

# JOURNAL OF PLASMA AND FUSION RESEARCH

*The Journal of the Japan Society of Plasma Science and Nuclear Fusion Research*

Vol. 92, No.8, August 2016

## Special Topic Articles

Calculate "THAT" of Fusion Reactors - Progress in the Development of Reactor Design Support Tools

- |   |                    |     |
|---|--------------------|-----|
| 1. Overview of Fusion Reactor Conceptual Design Supported by Design Tools ..... | HIWATARI Ryoji     | 585 |
| 2. Find the Design Point of Fusion Reactors .....                               | GOTO Takuya        | 588 |
| 3. Design the Superconducting Magnet of Fusion Reactor .....                    | UTOH Hiroyasu      | 593 |
| 4. Design Blankets in Fusion Reactors .....                                     | TANIGAWA Hisashi   | 597 |
| 5. Estimate Performance of Fusion Core Plasmas .....                            | YOKOYAMA Masayuki  | 601 |
| 6. Assess Safety of Fusion Reactors .....                                       | NAKAMURA Makoto M. | 605 |
| 7. Summary .....  | TOBITA Kenji       | 610 |

## Lecture Note

Let's Start a Numerical Simulation Today Using the Many-Core Accelerator

- |  |  |     |
|--|--|-----|
| 3. The Many-Core Accelerator and Examples of Its Use at IFERC-CSC<br>..... | NAKAJIMA Noriyoshi, MIYATO Naoaki, NAITOU Hiroshi,<br>SATAKE Shin-ichi, HOSAKA Kazuki and KUNUGI Tomoaki | 612 |
|--|--|-----|

## Review Paper

Research and Development of Segmented High-Temperature Superconducting Magnets

Intended for Realizing Innovative Fusion Reactors: Progress in

Development of Remountable Joints of High-Temperature Superconducting Conductors

- |       |   |     |
|-------|---|-----|
| ..... | ITO Satoshi, HASHIZUME Hidetoshi, YUSA Noritaka,<br>YANAGI Nagato, TAMURA Hitoshi and SAGARA Akio | 623 |
|-------|---|-----|

Information ..... 635

Plasma & Fusion Calendar ..... 642

Announcement ..... 644

## Cover

The KEK digital accelerator (KEK-DA) is a small scale induction synchrotron capable of accelerating all ion species from H to Lead. Instead of a conventional RF cavity, induction acceleration devices of a 1-to-1 pulse transformer is employed for acceleration and beam confinement. The electron cyclotron resonance ion source (ECRIS) embedded in the 200 kV high voltage platform (HVP) generates an ion beam, which is guided through the low-energy beam transport line (LEBT) and injected into the KEK-DA ring by the electrostatic kicker (ES-Kicker). After injection, the acceleration voltage is turned on the induction cells. At the end of acceleration, a beam is extracted on the high energy beam transport line (HEBT) by a combination of the extraction kicker (Ext Kicker) and septum magnet (Ext Septum). (Hiroshi KOBAYASHI *et al.*, Plasma and Fusion Research, Vol.11, 1404092 (2016) <http://www.jspf.or.jp/>)

Published Monthly by

The Japan Society of Plasma Science and Nuclear Fusion Research

3-1-1 Uchiyama, Chikusa-ku, Nagoya 464-0075, Japan

Tel (052)735-3185, Fax (052)735-3485, E-mail: plasma@jspf.or.jp, URL: <http://www.jspf.or.jp/>