

# TECHNICAL PAPERS

## General Overviews

<b>New Issues and Direction in the U.S. Inertial Confinement Fusion Program.....</b>	<b>1</b>
M. M. Sluyter (DOE)	

## ICF/ IFE Experiments and Reactors

<b>IFE Chamber Technology Testing Program in NIF and Chamber Development Test Plan.....</b>	<b>7</b>
M. A. Abdou (UCLA)	

<b>Direct Conversion of Nuclear Energy into Radiation: New Direction in Thermonuclear Laser Fusion .....</b>	<b>12</b>
Yu. N. Babaev (VNIIEF), A.A. Vedenov (KI), A.A. Filyukov (KIAM)	

<b>A Novel First Wall Protection Scheme for Ion Beam ICF Reactors .....</b>	<b>18</b>
E. A. Mogahed (UWisc), P. L. Cousseau (UWisc), R. L. Engelstad (UWisc), R. R. Peterson (UWisc), H. Y. Khater (UWisc), G. L. Kulcinski (UWisc), J. J. MacFarlane (UWisc), P. Wang (UWisc), M. E. Sawan (UWisc), I. N. Sviatoslavsky (UWisc), L. J. Wittenberg (UWisc)	

<b>Geometric and Blast Effects on Thin Film Cavity Protection Schemes for IFE Reactors .....</b>	<b>22</b>
N. B. Morley (UCLA), A. A. Ying (UCLA)	

<b>Inertial Confinement Fusion Target Insertion via Augmented Mass Free Fall .....</b>	<b>26</b>
R. L. Fagaly (GA), L. C. Brown (GA), R. B. Stephens (GA), M. D. Wittman (URoch)	

<b>Three-Dimensional Neutronics Analysis for the Final Optics of the Laser Fusion Power Reactor SIRIUS-P .....</b>	<b>29</b>
M. E. Sawan (UWisc)	

<b>X-ray Deposition in Inertial Fusion Graphite and Silicon-Carbide First Walls.....</b>	<b>33</b>
A. El-Azab (UCLA), M. Z. Youssef (UCLA)	

<b>2D Simulation of Acceleration and Compression of Plasma Foils Inside Cylindrical and Conical Microducts .....</b>	<b>37</b>
L. Chacón (MPU), J. M. Martínez-Val (MPU), P. Velarde (MPU)	

<b>Spinning Targets for Laser Fusion .....</b>	<b>41</b>
D. E. Baldwin (LLNL), D. D. Ryutov (LLNL)	

<b>The Computational Optimization of Indirect-Driven ICF Targets .....</b>	<b>45</b>
V. A. Lykov (VNIITF), E. N. Avrorin (VNIITF), V. E. Chernyakov (VNIITF), N. G. Karlykhanov (VNIITF), R. M. Kozybaev (VNIITF), Ya. Z. Kandiev (VNIITF)	

<b>Feasibility of <math>^3\text{HeD}</math>\mathbf{\backslash}^6\text{LiD Thermal-to-Fusion Neutron Converters for Fusion Reactor Materials Testing} .....</b>	<b>49</b>
Yu. N. Zuev (VNIITF), V. D. Lartsev (VNIITF), Yu. I. Chernukhin (VNIITF), B.N. Goshchitskiy (IMP), V.D. Parkhomenko (IMP)	
<b>Spectral and Spatial Characteristics of X-ray Film Detectors in the Wavelength Range 20-150Å .....</b>	<b>53</b>
D. A. Fedin (LPI), R. V. Fedorchuk (LPI), E. Gullikson (LBL), M. O. Koshevoi (LPI), I. V. Lukjantsev (LPI), A. A. Rupasov (LPI), A. S. Shikanov, (LPI)	
<b>Feasibility Study of an Intense Pulsed Neutron Source Based on a Powerful Electron Accelerator and a Pulsed Nuclear Reactor .....</b>	<b>61</b>
V. S. Bosamykin (VNIIEF), M. A. Voinov (VNIIEF), V. S. Gordeev (VNIIEF), M. I. Kuvshinov (VNIIEF), K. A. Morunov (VNIIEF), A. I. Pavlovskii (VNIIEF), V. D. Selemir (VNIIEF)	
<b>Conceptual Design Studies of GDT-based Neutron Source .....</b>	<b>66</b>
A. A. Ivanov (BINP), E. P. Kruglyakov, (BINP), Yu. A. Tsidulko (BINP), V. G. Krasnoperov (EI), V.V. Korshakov (EI)	
<b>Evaluations of Radiation Properties of Gas Media Used in Nuclear-Pumped Lasers .....</b>	<b>70</b>
G. M. Lukashin (VNIITF), I. I. Kostenko (VNIITF), V. A. Kryzhanovsky (VNIITF), A.V. Bochkov (VNIITF), E. P. Magda (VNIITF), V. M. Murzin (VNIITF)	
<b>Experimental Method for Identifying Effective Media for Nuclear-Pumped Lasers .....</b>	<b>74</b>
E. D. Poletaev (IPPE), Yu. A. Dyuzhov (IPPE)	
<b>Nuclear-Pumped Lasers and the Problems of ICF .....</b>	<b>78</b>
P. P. Dyachenko (IPPE)	
<b>Noncontact Coating of Spherical-Shell ICF Targets Using Gas-Dynamic Levitation and Charged Liquid Cluster Beam .....</b>	<b>82</b>
K. Kim (UI), Q. Feng (UI), C. K. Ryu, (UI)	
<b>Development of IFE Target Systems on the NIF .....</b>	<b>86</b>
K. R. Schultz (GA), T. Bernat (LLNL), R. L. Fagaly (GA), L. Foreman (LANL), W. Meier (LLNL), R. Petzoldt (LLNL)	
<b>Concept of a Coupled Blanket System for the Hybrid Fission-Fusion Reactor .....</b>	<b>93</b>
A. P. Barzilov (IPPE), A. V. Gulevich (IPPE), A. V. Zrodnikov (IPPE), O.F. Kukharchuk (IPPE), V. B. Polevoy (IPPE), L. Feoktistov (LPI)	
<b>Adiabatic Compression of a Closed-Field-Line Configuration by a Centimeter-Size Liner .....</b>	<b>97</b>
R. P. Drake (LLNL), J. H. Hammer (LLNL), C. W. Hartman (LLNL), L. J. Perkins (LLNL), D. D. Ryutov (LLNL)	
<b>Energy Conversion and Concentration in a High-Current Gaseous Discharge: Dense Plasma Spheromak in Plasma Focus Experiments.....</b>	<b>101</b>
A. B. Kukushkin (KI), V. A. Rantsev-Kartinov (KI), A. R. Terentiev (KI)	

<b>Stimulated Raman Scattering in a Laser-Produced Plasma Heated by Laser at Wavelength of 0.53 μm .....</b>	<b>105</b>
E. A. Bolkhovitinov (LPI), V. Yu. Bychenkov (LPI), M. O. Koshevoi (LPI), M. V. Osipov (LPI), A. A. Rupasov (LPI), A. S. Shikanov (LPI), V. T. Tikhonchuk (LPI), A. V. Kilpio (GPI), N.G. Kiselev (GPI), D.G. Kochiev (GPI), P.P. Pashinin (GPI), E.V. Shashkov (GPI), Y.A. Suchkov (GPI)	

### **Overview: Ion Beam Fusion/ICF Targets**

<b>Heavy Ion Fusion: Prospects and Status .....</b>	<b>110</b>
W. B. Herrmannsfeldt (SLAC)	

<b>Inertial Fusion Target Development.....</b>	<b>116</b>
K. R. Schultz (GA)	

<b>Target Design for a MJ Laser and Connected Experiments .....</b>	<b>124</b>
P. A. Holstein (CEL-V) and the simulation team, D. Juraszek (CEL-V) and the experimental team	

### **ITER Overviews**

<b>Physics Requirements for ITER Engineering Systems.....</b>	<b>130</b>
N. Sauthoff (PPPL), F. Perkins (ITER JCT), J. Wesley (ITER JCT), T. Amano (ITER JCT), D. Boucher (ITER JCT), S. Cohen (PPPL), N. Fujisawa (ITER JCT), G. Janeschitz (ITER JCT), V. Mukhovatov (ITER JCT), W. Nevins (LLNL), S. Ortolani (ITER JCT), D. Post (ITER JCT), S. Putvinski (ITER JCT), M. Rosenbluth (ITER JCT), N. Uckan (ORNL), K. Young (PPPL)	

<b>The ITER Magnet System Program - Design and R&amp;D .....</b>	<b>138</b>
M. Huguet (ITER JCT), R. J. Thome (ITER JCT), N. Mitchell (ITER JCT), K. Okuno (ITER JCT)	

<b>The ITER Divertor.....</b>	<b>144</b>
K. J. Dietz (ITER JCT), T. Ando (ITER JCT), A. Antipenkov (ITER JCT), S. Chiocchio (ITER JCT), G. Federici (ITER JCT), G. Janeschitz (ITER JCT), E. Martin (ITER JCT), R. Tivey (ITER JCT) and the ITER Joint Central Team	

<b>ITER Shield Blanket and Vacuum Vessel .....</b>	<b>150</b>
K. Ioki (ITER JCT), A. Cardella (ITER JCT), F. Elio (ITER JCT), Y. Gohar (ITER JCT), T. Iizuka (ITER JCT), G. Johnson (ITER JCT), G. Kalinin (ITER JCT), D. Lousteau (ITER JCT), K. Mohri (ITER JCT), R. Parker (ITER JCT), R. Raffray (ITER JCT), R. Santoro (ITER JCT), K. Shimizu (ITER JCT), N. Tachakawa (ITER JCT), T. Takahashi (ITER JCT), D. Williamson (ITER JCT), E. Zolti (ITER JCT)	

<b>Disruptions, Loads, and Dynamic Response of ITER .....</b>	<b>156</b>
B. Nelson (ORNL), B. Riemer (ORNL), R. Sayer (ORNL), D. Strickler (ORNL), P. Barabaschi (ITER JCT), K. Ioki (ITER JCT), G. Johnson (ITER JCT), K. Shimizu (ITER JCT), D. Williamson, (ITER JCT)	

<b>Nuclear Analysis in Support of ITER Design.....</b>	<b>161</b>
R. T. Santoro (ITER JCT), H. Iida (ITER JCT), W. B. Gauster (ITER JCT), D. Valenza (UPalermo), S. Mori (ITER/US), M. E. Sawan (UWisc), H. Y. Khater (UWisc), J. E. White (ORNL), U. Fischer FZK), L. Petrizzi (ENEA-Frascati), V. Rado (ENEA-Frascati), W. Daenner (ITER/EU), H. Attaya (ANL)	
<b>ITER: Research &amp; Development</b>	
<b>Efficient Testing of ITER Materials and Components at the Research Institute of Atomic Reactors' Experimental Facilities .....</b>	<b>167</b>
V. Ivanov (RIAR), V. Kazakov (RIAR), A. Pokrovsky (RIAR), V. Shamardin (RIAR), R. Melder (RIAR), Yu. Revyakin (RIAR), V. Sandakov (RIAR)	
<b>Analysis of Copper Alloy to Stainless Steel Bonded Panels for ITER First Wall Applications .....</b>	<b>174</b>
J. F. Stubbins (UI), P. Kurath (UI), D. Drockelman (UI), G. D. Morgan (MDA), J. McAfee (MDA), G. Li (UI), B. G. Thomas (UI)	
<b>Assessment of the Suitability of the European 400 kV Grid to Supply the ITER Load .....</b>	<b>178</b>
A. Maschio (ITER/EU), E. Bertolini (ITER/EU), J. M. Bottreau (ITER/EU), D. Crisford (NGC), G. D'Andrea (ENEL), A. DeLorenzi (ITER/EU), S. Geeves (NGC), H. Lefebvre (EF), G. Murphy (ITER/EU), P. Scarpellini (ENEL)	
<b>Design and Thermal-Hydraulic Analysis of Tokamak Divertor Armor Tiles .....</b>	<b>182</b>
J. P. Sharpe (NCSU), T. A. Carter (NCSU), M. A. Bourham (NCSU), J. G. Gilligan (NCSU)	
<b>Comparison of Swirl Tube and Hypervapotron for Cooling of ITER Divertor .....</b>	<b>186</b>
C. B. Baxi (GA)	
<b>Development of Non-Destructive Examination Techniques for CFC-Metal Joints in Annular Geometry and Their Application to the Manufacturing of Plasma-Facing Components .....</b>	<b>190</b>
E. Di Pietro (ENEA-Frascati), E. Visca (ENEA-Frascati), A. Orsini (ENEA-Frascati), M. Sacchetti, (ENEA-Frascati), T. M. R. Borruto (ENEA-Galeria), P. Varone (ENEA-Galeria), R. Vesprini (ENEA-Galeria)	
<b>Fabrication of a Double-Wall Vacuum Vessel Model of H Type Steel Beam for ITER.....</b>	<b>194</b>
S. Kajiura (Hitachi), Y. Ozawa (Hitachi), M. Otsuka (Hitachi), T. Mizoguchi (Hitachi), Y. Itou (Hitachi), K. Koizumi (JAERI), E. Tada (JAERI)	
<b>Fabrication of Double-Walled Section Models of the ITER Vacuum Vessel .....</b>	<b>198</b>
K. Koizumi (JAERI), N. Kanamori (JAERI), M. Nakahira (JAERI), Y. Itoh (JAERI), M. Horie (JAERI), E. Tada (JAERI), S. Shimamoto (JAERI)	
<b>Fabrication of HIPped First Wall Panel for Fusion Experimental Reactor and Preliminary Analyses for its Thermo-mechanical Test.....</b>	<b>202</b>
S. Sato (JAERI), K. Furuya (JAERI), T. Kuroda (JAERI), T. Kurasawa (JAERI), I. Togami (JAERI), T. Hatano (JAERI), H. Takatsu (JAERI), T. Osaki (Kawasaki)	

<b>An Experimental Investigation of the Post-CHF Enhancement Factor for a Prototypical ITER Divertor Plate with Water Coolant .....</b>	<b>206</b>
T. D. Marshall (RPI), R. D. Watson (SNL), J. M. McDonald (SNL), D. L. Youchison (SNL)	
<b>Heat Transfer Conditions in Water-Cooling of a Fusion Reactor Divertor .....</b>	<b>210</b>
B. M. Lekakh (MIT), J. E. Meyer (MIT), M. S. Kazimi (MIT)	
<b>Thermal Fatigue Behavior of US and Russian Grades of Beryllium .....</b>	<b>214</b>
R. D. Watson (SNL), D. L. Youchison (SNL), D. E. Dombrowski (BWI), R. N. Guiniatouline (EI), I.B. Kupriynov (ARSIIM)	
<b>Recent R&amp;D Activities on Plasma Facing Components at JAERI .....</b>	<b>220</b>
K. Sato (JAERI), S. Suzuki (JAERI), M. Araki (JAERI), K. Nakamura (JAERI), K. Watanabe (JAERI), K. Yokoyama (JAERI), M. D. Dairaku (JAERI), Y. Okumura (JAERI), Y. Ohara (JAERI), M. Akiba (JAERI)	
<b>Mock-up Tests of Rail-mounted Vehicle Type In-vessel Transporter/Manipulator .....</b>	<b>224</b>
K. Oka (JAERI), S. Kakaudate (JAERI), S. Fukatsu (JAERI), M. Nakahira (JAERI), K. Taguchi (JAERI), M. Horie (JAERI), E. Tada (JAERI), S. Shimamoto (JAERI), M. Kondoh (ITER JCT), K. Shibanuma (ITER JCT), R. Haange (ITER JCT)	
<b>Time-to-burnout Data for a Prototypical ITER Divertor Tube During a Simulated Loss of Flow Accident.....</b>	<b>228</b>
T. D. Marshall (RPI), R. D. Watson (SNL), J. M. McDonald (SNL), L. S. Wold (SNL), D. L. Youchison (SNL), L. C. Cadwallader (INEL)	
<b>Compatibility of ITER Candidate Materials with Static Gallium .....</b>	<b>232</b>
P. R. Luebers (ANL), O. K. Chopra (ANL)	
<b>Hypervapotron Flow Testing with Rapid Prototype Models .....</b>	<b>236</b>
D. Driemeyer (MDA), T. Hellwig (MDA), D. Kubik (MDA), E. Langenderfer (MDA), H. Mantz (MDA), M. McSmith (MDA), B. Jones (UI), J. Butler (UI)	
<b>Results of the ITER Shielding Blanket Cost Assessment Study .....</b>	<b>240</b>
L. M. Waganer (MDA), G. D. Morgan (MDA)	
<b>Testing of 1-PIN Blanket Mockup: Analysis of the Experimental Results .....</b>	<b>244</b>
M. Ferrari (ENEA-Frascati), F. Di Carlo (ENEA- Galeria), M. Furrer (ENEA-Galeria), G. Simbolotti (ENEA-Frascati), C. Talarico (ENEA guest)	
<b>ITER Coil Power Supply.....</b>	<b>248</b>
A. Roshal (ITER JCT), B. Bareyt (ITER JCT), I. Benfatto (ITER JCT), E. Bertolini (ITER/EU), J.-M. Bottereau (ITER/EU), S. Bulgakov (ITER/RF), N. Daniel (ITER/RF), D. Hrabal (ITER/EU), M. Huart (ITER/EU), V. Kuchinski (ITER/RF), A. Maschio (ITER/EU), M. Matsukawa (ITER JCT), N. Mikhailov (ITER/RF), P. L. Mondino (ITER JCT), A. Nerem (ITER/US), C. Neumeyer (ITER/US)	
<b>Tooling Concepts for ITER Tokamak Assembly and Remote Disassembly .....</b>	<b>252</b>
A. Oikawa (ITER JCT), F. Puhn (ITER JCT), J.-L. Helary (ITER JCT), R. Shaw (ITER JCT), M. Friend (ITER JCT), Z. Piec (ITER JCT), N. Tachikawa (ITER JCT), M. Acks (ITER JCT), A. Basile (ITER JCT) for the ITER Joint Central and Home Teams	

<b>Design Development of Shielding Blanket for Fusion Experimental Reactors .....</b>	<b>256</b>
K. Furuya (JAERI), K. Kitamura (JAERI), H. Miura (JAERI), Y. Itoh (JAERI), T. Kurasawa (JAERI), T. Kuroda (JAERI), I. Tokami (JAERI), S. Sato (JAERI), T. Hatano (JAERI), H. Takatsu, (JAERI), T. Hashimoto (Kawasaki)	
<b>A Coherent FM Laser Radar Based System for Remote Metrology in ITER .....</b>	<b>260</b>
R. E. Barry (ORNL), T. W. Burgess (ORNL), M. M. Menon, (ORNL), A. Slotwinski (Coleman), R. Sebastian (Coleman)	
<b>Neutral Beams for ITER .....</b>	<b>264</b>
R. S. Hemsworth (ITER JCT), H. D. Feist (ITER/EU), M. Hanada (ITER JCT), B. Heinemann (ITER/EU), T. Inoue (ITER/JA), E. Kussel (ITER/EU), A. Krylov (ITER/RF), P. Lotte (ITER/EU), K. Miyamoto (ITER/JA), N. Miyamoto (ITER/JA), D. Murdoch (ITER/EU), A. Nagase (ITER/JA), Y. Ohara (ITER/JA), Y. Okumura (ITER/JA), J. Pamela (ITER/EU), A. Panasenkov (ITER/RF), K. Shibata (ITER/JA), M. Tanii (ITER/JA), M. Watson, (ITER/EU)	
<b>Gas and Power Flow in the ITER Neutral Beam Injectors .....</b>	<b>268</b>
M. Hanada (ITER JCT), R. S. Hemsworth (ITER JCT)	
<b>Dust Removal System for Fusion Experimental Reactors .....</b>	<b>272</b>
M. Onozuka (Mitsubishi), Y. Ueda (Mitsubishi), K. Takahashi (Mitsubishi), Y. Oda (Mitsubishi), Y. Seki (JAERI), S. Ueda (JAERI), I. Aoki (JAERI)	
<b>Remote Welding and Cutting Techniques for Fusion Experimental Reactors .....</b>	<b>276</b>
M. Onozuka (Mitsubishi), T. Ishide (Mitsubishi), Y. Oda (Mitsubishi), E. Nagaoka (Mitsubishi), K. Ue (Mitsubishi), H. Kamei, (Mitsubishi)	
<b>Overview of ITER Remote Handling .....</b>	<b>280</b>
K. Shibanuma (ITER JCT), T. Burgess (ITER JCT), R. Haange (ITER JCT), R. Hager (ITER JCT), J. Herndon (ITER/US), C. Holloway (ITER JCT), K. Ioki (ITER JCT), M. Kondoh (ITER JCT), D. Maisonnier (ITER/EU), E. Martin (ITER JCT), N. Matsuhira (ITER JCT), E. Tada (ITER/JA), A. Tesini (ITER JCT)	
<b>Cost Estimate for ITER Central Instrumentation and Control .....</b>	<b>284</b>
P. Roney (PPPL), S. Davis (PPPL), G. Kolinchak (PPPL), G. Oliaro (PPPL), G. Schobert (PPPL)	
<b>Application of a Calibrated Tokamak Transport Model to ITER Start-up Study .....</b>	<b>288</b>
J. Qiang (UI), A. Levinson (UI), C.E. Singer (UI)	
<b>Decontamination Studies of Japan Atomic Energy Research Institute Fuel Cleanup System and Glovebox Installed at the Tritium Systems Test Assembly .....</b>	<b>292</b>
L. Bartlein (LANL), S. Konishi (JAERI), R.V. Carlson (LANL), M. Enoda (JAERI), R.S. Willms (LANL), J. Okuno (JAERI)	
<b>Radiological Safety During Maintenance of the Primary Heat Transfer System of the ITER Plant.....</b>	<b>297</b>
S. Sandri (ENEA-Frascati), L. Di Pace (ENEA-Frascati)	

<b>ITER Principal Safety Functions: Radiological Confinement, Heat Removal, and Shutdown .....</b>	301
S. J. Piet (ITER JCT), H. -W. Bartels (ITER JCT), C. W. Gordon (ITER JCT), A. E. Poucet (ITER JCT), L. N. Topilski (ITER JCT)	
<b>Key Results in ITER Safety Analysis .....</b>	305
H. -W. Bartels (ITER JCT), C. W. Gordon (ITER JCT), D. Holland (ITER/JCT), S. J. Piet (ITER JCT), A. E. Poucet (ITER JCT), L. N. Topilski (ITER JCT)	
<b>MELCOR Ex-Vessel LOCA Simulations for ITER .....</b>	309
M. J. Gaeta (INEL), B. J. Merrill (INEL), H. -W. Bartels (ITER JCT), L. Topilski (ITER JCT)	
<b>Fusion Safety Experiments in JAERI .....</b>	313
T. Kunugi (JAERI), K. Takase (JAERI), M. Ogawa (JAERI), Y. Seki (JAERI)	
<b>Experimental Study of Buoyancy-Driven Exchange Flow From Breaches Under LOVA Condition .....</b>	317
K. Takase (JAERI), T. Kunugi (JAERI), M. Ogawa (JAERI), Y. Seki (JAERI)	
<b>Parametric Analysis of an In-vessel LOCA for the ITER Plant.....</b>	321
R. Caporali (ANPA), G. Caruso (DINCE), G. Franzoni (PT), M. T. Porfiri (ENEA-Frascati)	
<b>Radiation Transport and Nuclear Induced Heating Analysis for ITER Baseline Design .....</b>	325
D. G. Cepraga (ENEA-Bologna), G. C. Panini (ENEA-Bologna), G. Cambi (BU), M. Frisoni (ENEA-Bologna)	
<b>Environment Source Terms for Ex-Vessel FW/SB LOCA Accident Sequences in ITER EDA.....</b>	329
G. Cambi (BU), D. G. Cepraga (ENEA-Bologna), L. Di Pace (ENEA-Frascati), M. T. Porfiri (ENEA-Frascati)	
<b>Activated Corrosion Products in ITER First Wall and Shielding Blanket Heat Transfer System.....</b>	333
L. Di Pace (ENEA-Frascati), G. Cambi (BU), D. G. Cepraga (ENEA-Bologna), E. Sobrero (BU), M. Costa (BU)	
<b>On the Risk Based Limits for the International Thermonuclear Experimental Reactor .....</b>	337
R. Golinescu (MIT), M. S. Kazimi (MIT)	
<b>Welding and Cutting Characteristics of Blanket/First Wall Module to Back Plate for Fusion Experimental Reactor.....</b>	341
T. Kuroda (JAERI), K. Furuya (JAERI), S. Sato (JAERI), T. Kurasawa (JAERI), T. Hatano (JAERI), I. Togami (JAERI), H. Takatsu (JAERI), T. Osaki (Kawasaki), S. Koga (Kawasaki), S. Sato (Kawasaki)	
<b>Plasma Position and Shape Control for ITER.....</b>	345
A. Portone (ITER JCT), Y. Gribov (ITER JCT), M. Huguet (ITER JCT), P.L.. Mondino (ITER JCT), R. Albanese (DIEMA), D. Ciscato (DEI), D. A. Humphreys (GA), C. E. Kessel (PPPL), L. D. Pearlstein (LLNL), D. J. Ward (CRPP-EPFL)	

<b>Construction Feasibility Study of the ITER EDA Cryostat</b>	349
Y. Cordier (BELGATOM), J. P. Lafaille (BELGATOM), W. D'haeseleer (BELGATOM)	
<b>The ITER Cryostat</b>	353
R. F. Bourque (ITER JCT), M. E. P. Wykes (ITER JCT)	
<b>Ozone Hazard in the ITER Cryostat</b>	357
C. Rizzello (TESI), T. Pinna (ENEA-Frascati), M. T. Porfiri (ENEA-Frascati)	
<b>Nuclear-Thermal Coupled Calculation of a Shielding Blanket for an Experimental Fusion Reactor</b>	361
Y. Seki (JAERI), R. Kurihara (JAERI), S. Ueda (JAERI), S. Sugaya (CRCRII), H. Kawasaki (CRCRII)	
<b>A Digital Long Pulse Integrator</b>	365
J. D. Broesch (GA), E.J. Strait (GA), R.T. Snider (GA), M.L. Walker (GA)	
<b>Activation Analysis for ITER Design Options</b>	369
H. Attaya (ANL)	
<b>ITER Vacuum Vessel Structural Analysis</b>	373
B. W. Riemer (ORNL), D. L. Conner (ORNL), B. E. Nelson (ORNL), R. O. Sayer (ORNL), D. S. Strickler (ORNL), K. Shimizu (ITER JCT), D. E. Williamson (ITER JCT)	
<b>Beryllium-Copper Joining Techniques for Use on Plasma-Facing Components</b>	377
C. H. Cadden (SNL-CA), W. D. Bonivert (SNL-CA), B. C. Odegard, Jr. (SNL-CA), R. D. Watson (SNL-NM)	
<b>Plasma-Sprayed Beryllium for ITER</b>	381
R. G. Castro (LANL), P. W. Stanek (LANL), K. E. Elliott (LANL), D. L. Youghison (SNL), R. D. Watson (SNL), D. S. Walsh, (SNL)	
<b>Converter Control Strategies for Reactive Power Reduction and Compensation in ITER</b>	385
E. Gaio (ITER/EU), R. Piovan (ITER/EU), V. Toigo (ITER/EU), I. Benfatto (ITER JCT)	
<b>Radwaste Considerations for Economics and Siting of ITER and Fusion Power Reactors in Illinois and Elsewhere in the U.S.</b>	390
C. Singer (UI), B. Youman (UI)	
<b>ITER First Wall/Blanket</b>	
<b>Selection of Plasma Facing Materials for ITER</b>	394
M. Ulrickson (SNL), V. Barabash (ITER JCT), S. Chiocchio (ITER JCT), G. Federici (ITER JCT), G. Janeschitz (ITER JCT), R. Matera (ITER JCT), M. Akiba (JAERI), G. Vieider (MPI), C. Wu (EI), I. Mazul (EI)	
<b>The Blanket and Divertor Maintenance Concept for ITER</b>	399
E. Tada (ITER JCT), K. Ioki (ITER JCT), G. Janeschitz (ITER JCT), D. Maisonnier (MPI), E. Martin (ITER JCT), K. Shibanuma (ITER JCT), M. Kondoh (ITER JCT), T. Burgess (ITER JCT), R. Haange (ITER JCT)	

<b>Thermal and Mechanical Behavior of the First Wall in Fusion Reactor .....</b>	<b>406</b>
G. Li (UI), B. G. Thomas (UI)	
<b>ITER Breeding Blanket Design .....</b>	<b>410</b>
Y. Gohar (ITER JCT), M. Billone (ANL), A. Cardella (ITER JCT), W. Dänner (MPI), K. Ioki (ITER JCT), T. Kuroda (JAERI), D. Lousteau (ITER JCT), P. Lorenzetto (MPI), S. Majumdar (ANL), R. Mattas (ANL), K. Mohri (ITER JCT), R. Raffray (ITER JCT), Y. Strebkov (RDIPE), H. Takatsu (JAERI), E. Zolti (ITER JCT)	
<b>Preliminary Assessment of the Tritium Inventory and Permeation in the Plasma Facing Components of ITER .....</b>	<b>418</b>
G. Federici (ITER/EU), D. Holland (ITER/JA), J. Brooks (ANL), R. Causey (SNL), T. J. Dolan (IAEA), G. Longhurst (INEL)	
<b>Effect of Disruptions on Plasma-Facing Components.....</b>	<b>424</b>
J. G. Gilligan (NCSU), M. A. Bourham (NCSU), E. C. Tucker, (NCSU)	
<b>Analysis of Heat Transfer and Erosion Effects on ITER Divertor Plasma Facing Components Induced by Slow High-Power Transients .....</b>	<b>430</b>
G. Federici (ITER JCT), A. R. Raffray, (ITER JCT), H. D. Pacher (MPI), I. Smid (MPI), S. Chiocchio (ITER JCT), B. Esser (ITER JCT), J. Dietz (ITER JCT), Y. Igitkhanov (ITER JCT) G. Janeschitz (ITER JCT)	
<b>Study of Material Response on Simulated ITER Disruptive Plasma Heat Load with Variable Duration .....</b>	<b>435</b>
V. N. Litunovsky (EI), I. B. Ovchinnikov (EI), A. A. Drozdov (EI), V. E. Kuznetsov (EI), B. V. Ljublin (EI), V. A. Titov (EI)	
 <b>Tokamak Experiments</b>	
<b>The Frascati Tokamak Upgrade (FTU) After Four Years of Operation.....</b>	<b>439</b>
M. Gasparotto (ENEA- Frascati), M. L. Apicella (ENEA- Frascati), R. Bartiromo (ENEA- Frascati), A. Cecchini (ENEA- Frascati), S. Ciattaglia (ENEA- Frascati), V. Cocilovo (ENEA- Frascati), C. Crescenzi (ENEA- Frascati), F. Crisanti (ENEA- Frascati), A. Cucchiaro (ENEA- Frascati), L. Lovisetto (ENEA- Frascati), F. Lucca (ENEA-Guest), G. Maddaluno (ENEA- Frascati), G. Mazzitelli (ENEA- Frascati), S. Migliori (ENEA- Frascati), A. Moriani (ENEA- Frascati), A. Pizzuto (ENEA- Frascati), B. Riccardi (ENEA- Frascati), M. Roccella (ENEA- Frascati), L. Semeraro (ENEA- Frascati), E. Sternini, (ENEA- Frascati)	
<b>The TFTR D-T Experience .....</b>	<b>443</b>
M. D. Williams (PPPL) and the TFTR Group	
<b>Extension of TFTR Operations to Higher Toroidal Field Levels.....</b>	<b>449</b>
R. D. Woolley (PPPL) and the TFTR Group	
<b>JET with a Pumped Divertor—Technical Issues and Main Results.....</b>	<b>455</b>
The JET Team, presented by E. Bertolini (JET)	
<b>Engineering Analysis of JET Operation.....</b>	<b>464</b>
E. Bertolini (JET), M. Buzio (JET), P. Noll (JET), T. Raimondi (JET), G. Sannazzaro (JET), M. Verrecchia, (JET)	

<b>Plasma Physics Programme at TEXTOR-94.....</b>	<b>470</b>
U. Samm (KFA)	
<b>The Cadarache Negative Ion Experiments .....</b>	<b>475</b>
P. Massmann (AE-CEA), Y. Belchenko (BINP), J.-M. Bottereau (AE-CEA), R. Brugnetti (AE-CEA), J. Bucalossi (AE-CEA), C. Desgranges (AE-CEA), M. Fumelli (AE-CEA), C. Jacquot (AE-CEA), J. Paméla (AE-CEA), D. Riz (AE-CEA), A. Simonin (AE-CEA), R. Trainham (AE-CEA)	
<b>Conceptual Design of SST-1 Tokamak .....</b>	<b>481</b>
SST Team	
<b>Recent Progress of JT-60U Experiments.....</b>	<b>485</b>
M. Kikuchi (JAERI) and JT-60 Team	
<b>Negative-ion Based NBI System for JT-60U .....</b>	<b>491</b>
M. Kuriyama (JAERI), N. Akino (JAERI), T. Aoyagi (JAERI), M. Araki (JAERI), N. Ebisawa (JAERI), Y. Fujiwara (JAERI), A. Honda (JAERI), T. Inoue (JAERI), M. Kawai (JAERI), M. Kazawa (JAERI), J. Koizumi (JAERI), K. Miyamoto (JAERI), N. Miyamoto (JAERI), K. Mogaki (JAERI), Y. Ohara (JAERI), T. Ohga (JAERI), Y. Okumura (JAERI), H. Oohara (JAERI), K. Ohshima (JAERI), F. Satoh (JAERI), K. Shimizu (JAERI), S. Takahashi (JAERI), H. Usami (JAERI), K. Usui (JAERI), K. Watanabe (JAERI), M. Yamamoto (JAERI), T. Yamazaki (JAERI), Y. Ono (Hitachi), S. Kawashima (Toshiba)	
<b>Operations of LHD .....</b>	<b>497</b>
O. Motojima (NIFS)	
<b>TFTR-MG Uprate, Analysis and Performance .....</b>	<b>505</b>
M. Awad (PPPL), E. Baker (PPPL), P. Bonanos (PPPL), G. Bronner (PPPL), A. Ilic (PPPL), D. O'Neill (PPPL), S. Ramakrishnan, (PPPL)	
<b>Model for TFTR Motor-Generator (MG) .....</b>	<b>509</b>
E. Lu (PPPL), G. Bronner (PPPL), A. Ilic (PPPL), C. Neumeyer (PPPL), S. Ramakrishnan (PPPL)	
<b>TFTR Vacuum System Exhaust Pressure Control for D-T Operation .....</b>	<b>513</b>
J. G. Gioia (PPPL), S. Raftopoulos (PPPL), P. H. La Marche (PPPL), R. Mika (PPPL), J. Montague (PPPL), J. Collins (PPPL), G. Cutsogeorge (PPPL), J. Hosea, (PPPL), P. Ladd (CFTP)	
<b>Operation of the Lithium Pellet Injector During D-T Operations on TFTR .....</b>	<b>517</b>
G. W. Barnes (PPPL), R. C. Gernhardt (PPPL), D. Mansfield (PPPL)	
<b>Operation of a Fluorinert Cooling System for the Toroidal Field Coils on TFTR.....</b>	<b>520</b>
G. W. Barnes (PPPL), R. Pysher (PPPL), J. Chrzanowski (PPPL), R. Woolley (PPPL)	
<b>RF Arc Detection Using Harmonic Signals .....</b>	<b>522</b>
J. H. Rogers (PPPL), P. LaRue (PPPL), D. A. Phelps (GA), R. I. Pinsker (GA)	
<b>Beta Normal Limiting of TFTR Neutral Beams .....</b>	<b>526</b>
J. E. Lawson (PPPL), M. G. Bell (PPPL), R. J. Marsala (PPPL), D. Mueller (PPPL)	

<b>TFTR Neutral Beam Control and Monitoring for DT Operations .....</b>	530
T. O'Connor (PPPL), J. Kamperschroer (PPPL), J. Chu (PPPL), M. Cropper (PPPL), G. Fleming (PPPL), L. Grisham (PPPL), J. Hirsch (PPPL), L. Lagin (PPPL), J. Lawson (PPPL), G. Kolinchak (PPPL), R. Marsala (PPPL), B. McCormack (PPPL), R. Newman (PPPL), M. Oldaker (PPPL), S. Ramakrishnan (PPPL), G. Rossi (PPPL), K. Silber (PPPL), T. Stevenson (PPPL), A. von Halle (PPPL)	
<b>TFTR Neutral Beam D-T Gas Injection System Operational Experiences of the First Two Years .....</b>	534
M. E. Oldaker (PPPL), J. E. Lawson (PPPL), T. N. Stevenson (PPPL), J. H. Kamperschroer (PPPL)	
<b>The TFTR 40 MW Neutral Beam Injection System and DT Operations .....</b>	537
T. Stevenson (PPPL), T. O'Connor (PPPL), V. Garzotto (PPPL), L. Grisham (PPPL), J. Kamperschroer (PPPL), B. McCormack (PPPL), R. Newman (PPPL), M. Oldaker (PPPL), S. Ramakrishnan (PPPL), A. von Halle (PPPL), K. Wright (PPPL)	
<b>Refurbishing Tritium Contaminated Ion Sources .....</b>	541
K. E. Wright (PPPL), R. H. Carnevale (PPPL), B. E. McCormack (PPPL), T. Stevenson (PPPL), A. von Halle (PPPL)	
<b>Structural Analysis of TFTR TF Coils and Support Structure for 6 Tesla Operation .....</b>	545
I. J. Zatz (PPPL), G. Cargulia, (PPPL) L. Lontai (PPPL)	
<b>Closed Circuit Color Video System on the TFTR Machine .....</b>	548
G. Kolinchak (PPPL), J. Wertenbaker (PPPL)	
<b>Upgrade to the Multichannel Neutron Collimator.....</b>	552
A. L. Roquemore (PPPL), S. von Goeler (PPPL), L. C. Johnson (PPPL), M. Bitter (PPPL), M. Diesso (PPPL), J. Montague (PPPL)	
<b>Design Improvements and Lessons Learned for the TFTR Tritium Cleanup and Gas Holding Tank Sampling Systems.....</b>	556
M. Kalish (PPPL), P. LaMarche (PPPL), M. Viola (PPPL), J. L. Anderson (LANL), L. Ciebiera (PPPL), R. Rossmassler (PPPL), R. T. Walters (PPPL), S. Langish (PPPL), M. Casey (PPPL)	
<b>Tritiated Pump Oil Change Cart.....</b>	560
T. Kozub (PPPL), L. Ciebiera (PPPL)	
<b>Installation of the Tritium Purification System .....</b>	562
G. Labik, T. Golian (PPPL), J. Satkofsky (PPPL), P. Sichta (PPPL), D. Crook (PPPL), L. Dudek (PPPL), G. Coward (PPPL), R. Parsells (PPPL)	
<b>Control of Tritium Transfer at TFTR.....</b>	565
R. Mika (PPPL), W. Blanchard (PPPL), R. Camp (PPPL), J. Collins (PPPL), J. Hosea (PPPL), P. LaMarche (PPPL), A. Nagy (PPPL), J. Schobert (PPPL), J. Walsh (PPPL)	
<b>Control Systems of the TFTR Tritium Purification System .....</b>	569
J. Montague (PPPL), J. Schobert (PPPL), P. Sichta (PPPL), D. Voorhees (PPPL)	

<b>TFTR Tritium Accounting System for DT-Operation .....</b>	<b>573</b>
A. Nagy (PPPL), P. Alling (PPPL), E. Amerescu (PPPL), D. Bashore (PPPL), W. Blanchard (PPPL), R. Camp (PPPL), M. Corneliusen (PPPL), M. Diesso (PPPL), J. Dong (PPPL), J. Hosea (PPPL), P. LaMarche (PPPL), R. Mika (PPPL), G. Pearson (PPPL), S. Raftopolous (PPPL), R. Rossmassler (PPPL), C. Saville (PPPL), J. Schobert (PPPL), D. Voorhees (PPPL)	
<b>Control of TFTR During DT Operations .....</b>	<b>577</b>
G. G. Pearson (PPPL), P. D. Alling (PPPL), W. Blanchard (PPPL), R. A. Camp (PPPL), R. J. Hawryluk (PPPL), J. C. Hosea (PPPL), A. Nagy (PPPL)	
<b>Integration of the Tritium Purification System (TPS) into TFTR Operations.....</b>	<b>581</b>
S. Raftopolous (PPPL), R. Scillia (PPPL), P. Schicta (PPPL), L. Dudek (PPPL), G. Labik (PPPL), J. Satkofsky (PPPL), J. Langford (PPPL), D. Voorhees (PPPL)	
<b>TFTR Tritium Gas Chromatography System.....</b>	<b>585</b>
R. Rossmassler (PPPL)	
<b>Application of the Tritium Remote Control and Monitoring System (TRECAMS) to TFTR's Tritium Inventory Management Program .....</b>	<b>589</b>
G. Schobert (PPPL), D. Bashore (PPPL), J. Dong (PPPL), M. Diesso (PPPL), R. Mika (PPPL)	
<b>Operational Experience in the Recovery of Tritium from TFTR Plasma Exhaust Gases by Cryogenic Distillation.....</b>	<b>592</b>
R. J. Scillia (PPPL)	
<b>The TFTR Plasma Exhaust Tank System.....</b>	<b>596</b>
M. E. Viola (PPPL), M. Kalish (PPPL), P. LaMarche (PPPL), R. Daugert (PPPL), C. A. Gentile (PPPL), R. T. Walters (PPPL)	
<b>Operating Experience with TFTR's Tritium Storage and Delivery System .....</b>	<b>600</b>
D. R. Voorhees (PPPL)	
<b>A Heated Process Ion Chamber for DTO in Nitrogen .....</b>	<b>604</b>
R. T. Walters (PPPL)	
<b>A Tritium Detector for the Tokamak Fusion Test Reactor .....</b>	<b>608</b>
R. E. Ellefson (EAS), M. Caorlin (PPPL), D. Mueller (PPPL), J.T. Gill (EG&G)	
<b>Simplified Fuel Cycle Tritium Inventory Model For Systems Studies - An Illustrative Example With An Optimized Cryopump Exhaust System .....</b>	<b>612</b>
W. Kuan (UCLA), S. K. Ho (UCLA)	
<b>The Certification Process for Tritium Operators at TFTR.....</b>	<b>616</b>
C. A. Gentile (PPPL), S. E. Murphy (PPPL), P. H. LaMarche (PPPL), A. M. Contino (PPPL), S. Gordon (PPPL)	
<b>DTO Waste Compliance Monitoring System at TFTR .....</b>	<b>618</b>
W. T. Shmayda (OHT), N. P. Kherani (OHT), T. Walters (PPPL), R. Matsugu (CFFTP)	

<b>The Design and Employment of a System to Vent and/or Pump Vacuum Spaces with Possible Tritium Contamination .....</b>	<b>622</b>
J. W. Collins (PPPL), J. Hosea (PPPL), J. Winston (PPPL), T. Provost (PPPL), R. Kokal (PPPL), F. Simmonds Jr. (PPPL), J. DeSandro (PPPL), V. Garzotta (PPPL), M. Cropper (PPPL), S. Raftopoulos (PPPL), S. Vinson Jr. (PPPL), P. LaMarche (PPPL)	
<b>Health Physics and Radioactive Waste Considerations for the TFTR.....</b>	<b>626</b>
K. Rule (PPPL), J. Gilbert (PPPL), J. Scott (PPPL), G. Ascione (PPPL), R. Cislo (PPPL), S. Elwood (PPPL), R. Flournoy (PPPL), S. Larson (PPPL), R. Parsells (PPPL), J. Stencel (PPPL), C. Tilson (PPPL)	
<b>Measurement and Calculation of Doses in and around North-West Labyrinth In TFTR Test Cell Shielding for D-T Operation .....</b>	<b>630</b>
A. Kumar (UCLA), M. A. Abdou (UCLA), J. Eggleston (UCLA), H. W. Kugel (PPPL), G. Ascione (PPPL), S. Elwood (PPPL)	
<b>What You Don't Know Can Hurt! Reducing Hazardous Waste Liability Through the Prudent Use of Audits.....</b>	<b>634</b>
J. A. Malsbury (PPPL), J. Scott (PPPL), S. Missailidis (Raytheon)	
<b>Development and Operation of First Wall in JT-60U High-power Heated Discharges .....</b>	<b>638</b>
K. Masaki (JAERI), K. Kodama (JAERI), T. Arai (JAERI), H. Hiratsuka (JAERI), J. Yagyu (JAERI), M. Saidoh (JAERI), N. Ogiwara (JAERI), S. Higashijima (JAERI)	
<b>Development of Negative Ion Beam Accelerators for High Power Neutral Beam Systems .....</b>	<b>642</b>
K. Watanabe (JAERI), N. Ebisawa (JAERI), Y. Fujiwara (JAERI), A. Honda (JAERI), T. Inoue (JAERI), M. Kazawa (JAERI), M. Kuriyama (JAERI), K. Miyamoto (JAERI), N. Miyamoto (JAERI), K. Mogaki (JAERI), A. Nagase (JAERI), Y. Ohara (JAERI), Y. Okumura (JAERI), T. Takayasu (JAERI), H. Usami (JAERI), K. Usui (JAERI)	
<b>Development of Computer-Aided Software Engineering Tool for Sequential Control of JT-60U .....</b>	<b>646</b>
M. Shimono (JAERI), H. Akasaka (JAERI), K. Kurihara (JAERI), T. Kimura (JAERI)	
<b>Conceptual Design of JT-60SU.....</b>	<b>650</b>
M. Kikuchi (JAERI), K. Nagashima (JAERI), T. Aoyagi (JAERI), G. Kurita (JAERI), K. Ushigusa (JAERI), Y. Neyatani (JAERI), T. Kubo (JAERI), K. Tobita (JAERI), K. Masaki (JAERI), A. Kaminaga (JAERI), N. Hosogane (JAERI), A. Nagashima (JAERI), N. Miya (JAERI), N. Toyoshima (JAERI), S. Oguri (JAERI), T. Kitai (JAERI), K. Mori (JAERI), S. Nakagawa (JAERI), M. Kuriyama (JAERI), T. Yamamoto (JAERI), Y. Takahashi (JAERI), T. Hayashi (JAERI), M. Nagami (JAERI), T. Yoshida (CRIEPI), M. Otsuka (Hitachi), K. Nakashima (Mitsubishi), S. Nakagawa (Toshiba), T. Suzuki (Kawasaki)	
<b>PBX-M Vacuum Vessel Seal Upgrade.....</b>	<b>654</b>
T. Kozub (PPPL), G. Barnes (PPPL), J. Chrzanowski (PPPL), J. Carson (PPPL), L. Gereg (PPPL), P. Heitzenroeder (PPPL), H. Kugel (PPPL), T. Meighan (PPPL), T. Provost (PPPL), J. Semler (PPPL)	
<b>AC/DC Converters for the ITER Poloidal Field System.....</b>	<b>658</b>
I. Benfatto (ITER JCT), P. L. Mondino (ITER JCT), A. Roshal, (ITER JCT), A. Coletti (ITER/EU), D. Hrabal (ITER/EU), A. Maschio (ITER/EU), R. Piovan (ITER/EU), S. Tenconi (ITER/EU), S. Bulgakov (ITER/RF), V. Kuchinski (ITER/RF)	

<b>Overview of the PBX-M Plasma Control System Upgrade .....</b>	662
R. E. Hatcher (PPPL), R. E. Bell (PPPL), J. Chu (PPPL), J. Hirsch (PPPL), T. Kozub (PPPL), L. Lagin (PPPL), M. Okabayashi (PPPL), P. Sichta (PPPL)	
<b>PBX-M Upgrade for Advanced Stabilization and Profile Control Studies .....</b>	666
H. W. Kugel (PPPL), T. Kozub (PPPL), G. Barnes (PPPL), R. Bell (PPPL), S. Bernabei (PPPL), J. Carson (PPPL), J. Chrzanowski (PPPL), L. Gereg (PPPL), G. Gettelfinger (PPPL), N. Greenough (PPPL), R. Hatcher (PPPL), R. Hawryluk (PPPL), P. Heitzenroeder (PPPL), R. Kaita (PPPL), L. Lagin (PPPL), T. Meighan (PPPL), M. Okabayashi (PPPL), M. Ono (PPPL), T. Provost (PPPL), J. Semler (PPPL), P. Sichta (PPPL), W. Tighe (PPPL), J. R. Wilson (PPPL)	
<b>Software Development for the PBX-M Plasma Control System .....</b>	670
L. Lagin (PPPL), R. Bell (PPPL), J. Chu (PPPL), R. Hatcher (PPPL), J. Hirsch (PPPL), M. Okabayashi (PPPL), P. Sichta (PPPL)	
<b>Computing Hardware for the PBX-M Plasma Control System .....</b>	674
P. Sichta (PPPL), R. Bell (PPPL), R. Hatcher (PPPL), L. Lagin (PPPL), M. Okabayashi (PPPL)	
<b>Design and Analysis of the Magnet System for the KT-2 Tokamak with Long-Pulse Operation Capabilities .....</b>	678
K. W. Lee (KAERI), B. G. Hong (KAERI), J. M. Han (KAERI), B. J. Yoon (KAERI), Y. D. Bae (KAERI), W. S. Song (KAERI), D. E. Kim (Pohang Inst.), N. S. Shin (Pohang Inst.), J. E. Milburn (Pohang Inst.)	
<b>Development of Operation Scenarios with High-Bootstrap, Negative Shear Configuration for Large-Aspect-Ratio (LAR) Bootstrap Tokamak “KT-2” at KAERI.....</b>	682
B. G. Hong (KAERI), J. M. Han (KAERI), S. K. Kim (KAERI), S. Poedts (FOM), A. De Ploey (FOM)	
<b>Edge Plasma Transport Modeling for the Design of KT-2 Tokamak Poloidal Divertor.....</b>	686
K. Im (SNU), D. K. Kim (SNU), S. H. Hong (SNU)	
<b>Halo Current Measurements on Alcator C-Mod.....</b>	690
J. Sorci (MIT), R. Granetz (MIT), I. Hutchinson (MIT), J. Irby (MIT), L. Myatt (MIT), B. Labombard (MIT), H. Becker (MIT), D. Gwinn (MIT)	
<b>Broadening of the Scrape-off-Layer by a Plasma Convection Induced by Toroidal Asymmetries of the Divertor Plates and the Gas-Puff .....</b>	696
R. H. Cohen (LLNL), D. D. Ryutov (LLNL)	
<b>Thermal/Mechanical Analysis of the ITER Divertor Vane .....</b>	700
B. W. Riemer (ORNL), J. R. Haines (ORNL)	
<b>Multilayer Mirror Based Monitors for Impurity Controls in Large Fusion Reactor Type Devices .....</b>	704
S. P. Regan (JHU), M. J. May (JHU), V. Soukhanovskii (JHU), M. Finkenthal (JHU), H. W. Moos (JHU)	
<b>Divertor II for ASDEX Upgrade.....</b>	708
B. Streibl (MPI), S. Deschka (MPI), G. Hoffmann (FZK), K. Mattes (MPI), J. Perchermeier (MPI), H. Schneider (MPI), S. Schweizer (MPI), M. Weissgerber (MPI), ASDEX Upgrade Team (MPI)	

<b>Technical Concept of the Dynamic Ergodic Divertor for TEXTOR 94 .....</b>	<b>712</b>
B. Giesen (KFA)	
<b>The Manufacturing and Testing of the Toroidal Pumped Limiter Prototype Elements for Tore Supra .....</b>	<b>716</b>
T. Huber (PAG), L. Plöchl (PAG), N. Reheis (PAG), J. P. Cocat (AE-CEA), J. Schlosser (AE-CEA)	
<b>Design, Construction, and First Operational Results of a 5 Megawatt Feedback Controlled Amplifier System for Disruption Control on the Columbia University HBT-EP Tokamak .....</b>	<b>720</b>
W. A. Reass (LANL), H. A. Alvestad (LANL), R. R. Bartsch (LANL), G. A. Wurden (LANL), T. H. Ivers (CU), D. L. Nadle (CU)	
<b>Advances in JT-60U Facilities and its Operation .....</b>	<b>724</b>
T. Kimura (JAERI) and the JT-60 Team	
<b>Tore Supra: Advances Towards Long Pulse Steady State Operation .....</b>	<b>730</b>
EQUIPE TORE SUPRA presented by D. van Houtte (AE-CEA)	
 <b>JET</b>	
<b>ICRF System in the JET Pumped Divertor Configuration .....</b>	<b>736</b>
A. S. Kaye (JET), V. Bhatnagar (JET), M. Bures (JET), P. Crawley (JET), B. Fechner (JET), C. Gormezano (JET), J. Jacquinot (JET), P. Lamalle (JET), R. Lobel (JET), J. Plancoulaine (JET), E. Righi (JET), F. Rimini (JET), M. Schmid (JET), A. Sibley (JET), A.C.C. Sips (JET), D. Start (JET), M. Timms (JET), B. Tubbing (JET), T. Wade (JET), R. Walton (JET)	
<b>Performance of the JET Pumped Divertor Cryopump System .....</b>	<b>742</b>
W. Obert (JET), K. Barth (JET), L. Herblin (CERN), C. Mayaux (JET), G. Saibene (JET), E. Thompson (JET)	
<b>Manufacture and Installation of JET MKII Divertor Support Structure .....</b>	<b>746</b>
G. Celentano (JET), H. Altmann (JET), B. Macklin (JET), P. Miele (JET), L. Moletta (S-DP), M. A. Pick (JET), A. Romagnolo (S-DP), R. Shaw (ITER JCT, J. Tait (JET)	
<b>The Use of Carbon Fibre Composites in Divertor Target Plate Tiles and Structures .....</b>	<b>750</b>
H. Altmann (JET), E. Deksnis (JET), J. Fanthome (JET), C. Froger (JET), C. Lowry (JET), A. Peacock (JET), M. A. Pick (JET)	
<b>Operation of the 3.7 GHz LHCD System in JET .....</b>	<b>754</b>
M. Lennholm (JET), Y. Baranov (JET), J.A. Dobbing (JET), A. Ekedahl (JET), P. Finburg (JET), B. Fischer (JET), C. Gormezano (JET), C. Gowers (JET), A. Kaye (JET), J. Plancoulaine (JET), F. G. Rimini (JET), J. Romero (JET), P. Schild (JET), A. Sips (JET), F. Smits (JET), F.X. Söldner (JET)	
<b>Load Sensing and Related Control System for the Articulated Transporter of JET .....</b>	<b>758</b>
S. Colombi (SFIT), T. Raimondi (JET)	
<b>Diagnostics for the JET MKII Divertor .....</b>	<b>762</b>
P. C. S. Prior (JET) and the JET Diagnostic Engineering Group	

<b>Application of 'Best-Fit' Survey Techniques Throughout Design, Manufacturing and Installation of the MKII Divertor at JET.....</b>	<b>766</b>
B. Macklin (JET), R. Brade (GEC), G. Celentano (JET), R. Shaw (ITER JCT), J. Tait (JET), E. van Lente (JET)	
<b>Measured Currents in JET Limiters During Disruptions .....</b>	<b>770</b>
P. Andrew (JET), P. Miele (JET), P. Noll (JET), R. Pearce (JET), M. Pick (JET), L. Rossi (JET)	
<b>The Poloidal Divertor Field Amplifiers for the JET Pump Divertor .....</b>	<b>774</b>
D. Chiron (JET), N. Dolgetta (JET), M. Garribba (JET), M. Huart, (JET), L. v. Lieshout (HP), P. Noll (JET), B. Sjouw (HP), F. Zanelli (JET)	
<b>The JET Hydrogen-Oxygen Recombination Sensor - A Safety Device for Hydrogen Isotope Processing Systems .....</b>	<b>778</b>
J. L. Hemmerich (JET), P. Milverton (JET)	
<b>Tritium and Uranium Inventory Measurements with the JET AGHS Precision Calorimeter.....</b>	<b>781</b>
J. L. Hemmerich (JET), P. Milverton (JET), G. Newbert (JET), N. Green (JET), A. Miller, JET	
<b>The TF Ripple Experiment Modification of the JET Toroidal Field System.....</b>	<b>784</b>
M. Huart (JET), D. Chiron (JET), P. Doyle (JET), V. Marchese (JET), G. Sannazzaro (JET), P. G. Smith (JET), B. Tubbing (JET), G. Zullo (JET)	
<b>The JET Programme on the Development of Beryllium Clad Components for ITER .....</b>	<b>788</b>
C. Ibbott (JET), D. Cricic (JET), E. Deksnis (JET), H. Falter (JET), A. Peacock (JET), M. Watson (JET)	
<b>DIII-D</b>	
<b>Recent Results From the DIII-D Tokamak .....</b>	<b>792</b>
A. G. Kellman (GA) for the DIII-D Team	
<b>Engineering Design of a Radiative Divertor for DIII-D .....</b>	<b>801</b>
J. P. Smith (GA), C. B. Baxi (GA), A. S. Bozek (GA), E. Chin (GA), M. A. Hollerbach (GA), W. R. Johnson (GA), G. L. Laughon (GA), R. D. Phelps (GA), K. M. Redler (GA), E. E. Reis (GA), D. L. Sevier (GA)	
<b>Diagnostics for the DIII-D Radiative Divertor .....</b>	<b>806</b>
D. G. Nilson (LLNL), N. H. Brooks (GA), J. P. Smith (GA), R. T. Snider (GA)	
<b>Upgrade of the DIII-D RF Systems .....</b>	<b>812</b>
R. W. Callis (GA), W. P. Cary (GA), R.C. O'Neill (GA), J. C. Allen (GA), T. E. Harris (GA), J. S. deGrassie (GA), S. W. Ferguson (LLNL), F. W. Baity (ORNL), G. C. Barber (ORNL), J.F. Tooker (GA), D. A. Phelps (GA)	
<b>Design and Analysis of the DIII-D Radiative Divertor Water-Cooled Structures .....</b>	<b>817</b>
M. A. Hollerbach (GA), J. P. Smith (GA), C. B. Baxi (GA), A. S. Bozek (GA), E. Chin (GA), R. D. Phelps (GA), K. M. Redler (GA), E. E. Reis (GA)	

<b>First Measurements of the Ion Energy Distribution at the Divertor Strike Point During DIII-D Disruptions .....</b>	<b>821</b>
P. B. Parks (GA), R. Bastasz (SNL), D. Whyte (INRS), N. H. Brooks (GA), W. R. Wampler (SNL), W. P. West (GA), C. P. C. Wong (GA)	
<b>Cooling Water Conditioning and Quality Control for Tokamaks.....</b>	<b>825</b>
A. M. Gootgeld (GA)	
<b>Development of a New Error Field Correction Coil (C-coil) for DIII-D.....</b>	<b>829</b>
J. I. Robinson (GA), J. T. Scoville (GA)	
<b>4 MW Upgrade to DIII-D FWCD System: System Commissioning and Initial Operation .....</b>	<b>834</b>
W. P. Cary (GA), F. W. Baity (ORNL), G. Barber (ORNL), R. W. Callis (GA), J. S. deGrassie (GA), S. W. Ferguson, (LLNL), T. E. Harris (GA), R. C. O'Neill (GA), R. I. Pinsker (GA)	
<b>RF High Voltage Performance of RF Transmission Line Components on the DIII-D Fast Wave Current Drive (FWCD) System.....</b>	<b>837</b>
S. W. Ferguson (LLNL), R. W. Callis (GA), W. P. Cary (GA), D. A. Phelps (GA), D. Ponce (GA), F. W. Baity (ORNL), G. Barber (ORNL)	
<b>A New Technique to Measure the Neutralizer Cell Gas Line Density Applied to a DIII-D Neutral Beamline .....</b>	<b>840</b>
D. N. Kessler (GA), R. -M. Hong (GA), S. P. Riggs (GA)	
<b>ECH Mirror Interface Tank for 110 GHz, 1 MW Gyrotron .....</b>	<b>844</b>
R. C. O'Neill (GA), R. W. Callis (GA), W. P. Cary (GA), J. L. Doane (GA), R. Gallix (GA), T. R. Hodapp (GA), J. M. Lohr (GA), T. C. Luce (GA), C. P. Moeller (GA)	