

JOURNAL OF PLASMA AND FUSION RESEARCH

The Journal of the Japan Society of Plasma Science and Nuclear Fusion Research
Vol. 82, No.8, August 2006

Commentary

JT-60SA Project for JA-EU Broader Approach Satellite Tokamak and National Centralized Tokamak	455
..... KIKUCHI Mitsuru, MATSUDA Shinzaburo, YOSHIDA Naoaki, TAKASE Yuichi, MIURA Yukitoshi, FUJITA Takaaki, MATSUKAWA Makoto, TAMAI Hiroshi, SAKURAI Shinji, IKEDA Yoshitaka and FUJII Tsuneyuki	

Special Topic Article

New Development of Thermal Plasma for Material Processing	
1. Introduction	INABA Tsuginori and IWAO Toru 470
2. Thermodynamic, Transport and Radiation Properties of Thermal Plasmas	YOKOMIZU Yasunobu, MATSUMURA Toshiro, TANAKA Yasunori and IWAO Toru 472
3. Non-Equilibria in Thermal Plasmas	TANAKA Yasunori and WATANABE Takayuki 479
4. Nanoparticle Synthesis by Thermal Plasmas	WATANABE Takayuki and TANAKA Yasunori 484
5. Surface Treatment Using Low Pressure Arc	INABA Tsuginori and IWAO Toru 488
6. New Development of Welding and Thermal Spraying	TANAKA Manabu, WATANABE Takayuki, ISA Tamaki and NISHIWAKI Hideo 492
7. New Development and Recent Trend of Waste Treatment Using Thermal Plasma	IWAO Toru, WATANABE Takayuki, AMAKAWA Tadashi, INABA Tsuginori and NISHIWAKI Hideo 497

Lecture Note

Introduction to Plasma Heating Technology by RF Waves	
5. Fusion Plasma Application of Electromagnetic Waves with Hundred Giga Hertz Range of Frequency – Technologies of Electron Cyclotron Resonance Heating Devices –	SHIMOZUMA Takashi 506
Column	FUJITA Kouichi 517
6. Important Issues of RF Heating Technologies	MUTOH Takashi 518

Contributed Papers

Reduction of Rayleigh-Taylor Instability Growth by Cocktail Laser Irradiation	
..... SHIGEMORI Keisuke, OTANI Kazuto, SAKAIYA Tatsuhiro, SUNAHARA Atsushi, NAKAI Mitsuo, FUJIOKA Shinsuke, SHIRAGA Hiroyuki, AZECHI Hiroshi and MIMA Kunioki	520
The LATE Device for Formation of Microwave Spherical Tokamak	
..... TANAKA Hitoshi, YOSHINAGA Tomokazu, UCHIDA Masaki and MAEKAWA Takashi	526

Series

Let Us Start Parallel Processing Using High Performance Fortran !	
1. What is HPF ?	SEO Yoshiki and WATANABE Kunihiko 534

New Books	538
-----------------	-----

Information	540
-------------------	-----

Plasma and Fusion Calendar	548
----------------------------------	-----

Articles in PFR	549
-----------------------	-----

Announcement	550
--------------------	-----

List of Newly Arrived Publications, NIFS	561
--	-----

Cover

A polyethylene cup was filled up with a conductive solution (pure water with for example NaHCO₃), and applied ~4.5 kV between a ring electrode and a carbon-rod electrode, which were placed at the bottom of the cup and at the water surface, respectively. A capacitive discharge occurred between the water surface and the carbon-rod. A plasma jet appeared above the surface of the water and a luminous fireball rised into the air. (Y. Sakawa *et al.*, Plasma and Fusion Research Vol.1, 039 (2006) August. <http://www.jspf.or.jp/PFR/>)

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/>