

## VOLUME 2

SESSION G - TRITIUM AND BLANKET TECHNOLOGY	621
Neutronics in the Toroidal Belt-Geometry of a Screw Pinch Reactor K.A. VERSCHUUR	623
Blanket and Power Conversion System of NUWMAK DAI-KAI SZE	631
The Activity of Lithium, and the Solubility of Deuterium, in Lithium-Lead Alloys H.R. IHLE, A. NEUBERT, C.H. WU	639
Diffusion of Tritium in Neutron-Irradiated Microcrystalline $\beta$ -Li <sub>5</sub> Al <sub>4</sub>	645
D. GUGGI, H.R. IHLE, U. KURZ	645
Vapor Species Over Li <sub>2</sub> O, and its Reactions with Molybdenum Metal H.R. IHLE, H. KUDO, C.H. WU	651
Experimental Studies of Neutron Multiplication from Beryllium (n,2n) Reaction in CTR Blankets T.K. BASU, P. CLOTH, D. FILGES, V.R. NARGUNDKAR	657
Some Implications of a Cellular Structure in Minimum Thickness Fusion Reactor Blankets L.J. BAKER	661
Possible Improvements to a Basic Cellular Thin Blanket Fusion Reactor Configuration G. CONSTANTINE	667
Two-Dimensional Heating Analysis of Fusion Blankets for Synfuel Production O.W. LAZARETH, J.S.K. TSANG, J.R. POWELL	673
Production of Tritium in Research Reactors for the Fuelling of CTR-Experiments D. FILGES, P. CLOTH	679
Studies on Hydrogen Isotopes Behaviour in Advanced Nuclear Systems H.D. RÖHRIG, V. MALKA, K.D. FISCHMANN, R. RAITZ VON FRENTZ	685
A System for the Control of Tritium Losses in Primary and Steam Circuits of a Fusion Power Plant F. LANZA, P. ROCCO, F. VAN RUTTEN	691
Investigations of Isotope Separation Effects of a Ti-Fluidized Bed H. WEISCHSELGARTNER, J. PERCHERMEIER	697
<u>Invited Lecture : Main Power Supplies for Large Toroidal Fusion                   Experiments</u> E. BERTOLINI	705

## SESSION H - VACUUM AND FIRST WALL TECHNOLOGY

729

Vacuum Vessel and Pumping System of TEXTOR D.A. BUTZEK, K. DERICHS, W. GRAF, A. COSLER, K.H. DIPPEL M. SCHÜRER, W. BIEGER	731
Behaviour of SORB-AC Wafer Pumps in Contaminated H <sub>2</sub> Plasmas and During Maintenance of Plasma Machines B. FERRARIO, L. ROSAI,	737
A Neutral Beam Line Pump with Helium Cryotrapping Capability T.H. BATZER, R.E. PATRICK, W.R. CALL	745
The Development and Construction of the Vacuum Vessel for the JET Project G.H. RAPPÉ, C. FROGER	753
A New Technology Applied to a Vacuum Chamber Module of TORUS 2 C. DECK, P. DESCHAMPS, Z. SLEDZIEWSKY, A. TOROSSIAN	759
Performance Test of JT-60 Vacuum Vessel M. SHIMIZU, M. YAMAMOTO, H. TAKATSU, T. SAIGO Y. ITO, H. MIYATA, R. SAITO, T. TAKIZAWA	765
The Design of a Thin Walled Toroidal Vacuum Chamber for a Large RFP Experiment K.E. LAVENDER, H.J. CRAWLEY, J.E. PARTRIDGE, S. SKELLETT	771
Mechanical Reliability of the JET Vacuum Vessel in Case of Disruptive Instability B. STREIBL, O. JANDL, P. BOURRIER, T. FOULT, P. JEANS, R. SODHA	777
Calculations on Currents and Forces in the Liner of the TORTUR II TOKAMAK J.J.L. CAARLS, H.W. PIEKAAR	783
Sputtering and Surface Damage of TETR Protective Plate Candidate Materials by Energetic D <sup>+</sup> Irradiation M. KAMINSKY, S.K. DAS, J. CECCHI	789
FWLTB- A Mathematical Model to Calculate the Lifetime of the Fusion Reactor First Wall W. DAENNER, J. RAEDER	795
Low Energy Light Ion Sputtering and Consequences for First Wall Material Selection J. BOHDANSKY, J. ROTH, H. VERNICKEL	801
Spatial and Depth Distribution of Deuterium, Oxygen, and Limiter Materials on the Liner of TFR 400 B.M.U. SCHERZER, R. BEHRISCH, R.S. BLEWER, H. SCHMIDL	809
Thermal Outgassing Properties of Stainless Steel 316 L After Different Methods of Surface Preparation J. CAMPOSILVAN, F. REITER	815
Vacuum Design and Discharge Cleaning in Large Pinch Experiments L. FIRTH, F.C. JONES, A.A. NEWTON	823

The Influence of a Hydrogen Plasma on the Mechanical Properties of a Stainless Steel or Inconel Vacuum Vessel of a TOKAMAK M. SNYKERS	829
The Formation of C-H Compounds on Metal Surfaces C.H. WU, H. KUDO	835
An Evaluation of Coated Heat Sink Materials for Fusion Applications D.W. DOLL, M. ULRICKSON	841
Behavior of Thermally Stressed Electrical Insulator Surfaces under Vacuum Conditions M. SCHAEFER	849
The Ceramic Break Problem in TOKAMAK Machines-Insulated Mechanical Joints in the FT Machine A. BOSCHI, C. FERRO, A. ORSINI	855
Oxides Thin Layers Thickness and Sputtering Yield Measurements Using Auger Spectroscopy G. LUZZI, L. PAPAGNO	861
Stress Analysis of the Vacuum Vessel of ASDEX H. KOTZLOWSKI, O. JANDL	865
<u>Invited Lecture : Development of High Power Neutral Injectors - A review</u> T.S. GREEN	873
<b>SESSION I - THE POLOIDAL MAGNET SYSTEM</b>	<b>937</b>
Poloidal System of TORUS II and Technical Consequences of a Plasma Disruption R. AYMAR, C. LELOUP, M. PARIENTE	939
Design and Test of a Splittable Coil for the Poloidal Field System for TEXTOR M. LOCHTER, F. RICHTER, F. SCHÖNGEN	945
Calculations on Feedback Control of Plasma Position in the TEXTOR Vessel and the Role of the Response Time Behaviour of the Control System H. GERHAUSER	951
Investigations on the Transient Behaviour of the Poloidal Field System of TEXTOR B. HARJES, U. BRAUNSBERGER, B. GIESEN, M. LOCHTER	957
Numerical Treatment of the Poloidal Field Problems of TEXTOR A. KALECK	963
Self-Consistent MHD Equilibria in TOKAMAKS with an Iron Core Transformer G. CENACCHI, E. SALPIETRO, A. TARONI	969
A Design Procedure for Air Core Transformers in Toroidal Axisimmetrical Geometry E. COCCORESE, R. MARTONE	975

Three Dimensional Analysis of Alternating Magnetic Field in an Experimental TOKAMAK Machine Based on Finite Element Method H. NINOMIYA, A. OGATA, Y. TANABE, Y. SAWADA, K. YAMAMOTO, M. YAMAGUCHI	981
The Poloidal Field of a TOKAMAK Plasma Close to an Iron Core A.C.A. VAN WEES, L.C.J.M. DE KOCK, P. MANINTVELD	987
Calculation of Voltages and Currents Induced in the Vacuum Vessel of ASDEX by Plasma Disruptions H. PREIS	993
Influence of the Iron Core in Plasma Equilibrium and Stability in T.F.R. 600, a TOKAMAK without Copper Shell. Description of the Fast Feedback System J. BLUM, R. DEI CAS, J.P. MORERA, P. PLINATE	999
Stabilizing Passive Shell and Active Feedback Windings for "RFP" Configurations S. BOBBIO, F. GASPARINI, G. ROSTAGNI	1007
Novel Method of Determining the Plasma Position and its Application to the ASDEX Feedback System F. SCHNEIDER	1013
M.V.A. Amplifier for Plasma Position Control by Vertical Magnetic Field G. SCHENK, G. PACHER, H. PACHER	1019
Mechanical Tests on Insulation Systems for the JET Poloidal Coils J.R. LAST, A. BOND, E. SALPIETRO	1025
 STATUS REPORT ON LARGE TOKAMAKS	1033
Status of the JET Project P.H. REBUT	1035
TFTR Status Report P.J. REARDON	1049
JT-60 Project M. YOSHIKAWA	1079
Subject Index	1085
Author Index	1089
List of Participants	1093