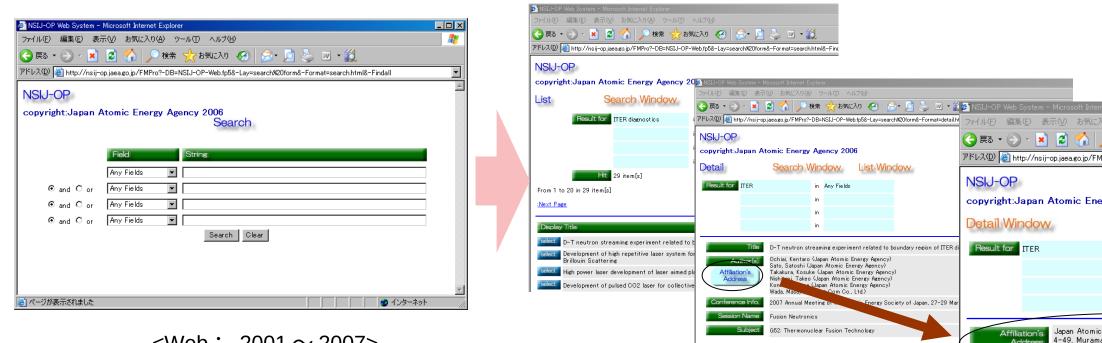


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2. Browse Full-text of Reports

## Nuclear Science Information of Japan - Oral **Presentation** /NCILOD)

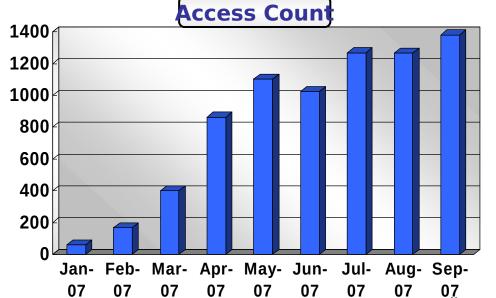
NSIJ-OP provides the information of oral presentations at major meetings in the fields of nuclear science and technology in Japan.





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#### **Targeted Societies**

- Japan Atomic Energy Society of Japan
- Japan Health Physics Society
- Japan Radioisotope Association
- Japan Society of Plasma Science and **Nuclear Fusion Research**

JAEA Library>Others>NSIJ-OP

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