

Table of Contents

| | |
|--|-----|
| WELCOME ADDRESS | I |
| OPENING AND INTRODUCTION | II |
| EXECUTIVE SUMMARY | V |
| SUMMARY OF THE WORKSHOP | VII |
| Agenda | |
| Participants List | |
| PLENARY TALK | |
| (1) Overview of PFM/PFC Research in US, W. B. Gauster(SNLA) | 1 |
| (2) Layered and Doped Materials for Plasma Facing Components, H. Conrads (KFA Jülich) | 29 |
| TOPICS PRESENTATION AND DISCUSSION | |
| TOPICS 1: How to bridge Present Large Machines' Experiences to the Design Activities of the Next Step Devices? | |
| (3) How to Gap the Experience Gained in Today's Large Fusion Devices to the Next Step Devices?, R. Behrisch (MPI) | 91 |
| (4) Results of JET and Implications for Next Step Devices, K. J. Dietz (JET) | 103 |
| (5) Experiences with Graphite Divertor Plate in JT-60 Lower X-Point Operation, T. Ando (JAERI) | 129 |
| (6) Comment from TFTR, M. Ulrickson (SNLA) | 147 |
| TOPICS 2: Problem Area of PFC Aspects | |
| (7) Overview: Heat Removal Limitations of Present PFC Design and Possibilities for Improvement, R. D. Watson & R. E. Nygren (SNLA) | 159 |
| (8) Comment on Heat Exhaust of PFC, M. Seki (JAERI) | 177 |
| (9) Gaseous Divertor Experiment by PISCES-A, L. Schmitz(UCLA) .. | 187 |
| (10) Comment, H. Nariai (Tsukuba Univ.) | 197 |
| TOPICS 3: Impact of Neutron Effects to PFM and PFC Feasibilities for ITER | |
| (11) Overview: Neutron Effects and Materials Selection for the Next Step Plasma Facing Components, T. Burchell (ORNL).. | 203 |

- (12) Change of Thermal Properties of Graphite by Neutron Irradiations, T. Maruyama (PNC) 221
- (13) 1. Key Properties for PFC Materials
2. How to Correlate the Change of Micro Structure with Material Properties?, T. Oku (Ibaraki Univ.) 237
- (14) How to Establish the Data Base without 14MeV INS?, T. Tanabe (Osaka Univ.) 249

TOPICS 4: Trapping and Detrapping of Implanted Hydrogen Isotopes

- (15) Overview: Trapping and Detrapping of Implanted Hydrogen Isotopes, K. L. Wilson (SNLL) 161
- (16) Thermal Desorption Spectra of Hydrogen and Hydrocarbons from Graphite Implanted with Hydrogen, M. Yamawaki(Univ. Tokyo)·· 287
- (17) Compensation Effects on the Diffusion Constants of Hydrogen in Materials, K. Watanabe & K. Ashida (Toyama Univ.) 303
- (18) Diffusion Constants of Hydrogen Isotopes in Graphite and Compensation Effect, K. Ashida & K. Watanabe (Toyama Univ.)· 309
- (19) Ion-Induced and Thermal Release of Hydrogen Isotopes from Graphite, K. Morita (Nagoya Univ.) 333
- (20) Hydrogen Tapping and Re-Emission for Graphite, A. A. Haasz (Univ. of Toronto) 355
- (21) Hydrogen Solubility in Neutron Irradiated Graphite, H. Atsumi (Kinki Univ.) 361
- (22) Hydrogen Behavior in Mo and W, T. Tanabe (Osaka Univ.) 367

TOPICS 5: Erosion of Plasma Facing Materials under Off-Normal Operating Conditions

- (23) Overview: Simulation of Disruptions in Different HHF Test Facilities, J. Linke (KFA Jülich) 379
- (24) Evaluation Process of the Thermal Erosion during Disruptions for ITER, H. Bolt (Univ. Tokyo) 401
- (25) Erosion of Plasma Facing Materials under Off-Normal Conditions, J. G. van der Laan (NET) 421
- (26) Efforts towards Runaway Electron Damage Data Base Establishment, H. Bolt (Univ. Tokyo) 441

TOPICS 6: Erosion of Plasma Facing Materials under Normal Operating Conditions

- (27) Overview: Erosion of Plasma Facing Components,
A. A. Haasz (Univ. of Toronto) 459
- (28) Evaluation of Bulk-boronized Graphites as Plasma-Facing
Materials for ITER, Y. Hirooka (UCLA) 495
- (29) Erosion/Redeposition in the DIII-D Divertor,
K. L. Wilson (SNLL) 523
- (30) Data from MPI Garching, R. Behrisch (MPI-Garching) 535

TOPICS 7: Present Status of Material Data Base

- (31) Overview on Existing Datasets for Plasma Facing Materials,
H. Bolt (Univ. Tokyo) 551
- (32) PSI Data obtained by Surface and Vacuum Science Laboratory,
Hokkaido University, T. Hino (Hokkaido Univ.) 569

TOPICS 8: Possibilities of Medium- and High-Z Plasma Facing
Materials for Future Large Machines

- (33) Overview: Possible Plasma Scenario Compatible with High Z
Plasma Facing Material, K. Itoh (NIFS) 587
- (34) Operation Experiences of Ultra Long Pulse TRIAM
Mo-Limiter Discharge, N. Yoshida (Kyushu Univ.) 667
- (35) Comment from JT-60(II) Material Aspect and Helium Recycling,
H. Nakamura (JAERI) 705