Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571

CURRAN ASSOCIATES INC
proceedings
.com

Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2015) by European Physical Society (EPS)
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact European Physical Society (EPS)
at the address below.

European Physical Society (EPS)
6 Rue des Freres Lumiere
68200 Mulhouse
France

Phone: 33 389 32 94 40
Fax: 33 389 32 94 49

www.eps.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

PART 1

CHARACTERIZATION OF POSITIVE ELECTRODE BIASING EXPERIMENTS IN THE TOKAMAK ISTTOK WITH THE HEAVY ION BEAM DIAGNOSTIC 1
Henriques, R.; Malaquias, A.; Silva, C.; Figueiredo, H.; Nedzelskiy, I. S.; Fernandes, H.

INFLUENCE OF MAGNETIC WELL ON ELECTROMAGNETIC TURBULENCE IN THE TJ-II STELLARATOR 5
Castejon, F.; Aguilera, E.; Ascasíbar, E.; Estrada, T.; Hidalgo, C.; López-Fraguas, A.; Ochando, M.; Yamamoto, S.; Melnikov, A.; Eliseev, L.; Perfilov, S.

INFLUENCE OF RESONANT MAGNETIC PERTURBATIONS ON TRANSIENT HEAT LOAD DEPOSITION – A SHORT REVIEW 9
Rack, M.; Sieglin, B.; Eich, T.; Liang, Y.; Balboa, I.; Denner, P.; Pearson, J.; Wingen, A.

MULTI-TOKAMAK SCALING OF MAIN SOL HEAT FLUX WIDTH IN LIMITER PLASMAS 13
Horacek, J.; Pitts, R. A.; Gunn, J.; Silva, C.; Rudakov, D.; Arnoux, G.; Marsen, S.; Vondracek, P.; Maddaluno, G.; Pericoli, V.; Viola, B.; Xu, G. S.; Wang, H.; Nie, L.; Labombard, B.; Brezinsek, S.; Xu, Y.; Shimada, M.; Adamek, J.; Bak, J.; Popov, T.; Dimitrova, M.; Seidl, J.; Janky, F.; Havlicek, J.; Panek, R.; Goldston, R. J.; Stangeby, P. C.

TOWARDS A GENERAL SCALING OF THE SCRAPE-OFF LAYER DENSITY WIDTH 17
Carralero, D.; Sun, H.; Artene, S. A.; Manz, P.; Müller, H.; Groth, M.; Komm, M.; Adamek, J.; Aho-Mantila, L.; Birkenmeier, G.; Brix, M.; Stroth, U.; Vianello, N.; Viezzer, E.; Wischmeier, M.; Wolfrum, E.

ELECTRON KINETICS INFERRED FROM OBSERVATIONS OF MICROWAVE BURSTS DURING EDGE LOCALISED MODES IN THE MEGA AMP SPHERICAL TOKAMAK 21
Freethy, S. J.; McClements, K. G.; Chapman, S. C.; Dendy, R. O.; Lai, W. N.; Pamela, S. J. P. ; Shevchenko, V. F.; Vann, R. G. L.

STOCHASTIZATION AND PUMP-OUT IN EDGE PLASMA CAUSED BY ELMS 25
Rozhansky, V.; Kaveeva, E.; Tendler, M.

IMPACT OF NITROGEN SEEDING ON THE AUG PEDESTAL: EXPERIMENTS AND MODELLING 29
Dunne, M. G.; Frassinetti, L.; Beurskens, M.; Cavedon, M.; Fischer, R.; Huijsmans, G.; Laggner, F.; McDermott, R.; Tardini, G.; Viezzer, E.; Wolfrum, E.

POLOIDAL ASYMMETRIES IN EDGE PEDESTALS ON ALCATOR C-MOD 33
Theiler, C.; Churchill, R.; Hutchinson, I.; Lipschultz, B.; Catto, P.; Chang, C.; Edlund, E.; Ennever, P.; Ernst, D.; Hager, R.; Hubbard, A.; Hughes, J.; Landreman, M.; Marmar, E.; Parra, F.; Reinke, M.; Terry, J.; Walk, J.; Whyte, D.

GENERATION OF HIGH-FLUX NEUTRON BEAM FROM RADIATION PRESSURE DRIVEN DEUTERIUM ION BUNCHES 37
Alejo, A.; Kar, S.; Ahmed, H.; Krygier, A. G.; Clarke, R.; Freeman, R. R.; Fuchs, J.; Green, A.; Green, J. S.; Jung, D.; Kleinschmidt, A.; Morrison, J. T.; Najmudin, Z.; Nakamura, H.; Norreys, P.; Notley, M.; Oliver, M.; Roth, M.; Vassura, L.; Zepf, M.; Borghesi, M.

THREE-DIMENSIONAL MAGNETIZED AND ROTATING HOT PLASMA EQUILIBRIUM AND STABILITY IN A GRAVITATIONAL FIELD 41
Catto, P. J.; Krasheninnikov, S. I.; Pusztai, I.

COSMIC-RAY ACCELERATION AT PERPENDICULAR SHOCKS 45
Kirk, J. G.; Takamoto, M.

COLLISIONLESS MAGNETIC ANNIHILATION IN RELATIVISTIC LASER-PLASMA INTERACTIONS 49
Gu, Y.; Klimo, O.; Kumar, D.; Liu, Y.; Singh, S.; Bulanov, S. V.; Esirkepov, T. Z.; Weber, S.; Korn, G.

MEASUREMENT AND RESONANT CONTROL OF MODULATED DIOCOTRON MODES IN RF-EXCITED TRAPPED PLASMAS 53
Maero, G.; Chen, S.; Paroli, B.; Pozzoli, R.; Romé, M.

THE RELATION BETWEEN DIVERTOR CONDITIONS AND THE L-H THRESHOLD ON JET 57
Delabie, E.; Chankin, A.; Maggi, C.; Meyer, H.; Biewer, T.; Bourdelle, C.; Brix, M.; Carvalho, I.; Drewelow, P.; Guillemaut, C.; Hawkes, N.; Hillesheim, J.; Keeling, D.; Klepper, C.; Meigs, A.; Meneses, L.; Rimini, F.; Sips, G.; Solano, E.; Stamp, M.; Svensson, J.

EXPERIMENTAL INVESTIGATION OF GEODESIC ACOUSTIC MODES ON JET USING DOPPLER REFLECTOMETRY 61
Silva, C.; Hillesheim, J. C.; Hidalgo, C.; Maggi, C.; Meneses, L.; Belonohy, E.; Testa, D.; Tsalas, M.

MODELING FEW-CYCLE SHADOWGRAPHY OF LASER-WAKEFIELD ACCELERATORS 65
Siminos, E.; Skupin, S.; Sävert, A.; Cole, J. M.; Mangles, S. P.; Kaluza, M. C.

STUDY OF PLASMA WAKEFIELD ACCELERATION MECHANISM FOR EMITTANCE DOMINATED REGIMES VIA HYBRID AND PIC SIMULATIONS 69
Marocchino, A.; Massimo, F.; Sinigardi, S.; Mostacci, A.; Chiadroni, E.

NON-MONOTONIC FEATURES IN THE RUNAWAY ELECTRON TAIL 73
Pusztai, I.; Hirvijoki, E.; Decker, J.; Embréus, O.; Stahl, A.; Fülöp, T.

ABSORPTION DYNAMICS OF NITRIC OXIDE IN GAS MIXTURES EXCITED BY PULSED E-BEAM SUSTAINED DISCHARGE 77
Klimachev, Y.; Derevyashkin, S.; Ionin, A.; Kinyaevskiy, I.; Kotkov, A.; Kozlov, A.; Kurnosov, A.

FAST NON-MAXWELLIAN ATOMS IN A LINEAR MAGNETIZED PLASMA 81
Brandt, C.; Marchuk, O.; Pospieszczyk, A.; Brezinsek, S.; Reinhart, M.; Unterberg, B.

MICROWAVE MICRO-PLASMAS IN AIR: SIMULATIONS AND EXPERIMENT 85
Coche, P.; Guerra, V.; Gadonna, K.; Stancu, G.; Leroy, O.; Minea, T.; Alves, L. L.

OPTIMIZATION OF THE SNOWFLAKE DIVERTOR BY MEANS OF EMC3-EIRENE SIMULATIONS AND EXPERIMENTS 89
Lunt, T. A.; Canal, G. P.; Duval, B. P.; Feng, Y.; Labit, B.; McCarthy, P.; Reimerdes, H.; Vijvers, W. A. J.; Wischmeier, M.

TECXY MODELLING STUDIES OF ALTERNATIVE EAST MAGNETIC CONFIGURATIONS 93
Viola, B.; Ridolfini, V. P.; Calabro, G.; Crisanti, F.; Duan, Y.; Guo, Y.; Wang, L.; Luo, Z. P.; Xiao, B. J.; Xu, J. C.; Zargoski, R.; Zhang, B.

TOROIDALLY SYMMETRIC PLASMA VORTEX AT TOKAMAK DIVERTOR NULL POINT 97
Umansky, M.; Ryutov, D.

THE X-POINT RADIATION REGIME IN DETACHED H-MODES IN FULL-TUNGSTEN ASDEX UPGRADE 101
Reimold, F.; Bernert, M.; Kallenbach, A.; Lipschultz, B.; Meisl, G.; Potzel, S.; Reinke, M.; Wischmeier, M.; Wünderlich, D.

PUMPING IN VERTICAL AND HORIZONTAL TARGET CONFIGURATIONS ON JET IN L-MODE; AN INTERPRETIVE STUDY USING EDGE2D-EIRENE 105
Moulton, D.; Groth, M.; Harting, D.; Wiesen, S.; Varoutis, S.; Gleason-Gonzalez, C.

THE PLASMA EXB STAIRCASE: TURBULENCE SELF-ORGANISATION THROUGH SPONTANEOUS FLOW PATTERNING 109
Dif-Pradalier, G.; Hornung, G.; Ghendrih, Ph.; Clairet, F.; Diamond, P. H.; Sarazin, Y.; Vermare, L.; Abiteboul, J.; Cartier-Michaud, T.; Ehrlacher, C.; Esteve, D.; Garbet, X.; Grandgirard, V.; Gurean, O. D.; Hennequin, P.; Kosuga, Y.; Latu, G.; Morel, P.; Norscini, C.; Sabot, R.

TWO - PLASMON DECAY AS A REASON FOR ANOMALOUS ABSORPTION AND BACKSCATTERING IN SECOND HARMONIC ECRH EXPERIMENTS 113
Popov, A.; Gusakov, E. Z.

ELECTRON CYCLOTRON CURRENT DRIVE STUDIES ON KSTAR USING IMAGING MSE 117
Michael, C.; Thorman, A.; Chung, J.; Bae, Y.; Jeong, J.; Decker, J.; Howard, J.

REAL-TIME PLASMA PROFILE STATE RECONSTRUCTION ON ASDEX-UPGRADE 121
Felici, F.; Rapson, C.; Treutterer, W.; Giannone, L.; Maljaars, B.; Van Den Brand, H.; Reich, M.; Sauter, O.; Teplukhina, A.; Kim, D.; Piovesan, P.; Piron, C.; Barrera, L.; Willensdorfer, M.; Bock, A.; Fable, E.; Geiger, B.; Tardini, G.

HELIUM TRANSPORT INVESTIGATIONS AT ASDEX UPGRADE 125
Kappatou, A.; McDermott, R. M.; Angioni, C.; Pütterich, T.; Dux, R.; Jaspers, R. J.; Viezzer, E.; Cavedon, M.; Fischer, R.; Willensdorfer, M.; Tardini, G.

INTERPLAY BETWEEN CENTRAL ECRH AND MHD IN MITIGATING TUNGSTEN ACCUMULATION IN ASDEX UPGRADE 129
Sertoli, M.; Garcia-Regaña, J.; Odstrcil, T.; Angioni, C.; Smith, H.; Turkin, Y.; Cooper, W. A.; De Bustos, A.; Vezinet, D.

MODELLING OF CORE TUNGSTEN TRANSPORT AND ITS CONTROL IN ITER H-MODE SCENARIOS 133
Loarte, A.; Hosokawa, M.; Polevoi, A.; Koechl, F.; Parail, V.; Reinke, M. L.; Belli, E.; Candy, J.; Dumont, R.; Zarzoso, D.

STUDY ON SAWTOOTH COLLAPSES USING TWO-FLUID EQUATIONS 137
Yu, Q.; Günter, S.; Lackner, K.

ADVANCED MHD MODELS OF ANISOTROPY, FLOW AND CHAOTIC FIELDS 141
Hole, M. J.; Fitzgerald, M.; Dennis, G. R.; Hudson, S. R.; Dewar, R. L.; Nessi, G. T.

CHERENKOV DIAGNOSTIC OBSERVATIONS OF FAST ELECTRON LOSSES IN FTU AND INTERPRETATION WITH GYROKINETIC SIMULATIONS 145
Causa, F.; Briguglio, S.; Buratti, P.; Esposito, B.; Fogaccia, C.; Fusco, V.; Giovannozzi, E.; Pucella, G.; Vlad, G.; Jakubowski, L.; Malinowski, K.; Rabinski, M.; Sadowski, M. J.; Zebrowski, J.

MODELING OF DISRUPTION MITIGATION BY MASSIVE GAS INJECTION IN JET WITH JOREK AND IMAGINE 149
Fil, A.; Nardon, E.; Hoelzl, M.; Huijsmans, G. T. A.; Orain, F.; Becoulet, M.; Beyer, P.; Dif-Pradalier, G.; Guirlet, R.; Koslowski, H. R.; Lehnen, M.; Morales, J.; Pamela, S.; Reux, C.; Saint-Laurent, F.; Sommariva, C.

RUNAWAY ELECTRON MITIGATION BY RESONANT AND NON-RESONANT MAGNETIC PERTURBATIONS IN RFX-MOD TOKAMAK DISCHARGES 153
Gobbin, M.; Valisa, M.; White, R. B.; Marrelli, L.; Piovesan, P.; Puiatti, M.

LONGITUDINAL LASER ION ACCELERATION IN GAS JETS: EXPERIMENTAL OPTIMIZATION ON THE TITAN LASER FACILITY AND NUMERICAL INVESTIGATION OF THE ULTRA-HIGH INTENSITY LIMIT 157
D'Humières, E.; Chen, S.; Antici, P.; Bailly-Grandvaux, M.; Gangolf, T.; Lobet, M.; Revet, G.; Schroer, A.; Willi, O.; Santos, J.; Tikhonchuk, V.; Pépin, H.; Fuchs, J.

N-GRAPHENE SYNTHESIS USING N_2-AR REMOTE PLASMAS 161
Dias, A.; Tatarova, E. S.; Henriques, J.; Dias, F. M.; Abrashev, M.; Cvelbar, U.; Filipic, G.; Dimitrov, Z.; Kissovski, Z.

MODELLING AND OPTIMIZATION OF AN ELECTROHYDRODYNAMIC (EHD) THRUSTER 165
Granados, V. H.; Pinheiro, M. J.; Sá, P. A.

ELECTRON AND POSITRON ACCELERATION IN PULSAR WIND NEBULAE 169
Giacchè, S.; Kirk, J.; Amano, T.

KSTAR EXPERIMENTAL RESULTS TOWARD BURNING PLASMA ISSUES 173
Kwak, J.

HIGH-β STEADY-STATE SCENARIOS IN DIII-D WITH ON-AXIS CURRENT DRIVE 177
Petty, C.; Ferron, J. R.; Turco, F.; Park, J.; Garofalo, A. M.; Hyatt, A. W.; Jackson, G. L.; Luce, T. C.; Holcomb, C. T.; Doyle, E. J.; Solomon, W. M.

PREPARING WEST TUNGSTEN DIVERTOR OPERATION: NITROGEN SEEDED H-MODE PLASMA SIMULATION WITH SOLEDGE2D-EIRENE 181
Bufferand, H. G.; Ciraolo, G.; Marandet, Y.; Bourdelle, C.; Bucalossi, J.; Denis, J.; Fedorczak, N.; Galassi, D.; Ghendrih, Ph.; Leybros, R.; Pegourie, B.; Serre, E.; Tamain, P.; Tsitrone

ECR PLASMA HEATING EXPERIMENT IN THE GDT MAGNETIC MIRROR 185
Bagryansky, P.; Anikeev, A. V.; Balakin, A. A.; Denisov, G. G.; Gospodchikov, E. D.; Ivanov, A. A.; Lizunov, A. A.; Khusainov, T. A.; Kovalenko, Y. V.; Malygin, V. I.; Maximov, V. V.; Korobeinikova, O. A.; Murakhtin, S. V.; Pinzhenin, E. I.; Prikhodko, V. V.; Savkin, V. Y.; Shalashov, A. G.; Smolyakova, O. B.; Soldatkina, E. I.; Solomakhin, A. L.; Yakovlev, D. V.; Zaytsev, K. V.

TIME-RESOLVED MEASUREMENTS OF ION ENERGY DISTRIBUTION FUNCTION IN COLD LOW-DENSITY PLASMA INDUCED BY NANOSECOND PULSES OF EXTREME ULTRAVIOLET RADIATION 189
Abrikosov, A.; Yakushev, O.; Lopaev, D.

PROGRESS IN UNDERSTANDING W CONTROL USING ICRH IN THE JET-ILW TOKAMAK 193
Mantica, P.; Casson, F. J.; Valisa, M.; Angioni, C.; Bilato, R.; Belonohy, E.; Giroud, C.; Goniche, M.; Hawkes, N.; Lerche, E.

THE ROLE OF CARBON ON THE H-MODE CONFINEMENT IN ASDEX UPGRADE WITH A METAL WALL 197
Beurskens, M.; Dunne, M. G.; Frassinetti, L.; Bernert, M.; Cavedon, M.; Fischer, R.; Jarvinen, A.; Kallenbach, A.; Laggner, F. M.; McDermott, R. M.; Tardini, G.; Viezzer, E.; Wolfrum, E.

MHD SIMULATIONS OF IMPURITY TRANSPORT DURING SAWTEETH FOR ASDEX-UPGRADE PLASMAS 201
Ahn, J.; Garbet, X.; Guirlet, R.; Février, O.; Lütjens, H.; Sertoli, M.

MODELING OF THE IMPACT OF ECCD SWEEPING ON NTM STABILITY IN ASDEX-UPGRADE 205
Février, O.; Maget, P.; Lütjens, H.; Giruzzi, G.; Reich, M.; Sauter, O.; Beyer, P.

FIRST PRINCIPLE NUMERICAL SIMULATIONS OF THE SOL IN ASDEX UPGRADE 209
Nielsen, A. H.; Aho-Mantila, L.; Madsen, J.; Muller, H. W.; Vianello, N.; Radhakrishnan, H.; Signoret, J.; Wischmeier, M.; Sieglin, B.; Carralero, D.; Birkenmeier, G.; Coelho, R.; Rasmussen, J.; Naulin, V.; Loiten, M.; Tophoj, L.; Schrittwieser, R.; Costea, S.

DETERMINING FAST-ION VELOCITY-SPACE DISTRIBUTION FUNCTIONS USING VELOCITY-SPACE TOMOGRAPHY 213
Jacobsen, A. S.; Salewski, M.; Geiger, B.; Stagner, L.; Eriksson, J.; Nielsen, S. K.; Heidbrink, W.; Korsholm, S. B.; Leipold, F.; Rasmussen, J.; Stejner, M.; Weiland, M.

EFFECTS OF 3D MAGNETIC PERTURBATION ON DIVERTOR HEAT LOAD REDISTRIBUTION ON ASDEX UPGRADE 217
Gao, Y.; Rack, M.; Liang, Y.; Sieglin, B.; Denner, P.; Suttrop, W.; Kirk, A.; Wolfrum, E.

STABLE OPERATION AT DISRUPTIVE LIMITS BY MEANS OF EC AT ASDEX UPGRADE 221
Granucci, G.; Esposito, B.; Marascheks, M.; Nowak, S.; Pucella, G.; Sozzi, C.; Stober, J.; Giannone, L.; Willensdorfer, M.; Treutterer, W.; Poli, E.; Gude, A.; Rapson, C.; Reich, M.; Galperti, C.; Granucci, G.

DYNAMICS OF FILAMENTS IN THE VICINITY OF THE SEPARATRIX DURING ELM CYCLES 225
Vicente, J. D.; Conway, G. D.; Meneses, L.; Silva, C.; Manso, M. E.

DEPENDENCE OF POLOIDAL ASYMMETRIES OF THE EDGE TURBULENCE ON THE MAGNETIC CONFIGURATIONS IN ASDEX UPGRADE 229
Nikolaeva, V.; Manz, P.; Guimarais, L.; Conway, G. D.; Fischer, R.; Manso, M. E.; Ribeiro, T. T.; Ryter, F.; Silva, C.; Stroth, U.; Wolfrum, E.

LFS/HFS EDGE DENSITY PROFILE DYNAMICS ON ASDEX-UPGRADE 233
Guimarais, L.; Nikolaeva, V.; Potzel, S.; Reimold, F.; Bernert, M.; Carralero, D.; Conway, G. D.; Manso, M. E.; Santos, J.; Silva, A.; Silva, C.; Wolfrum, E.

REAL-TIME CONTROL OF MHD INSTABILITIES USING ECCD IN ASDEX UPGRADE 237
Maraschek, M.; Reich, M.; Behler, K.; Giannone, L.; Gude, A.; Poli, E.; Rapson, C. J.; Sauter, O.; Stober, J.; Treutterer, W.; Zohm, H.

ON THE ROLE OF THE EDGE DENSITY PROFILE FOR THE L-H TRANSITION POWER THRESHOLD IN ASDEX UPGRADE 241
Shao, L.; Wolfrum, E.; Ryter, F.; Birkenmeier, G.; Laggner, F. M.; Viezzer, E.; Fischer, R.; Willensdorfer, M.; Kurzan, B.

BETA LIMIT AND PLASMA RESPONSE TO N=1 PERTURBATIONS IN ASDEX UPGRADE 245
Igochine, V.; Lauber, P.; Piovesan, P.; Schneller, M.; Strumberger, E.; Suttrop, W.; Yadykin, D.; Bettini, P.; Bogomolov, A.; Bolzonella, T.; Classen, I.; Dunne, M.; Gude, A.; Maraschek, M.; Marrelli, L.; McDermott, R.; Reich, M.; Tardini, G.

EFFECT OF MAGNETIC PERTURBATIONS ON PEDESTAL, SOL AND DIVERTOR IN HIGH COLLISIONALITY PLASMAS AT ASDEX UPGRADE 249
Wolfrum, E.; Faitsch, M.; Fuchert, G.; Barrera Orte, L.; Bernert, M.; Birkenmeier, G.; Carralero, D.; Eich, T.; Gao, Y.; Kurzan, B.; Laggner, F. M.; Mueller, H. W.; Potzel, S.; Rack, M.; Sieglin, B.; Sun, H.; Suttrop, W.; Willensdorfer, M.

MEASUREMENT AND INTERPRETATION OF ACTIVE BALMER ALPHA SPECTRA AT ASDEX UPGRADE 253
Geiger, B.; Dux, R.; Dunne, M.; Lebschy, A.; McDermott, R.; Reimer, R.; Salewski, M.; Tardini, G.; Weiland, M.

EFFECT OF MEASURED TOROIDAL FLOWS ON TOKAMAK EQUILIBRIA 257
Fischer, R.; Giannone, L.; Lackner, K.; McDermott, R. M.; Viezzer, E.; Zehrfeld, H.

DIFFUSIVE AND NON-DIFFUSIVE CONTRIBUTIONS TO MOMENTUM TRANSPORT IN AUG EXPERIMENTS AND THE EUROPEAN INTRINSIC ROTATION DATABASE 261
McDermott, R. M.; Odstrcil, T.; Angioni, C.; Duval, B.; Karpushov, A.; Fischer, R.; Salmi, A.; Tala, T.; Tardini, G.; Viezzer, E.

EROSION OF METAL PLASMA FACING COMPONENTS BY ARCING AT THE INNER DIVERTOR BAFFLE OF ASDEX UPGRADE 265
Rohde, V.; Balden, M.

ELECTRON DENSITY AND TEMPERATURE STRUCTURES DURING EDGE LOCALIZED MODES IN THE EDGE PLASMA OF ASDEX UPGRADE 269
Kurzan, B.; Giannone, L.

A FORWARD MODEL FOR BEAM EMISSION SPECTROSCOPY AT ASDEX UPGRADE 273
Dux, R.; Geiger, B.; McDermott, R. M.; Viezzer, E.

AUTOMATED SAWTOOTH DETECTION WITH MULTI-SIGNAL ANALYSIS 277
Gude, A.; Maraschek, M.; Eulenberg, P.; Igochine, V.

STUDY OF SUPPRESSED TEARING MODES SEEDED WITH NON-AXSISYMMETRIC MAGNETIC PERTURBATION FIELDS AT THE ASDEX UPGRADE TOKAMAK 281
Fietz, S.; Coelho, R.; Classen, I.; Maraschek, M.; Suttrop, W.; Zohm, H.

ION HEAT AND MOMENTUM TRANSPORT IN THE EDGE PEDESTAL OF ASDEX UPGRADE 285
Viezzer, E.; Fable, E.; Cavedon, M.; Laggner, F. M.; Angioni, C.; Dunne, M. G.; Dux, R.; Bernert, M.; Burckhart, A.; McDermott, R. M.; Odstrcil, T.; Pütterich, T.; Ryter, F.; Wolfrum, E.

CHARACTERISATION OF PULSATIONS CLOSE TO THE L-H TRANSITION IN AUG 289
Birkenmeier, G.; Cavedon, M.; Conway, G. D.; Manz, P.; Fuchert, G.; Laggner, F. M.; Happel, T.; Medvedeva, A.; Nikolaeva, V.; Prisiazhniuk, D.; Shao, L. M.; Maraschek, M.; Putterich, T.; Ryter, F.; Willensdorfer, M.; Wolfrum, E.; Stroth, U.; Zohm, H.

CHARACTERISATION OF A COMPACT NEUTRON SPECTROMETER AND UNFOLDED NEUTRON EMISSION SPECTRA IN ASDEX UPGRADE 293
Tardini, G.; Fischer, R.; Gagnon-Moisan, F.; Weiland, M.; Zimbal, A.

CONTROLLED FUELLING OF HIGH DENSITY SCENARIOS AT ASDEX UPGRADE IN SUPPORT OF ITER AND DEMO 297
Lang, P. T.; Casali, L.; Day, C.; Dunne, M.; Fable, E.; Fischer, R.; Kardaun, O.; Kocsis, G.; Kurzan, B.; McDermott, R.; Mertens, V.; Mlynek, A.; Ploeckl, B.; Rapson, C. J.; Sharov, I.; Szepesi, T.; Treutterer, W.; Viezzer, E.; Zohm, H.

NON-LINEAR SIMULATIONS OF ELMS IN ASDEX UPGRADE INCLUDING DIAMAGNETIC DRIFT EFFECTS 301
Lessig, A.; Hölzl, M.; Orain, F.; Krebs, I.; Günter, S.; Franck, E.; Morales, J.; Becoulet, M.; Huysmans, G.; Dunne, M.

EFFICIENCY OF SURFACE SHAPING FOR PROTECTION OF LEADING EDGES IN THE DIVERTOR OF ASDEX UPGRADE FROM DIRECT PLASMA EXPOSURE 305
Krieger, K.; Coenen, J. W.; Brida, D.; Gao, Y.; Gunn, J.; Hakola, A.; Herrmann, A.; Lunt, T.; Potzel, S.; Sieglin, B.

STUDY OF THE EDGE RADIAL ELECTRIC FIELD DURING THE L-H TRANSITION AT ASDEX UPGRADE 309
Cavedon, M.; Pütterich, T.; Viezzer, E.; Birkenmeier, G.; Happel, T.; Laggner, F. M.; Ryter, F.; Stroth, U.

EVOLUTION OF ELMY H-MODE PERFORMANCE IN PRESENCE OF CORE RADIATION ON ASDEX UPGRADE 313
Ochoukov, R.; Bobkov, V.; Angioni, C.; Bernert, M.; Dunne, M.; Dux, R.; Neu, R.; Noterdaeme, J.; Odstrcil, T.; Pütterich, T.; Reimold, F.

KINETIC PROFILES AND PLASMA RESPONSE DURING APPLICATION OF 3D MAGNETIC PERTURBATIONS FIELDS 317
Willensdorfer, M.; Suttrop, W.; Strumberger, E.; Cavedon, M.; Classen, I.; Dunne, M.; Fietz, S.; Fischer, R.; Fuchs, C.; Kirk, A.; Laggner, F.; Wolfrum, E.; Vanovac, B.

SXR TOMOGRAPHY OF TUNGSTEN RADIATION PATTERNS WITH AND WITHOUT MHD 321
Odstrcil, T.; Pütterich, T.; Weiland, M.; Odstrcil, M.; Gude, A.

GENERATION AND SUPPRESSION OF RUNAWAY ELECTRONS IN ASDEX UPGRADE DISRUPTIONS 325
Pautasso, G.; McCarthy, P. J.; Fuchs, C.; Dux, R.; Potzel, S.; Papp, G.; Sertoli, M.; Tardini, G.; Lackner, K.; Scarabosio, A.; Mlynek, A.; Giannone, L.

HIGH RADIATION SCENARIOS WITH RADIATION INSIDE THE CONFINED REGION AT ASDEX UPGRADE 329
Bernert, M.; Reimold, F.; Dux, R.; Eich, T.; Glöggler, S.; Kallenbach, A.; Lipschultz, B.; Wischmeier, M.

ON THE HIGH DENSITY IN THE HFS FAR SOL AT ASDEX UPGRADE AND ITS IMPACT ON PLASMA CONFINEMENT 333
Potzel, S.; Dunne, M.; Dux, R.; Guimarais, L.; Reimold, F.; Scarabosio, A.; Wischmeier, M.

INDIRECT MEASUREMENT OF THE POLOIDAL ROTATION IN THE CORE OF ASDEX UPGRADE PLASMAS WITH CHARGE EXCHANGE RECOMBINATION SPECTROSCOPY 337
Lebschy, A.; McDermott, R. M.; Geiger, B.; Cavedon, M.; Dunne, M. G.; Dux, R.; Fischer, R.; Viezzer, E.

EXPERIMENTAL CHARACTERISATION OF SAWTOOTH CRASH PRECURSORS ON ASDEX UPGRADE VIA SOFT X-RAY TOMOGRAPHY 341
Vezinet, D.; Igochine, V.; Gude, A.; Meshcheriakov, D.

QUANTITATIVE PREDICTION OF THE BLOB GENERATION RATE 345
Fuchert, G.; Carralero, D.; Manz, P.; Stroth, U.; Wolfrum, E.

NUMERICAL INVESTIGATION OF IMPURITY SEEDED RADIATION ENHANCEMENT IN THE DIVERTOR REGION WITH MAGNETIC PERTURBATIONS IN ASDEX UPGRADE 349
Brida, D.; Lunt, T.; Wischmeier, M.; Carralero, D.; Faitsch, M.; Feng, Y.; Kurzan, B.; Scarabosio, A.; Sieglin, B.; Wolfrum, E.; Zhang, W.

INFLUENCE OF ION CYCLOTRON HEATING AND MHD INSTABILITIES ON THE FAST-ION DISTRIBUTION IN ASDEX UPGRADE 353
Weiland, M.; Geiger, B.; Bilato, R.; Jacobsen, A.; Salewski, M.; Schneider, P. A.; Tardini, G.

DESIGN OF THE NEW IMAGING MOTIONAL STARK EFFECT DIAGNOSTIC AT ASDEX UPGRADE 357
Burckhart, A. O.; Ford, O.; Reich, M.; Wolf, R.

HIGH-RESOLUTION INTERNAL MEASUREMENTS OF 3D PLASMA RESPONSE FOR MODEL VALIDATION IN HIGH-β PLASMAS 361
Piovesan, P.; Igochine, V.; Liu, Y.; Maraschek, M.; Marrelli, L.; Ryan, D.; Suttrop, W.; Weiland, M.; Yadykin, D.; Gobbin, M.; Terranova, D.; Ferraro, N.; Lanctot, M.; Bogomolov, A.; Classen, I.; Dunne, M.; Gude, A.; McDermott, R.; Reich, M.; Wolfrum, E.

REAL-TIME SIMULATION OF INTERNAL PROFILES IN THE PRESENCE OF SAWTEETH USING THE RAPTOR CODE AND APPLICATIONS TO ASDEX UPGRADE AND RFX-MOD 365
Piron, C.; Felici, F.; Kim, D.; Rapson, C.; Reich, M.; Sauter, O.; Goodman, T.; Treutterer, W.; Van Den Brand, H.; Chapman, I.; Finotti, C.; Manduchi, G.; Marchiori, G.; Marrelli, L.; Kudlacek, O.; Piovesan, P.; Taliercio, C.

EVALUATION OF THE NEOCLASSICAL TOROIDAL VISCOUS TORQUE IN ASDEX UPGRADE 369
Martitsch, A. F.; Kasilov, S. V.; Kernbichler, W.; Heyn, M. F.; Strumberger, E.; Fietz, S.; Suttrop, W.; Kirk, A.

THE EFFECTS OF TRIANGULARITY AND MAIN ION SPECIES ON THE INTER-ELM PROFILE EVOLUTION IN ASDEX UPGRADE 373
Laggner, F. M.; Wolfrum, E.; Dunne, M. G.; Cavedon, M.; Manz, P.; Birkenmeier, G.; Fischer, R.; Viezzer, E.; Willensdorfer, M.; Aumayr, F.

FAST CHANGES IN THE MODE STRUCTURE OF CHIRPING ENERGETIC PARTICLE DRIVEN MODES 377
Horváth, L.; Papp, G.; Pokol, G. I.; Lauber, P.; Por, G.; Gude, A.; Igochine, V.

MHD MODES ANALYSIS IN HIGH-BETA ASDEX UPGRADE CONFIGURATIONS INCLUDING A 3D MODEL OF CONDUCTORS 381
Mastrostefano, S.; Bettini, P.; Bolzonella, T.; Igochine, V.; Liu, Y.; Villone, F.; Yadykin, D.

NBI MODELLING BY UPGRADED TASK3D-A CODE IN PREPARATION OF LHD DEUTERIUM CAMPAIGNS 385
Vincenzi, P.; Murakami, S.; Osakabe, M.; Seki, R.; Yokoyama, M.; Bolzonella, T.

INVESTIGATION ON RADIAL TRANSPORT OF PERPENDICULAR MOMENTUM IN THE SOL OF AUG DURING L-I-H TRANSITION 389
Costea, S.; Rasmussen, J. J.; Vianello, N.; Muller, H. W.; Naulin, V.; Schrittwieser, R.; Nielsen, A. H.; Madsen, J.; Ionita, C.; Spolaore, M.; Carralero, D.; Mehlmann, F.

TURBULENCE STABILIZATION DUE TO HIGH BETA AND FAST IONS IN HIGH-PERFORMANCE PLASMAS AT ASDEX UPGRADE AND JET 393
Doerk, H.; Challis, C.; Citrin, J.; Dunne, M.; Garcia, J.; Goerler, T.; Jenko, F.; Ryter, F.; Schneider, P.; Wolfrum, E.

DEVELOPMENT AND FIRST OPERATIONS OF THE ISHTAR TEST FACILITY 397
Dinca, R.; Ochoukov, R.; Crombe, K.; Morgal, I.; Jacquot, J.; Louche, F.; Van Ester, D.; Heuraux, S.; Devaux, S.; Moritz, J.; Faudot, E.; Fischer, F.; Siegle, G.; Funfgelder, H.; Faugel, H.; Noterdaeme, J.-M.

INFLUENCE OF RADIATION ON THE ENERGY SPECTRUM OF RUNAWAY ELECTRONS DURING TOKAMAK DISRUPTIONS 401
Zeng, L.; Koslowski, H.; Liang, Y.; Lvovskiy, A.; Wongrach, K.; Finken, K.; Gao, X.

AN INVESTIGATION OF THE PLASMA RESPONSE TO APPLIED RMPS ON TEXTOR 405
Denner, P.; Drews, Ph.; Liang, Y.; Yang, Y.

EFFECT OF MAGNETIC FIELD GEOMETRY ON BLOB STRUCTURE AND DYNAMICS IN TJ-K 409
Garland, S.; Ramisch, M.; Hirth, T.

INVESTIGATION OF THE ENERGY TRANSFER TO ZONAL FLOWS AT THE STELLARATOR TJ-K 413
Schmid, B.; Manz, P.; Ramisch, M.; Stroth, U.

A HYBRID FLUID–KINETIC APPROACH FOR 3D PLASMA EDGE TRANSPORT IN HE-PLASMA AT WENDELSTEIN 7-X 417
Rack, M.; Reiter, D.; Feng, Y.; Börner, P.; Hasenbeck, F.

ESTIMATION OF WENDELSTEIN 7-X MAGNETIC FIELD PERTURBATION DUE TO PERMEABLE MATERIALS 421
Andreeva, T.; Brakel, R.; Kißlinger, J.; Köppen, M.

REFLECTOMETRY FLUCTUATION DIAGNOSTICS AT WENDELSTEIN 7-X 425
Windisch, T.; Hirsch, M.; Estrada, T.; Kasparek, W.; Krämer-Flecken, A.; Lechte, C.; Wolf, S.; Xanthopoulos, P.; Klinger, T.

MODELING OF ELECTRON CYCLOTRON CURRENT DRIVE FOR FINITE COLLISIONALITY PLASMAS IN WENDELSTEIN 7-X 429
Kapper, G.; Kernbichler, W.; Kasilov, S. V.; Marushchenko, N. B.

THE INTERACTION BETWEEN NEUTRAL PARTICLES AND TURBULENT PLASMA IN THE TOKAMAK SOL 433
Wersal, C.; Ricci, P.; Halpern, F. D.; Riva, F.

REAL-TIME CAPABLE FIRST PRINCIPLE BASED MODELLING OF TOKAMAK TURBULENT TRANSPORT 437
Citrin, J.; Breton, S.; Felici, F.; Imbeaux, F.; Aniel, T.; Artaud, J. F.; Baiocchi, B.; Bourdelle, C.; Camenen, Y.; Garcia, J.

THE INFLUENCE OF HOT NEUTRALS IN SIMULATIONS OF GAS PUFF MODULATION 441
Christensen, A. S.; Madsen, J.; Naulin, V.; Rasmussen, J. J.; Salmi, A.; Tophøj, L. E.

KINETIC RESONANCES EFFECT ON MAGNETIC BRAKING IN TOKAMAKS 445
Miron, I.

IMPACT OF ROTATING MAGNETIC ISLANDS ON PROFILE FLATTENING AND TURBULENCE 449
Zarzoso, D.; Hornsby, W.; Casson, F.; Poli, E.; Peeters, A.; Nasr, S.

TOWARDS SELF-CONSISTENT RUNAWAY ELECTRON MODELING 453
Papp, G.; Stahl, A.; Drevlak, M.; Fülöp, T.; Lauber, P. W.; Pokol, G. I.

SCATTERING OF ELECTROMAGNETIC WAVE BEAMS FROM DENSITY FLUCTUATIONS IN TOKAMAK PLASMAS 457
Poli, E.; Maj, O.; Weber, H.; Sysoeva, E. V.; Gusakov, E. Z.

REPRESENTATION OF FINITE AMPLITUDE IDEAL MAGNETOHYDRODYNAMIC MODES 461
Meshcheriakov, D.; Igochine, V.; Zohm, H.; Gude, A.; Maraschek, M.; Moseev, D.; Vezinet, D.; Dunne, M.

RELATIVISTIC RUNAWAY ELECTRONS IN A NEAR-THRESHOLD ELECTRIC FIELD 465
Aleynikov, P.; Breizman, B. N.

HELICAL MIRRORS FOR ACTIVE PLASMA FLOW SUPPRESSION IN LINEAR MAGNETIC TRAPS 469
Sudnikov, A. V.; Beklemishev, A. D.; Ivanov, I. A.; Postupaev, V. V.

MIRROR BASED FUSION NEUTRON SOURCE: R&D STATUS AND APPLICATIONS 473
Anikeev, A. V.; Bagryansky, P. A.; Beklemishev, A. D.; Ivanov, A. A.; Kolesnikov, E. Y.; Korobeinikova, O. A.; Lizunov, A. A.; Maximov, V. V.; Murakhtin, S. V.; Pinzhenin, E. I.; Prikhodko, V. V.; Soldatkina, E. I.; Solomakhin, A. L.; Tsidulko, Y. A.; Yakovlev, D. V.; Yurov, D. V.; Korzhavina, M. S.

PLASMA SURFACE CURRENTS IN THE PRESENCE OF A RESISTIVE WALL AND THEIR CONNECTION TO HALO CURRENTS DURING DISRUPTIONS IN TOKAMAKS 477
Yanovskiy, V.; Paccagnella, R.

MULTIPLE DOMAIN SCHEME FOR HEAT TRANSPORT ANALYSIS IN PLASMAS WITH MAGNETIC ISLANDS: A FIRST STUDY 481
Sattin, F.; Zhang, Y.; Auriemma, F.; Fassina, A.; Lopez-Bruna, D.; Lorenzini, R.; Martines, E.; Momo, B.; Terranova, D.

TOROIDAL ROTATION IN RESONANT REGIMES OF TOKAMAK PLASMAS DUE TO NON-AXISYMMETRIC PERTURBATIONS IN THE ACTION-ANGLE FORMALISM 485
Albert, C. G.; Heyn, M. F.; Kasilov, S. V.; Kernbichler, W.; Martitsch, A. F.

SIMULTANEOUS CONTROL OF PLASMA PROFILES AND NEOCLASSICAL TEARING MODES WITH ACTUATOR MANAGEMENT IN TOKAMAKS 489
Maljaars, B.; Van Den Brand, H.; Felici, F.; Rapson, C.; Treutterer, W.; Sauter, O.; De Baar, M.

MIMETIC SPECTRAL ELEMENT METHOD FOR THE GRAD-SHAFRANOV EQUATION 493
Palha, A.; Felici, F.; Koren, B.

NUMERICAL ACTION-ANGLE TRANSFORM FOR GUIDING-CENTER PARTICLE MOTION IN AXISYMMETRIC TOKAMAK EQUILIBRIA 497
Zestanakis, P.; Kominis, Y.; Anastassiou, G.; Hizanidis, K.

MULTIPLE SCATTERING OF RADIO FREQUENCY WAVES BY BLOBS: HOMOGENIZATION OF A MIXTURE OF BLOBS AND THE WATERMAN-TRUELL APPROACH 501
Hizanidis, K.; Valvis, I.; Bairaktaris, F.; Zouros, G.; Kokkorakis, G.; Roumeliotis, I.; Ram, A.

ADVANCED DIVERTOR EQUILIBRIUM CALCULATIONS WITH FINITE CURRENT DENSITY ON THE PLASMA BOUNDARY 505
Mc Carthy, P.; Lackner, K.; Zohm, H.; Lunt, T.; Fuchs, C.; Giannone, L.; Suttrop, W.

PERTURBATIONS OF MICROWAVES DUE TO PLASMA DENSITY FLUCTUATIONS 509
Köhn, A.; Thomas, M.; Vann, R.; Holzhauer, E.; Leddy, J.

STATISTICAL ANALYSIS OF THE OSCILLATIONS PRECEDING ELM INSTABILITIES 513
Zoletnik, S.; Zsuga, L. V.

ABOUT DYNAMICS OF SHOCKS INDUCED BY COMPLEX SPOT LASER IRRADIATION OF LAYERED TARGETS 517
Aliverdiev, A. A.; Batani, D.; Amirova, A. A.; Benocci, R.; Dezulian, R.; Krousky, E.; Pfeifer, M.; Ullschmied, J.; Skala, J.; Jakubowska, K.

NEUTRON SPECTRA AND TEMPERATURE DIAGNOSTICS OF IMPLODED ICF PLASMA: MODELS AND 1D AND 2D SIMULATIONS 521
Atzeni, S.; Rossi, G.

INITIALIZATION OF CHARGED PARTICLE BEAM IN OSIRIS 525
Balzarini, A.; Fonseca, R. A.; Vieira, J.; Boella, E.; Silva, L. O.

PELLET IGNITION USING IONS SHOCK ACCELERATED IN THE CORONA 529
Cairns, R. A.; Boella, E.; Vranic, M.; Silva, L. O.; Trines, R.; Norreys, P.; Bingham, R.

INVESTIGATION OF SPONTANEOUS MAGNETIC FIELDS GENERATED UNDER DIFFERENT REGIMES OF LASER-PRODUCED PLASMA CREATION 533
Chodukowski, T.; Pisarczyk, T.; Gus'kov, S.; Dudzak, R.; Dostal, J.; Demchenko, N. N.; Korneev, P.; Kalinowska, Z.; Kalal, M.; Renner, O.; Shmid, M.; Borodziuk, S.; Krousky, E.; Ullschmied, J.; Hrebicek, J.; Medrik, T.; Golasovski, J.; Pfeifer, M.; Skala, J.; Pisarczyk, P.

GEMPIX DETECTOR: A NEW DIAGNOSTIC FOR LASER PRODUCED PLASMAS MONITORING 537
Claps, G.; Pacella, D.; Romano, A.; Gabellieri, L.; Causa, F.; De Angelis, R.; Andreoli, P. L.; Cristofari, G.; Consoli, F.; Murtas, F.

HYDRODYNAMIC ANALYSIS OF SELF-SIMILAR RADIATIVE ABLATION FLOWS 541
Clarisse, J.; Pfister, J.; Gauthier, S.; Boudesocque-Dubois, C.

EXPERIMENTAL AND NUMERICAL INVESTIGATION OF THE EARLY TIME DYNAMICS OF SINGLE WIRE PLASMA EXPLOSIONS 545
Fitilis, I.; Skoulakis, A.; Kaselouris, E.; Nikolos, I. K.; Bakarezos, M.; Papadogiannis, N. A.; Dimitriou, V.; Tatarakis, M.

COMBINED HIGH FREQUENCY AND ARC PLASMA SOURCES FOR CONTACTS APPLICATION 549
Leonovych, A. V.; Taran, V. S.

NUMERICAL CALCULATION OF ION RUNAWAY DISTRIBUTIONS 553
Embreus, O.; Newton, S.; Stahl, A.; Hirvijoki, E.; Fülöp, T.

ENERGY PARTITION IN KINETIC TURBULENCE IN STRONGLY MAGNETIZED PLASMAS 557
Fazendeiro, L. M.; Loureiro, N. F.

PRELIMINARY STUDY OF DIFFERENTIAL EFFECTS IN FAST MAGNETIC COMPRESSION EXPERIMENTS 561
Gueroult, R.; Fisch, N. J.

GAUSSIAN RADIAL BASIS FUNCTIONS FOR PLASMA PHYSICS: NUMERICAL ASPECTS 565
Hirvijoki, E.; Candy, J.; Belli, E.; Embréus, O.

THE INFLUENCE OF ELECTRON-ELECTRON SCATTERING ON THE ASYMPTOTIC BEHAVIOUR OF THE STRONGLY DEGENERATE PLASMA ELECTRICAL CONDUCTIVITY 569
Karakhtanov, V.

BOHM-CRITERION APPROXIMATION VERSUS OPTIMAL MATCHED SOLUTION FOR A SPHERICAL PROBE IN RADIAL-MOTION THEORY 573
Kuhn, S.; Din, A.

ENERGY PARTITION IN KINETIC TURBULENT RECONNECTION 577
Numata, R.; Loureiro, N. F.

INTERPRETATION OF PARTIALLY DETACHED DIVERTOR OPERATION WITH AND WITHOUT IMPURITY SEEDING IN JET WITH EDGE2D-EIRENE 581
Järvinen, A. E.; Brezinsek, S.; Giroud, C.; Groth, M.; Guillemaut, C.; Belo, P.; Corrigan, G.; Drewelow, P.; Harting, D.; Huber, A.; Lawson, K.; Lipschultz, B.; Maggi, C.; Matthews, G.; Meigs, A.; Moulton, D.; Stamp, M.; Wiesen, S.

IMPROVEMENT OF NEUTRON YIELD PREDICTIONS IN JET WITH ASCOT 585
Koskela, T. S.; Snicker, A.; Sipila, S.; Salmi, A.; Johnson, T.; Marchetto, C.; Schneider, M.; Romanelli, M.; Weisen, H.

DENSITY FLUCTUATIONS MEASURED WITH FAST FREQUENCY SWEPT REFLECTOMETRY 589
Frederic, C.; Sirinelli, A.; Meneses, L.

ROLE OF ELMS IN THE PRODUCTION AND CONCENTRATION OF TUNGSTEN IN JET DISCHARGES 593
Devynck, P.; Fedorczak, N.; Meyer, O.

GLOBAL VS LOCAL GYROKINETIC STUDIES OF CORE MICROINSTABILITIES IN JET HYBRID DISCHARGES WITH ITER LIKE WALL 597
Moradi, S.; Pusztai, Citrin, J.; Kim, H.-T.; Lupelli, I.; Kettlewell, W. J.

GYROKINETIC MODELLING OF BASELINE H-MODE JET PLASMAS WITH C WALL AND ITER-LIKE WALL 601
Tegnered, D.; Strand, P.; Nordman, H.; Giroud, C.; Kim, H.; Maddison, G.; Romanelli, M.; Szepesi, G.

THE EFFECT OF NITROGEN SEEDING ON ELM FILAMENTS 605
Bogomolov, A.; Classen, I.; Donné, T.; Meyer, H.; Dunne, M.; Schneider, P.; Wolfrum, E.; Vanovac, B.; Fischer, R.; Frassinetti, L.; Luhmann, N.

GYROKINETIC MODELLING OF LIGHT IMPURITY PEAKING IN JET BASELINE AND HYBRID H-MODES: A MISSING INGREDIENT? 609
Manas, P. C.; Camenen, Y.; Benkkada, S.; Weisen, H.; Angioni, C.; Casson, F.; Giroud, C.; Gelfusa, M.

THE NEUTRON DEFICIT IN JET BASELINE H-MODES AND HYBRID REGIMES 613
Weisen, H.; Kim, H.; Strachan, J. D.; Scott, S. D.; Baranov, Y. F.; Fitzgerald, M.; Keeling, D.; King, D.; Giacomelli, L.; Koskela, T.; Weisen, M. J.; Giroud, C.; Core, W. G.; Zastrow, K.

MHD IN JET HYBRID PLASMAS WITH THE ITER LIKE WALL 617
Buratti, P.; Baruzzo, M.; Challis, C. D.; Frigione, D.; Garcia, J.; Giovannozzi, E.; Hender, T. C.; Hobirk, J.; Joffrin, E.; Mailloux, J.; Pucella, G.

OVERVIEW OF HYBRID DEVELOPMENT IN JET WITH ITER-LIKE WALL 621
Frigione, D.; Challis, C.; Garcia, J.; Hobirk, J.; Alper, B.; Artaserse, G.; Angioni, C.; Baruzzo, M.; Belonohy, E.; Bilato, R.; Brett, A.; Buratti, P.; Carvalho, I.; Casson, F.; Frassinetti, L.; Garzotti, L.; Giovannozzi, E.; Grist, D.; Hawkes, N.; Lerche, E.; Mailloux, J.; Mantica, P.; Maslov, M.; Morris, J.; Pucella, G.; Rachlew, E.; Reich, M.; Rimini, F.; Sips, A. C.; Stamp, M. F.; Tamain, P.; Tsalas, M.; Valisa, M.; Weisen, H.

FUNDAMENTAL CYCLOTRON ^{3}HE MINORITY ICRF HEATING EXPERIMENTS IN H PLASMAS IN JET IN PRESENCE OF THE ILW 625
Van Eester, D.; Lerche, E.; Kazakov, Y.; Jacquet, P.; Santala, M.; Goniche, M.; Colas, L.; Schumack, A.; Dumont, R.; Crombé, K.

ISOTOPE EXCHANGE EXPERIMENTS ON ITER-LIKE WALL IN JET 629
Wauters, T. M.; Douai, D.; Loarer, T.; Brezinsek, S.

ELM MITIGATION USING N=2 MAGNETIC PERTURBATIONS ON JET WITH AN ITER-LIKE WALL AND COMPARISON WITH A C-WALL 633
Liang, Y.; Jachmich, S.; Lomas, P.; Denner, P.; Rack, M.; Gao, Y.; Wang, N.; Li, L.; Chapman, I. T.

SCREENING OF EXTERNAL MAGNETIC PERTURBATION FIELDS DUE TO SHEARED FLOW 637
Li, L.; Liang, Y.; Liu, Y.; Wang, N.; Zhong, F.

MEASUREMENT OF PLASMA RESPONSE TO N=2 FIELDS USING SADDLE LOOPS ON JET 641
Wang, N.; Liang, Y.; Gerasimov, S.; Denner, P.; Drews, P.; Jachmich, S.; Li, L.; Lomas, P.

IMPACT OF ELECTRON SCALE MODES ON ELECTRON HEAT TRANSPORT IN THE JET TOKAMAK 645
Bonanomi, N.; Citrin, J.; Mantica, P.

MHD ANALYSIS OF BETA COLLAPSES IN AT JET DISCHARGES 649
Alessi, E.; Piron, L.; Buratti, P.; Mailloux, J.; Hawkes, N.; Joffrin, E.; Baranov, Y.; Giovannozzi, E.; Gryaznevich, M.; Hender, T.; Luce, T.; Pucella, G.; Sozzi, C.

MEASURING INTRINSIC ROTATION IN THE JET TOKAMAK 653
Nave, M. F.; Bernardo, J.; Coelho, R.; Czarnecka, A.; Ferreira, J.; Figueiredo, A.; Giroud, C.; Hillesheim, J.; Parail, V.; Salmi, A.; Zastrow, K.-D.

A STABILITY STUDY OF A-PARTICLE DRIVEN ALFVÉN EIGENMODES IN JET D-T PLASMAS 657
Ferreira, J.; Borba, D.; Coelho, R.; Fazendeiro, L.; Figueiredo, A. C. A.; Loureiro, N. F.; Nabaise, F.; Rodrigues, P.; Conboy, J.; Fitzgerald, M.; Sharapov, S. E.; Voitsekhovitch, I.

OBSERVATION OF CHIRPING MODES AT FREQUENCIES ABOVE THE ALFVÉN FREQUENCY IN JET 661
Nabais, F.; Figueiredo, A.; Rodrigues, P.; Ferreira, J.; Coelho, R.; Sharapov, S.; Fazendeiro, L.; Borba, D.; Fitzgerald, M.

PARAMETERS AND STABILITY OF RUNAWAY ELECTRON DOMINATING DISCHARGE IN JET WITH ITER-LIKE WALL 665
Plyusnin, V. V.; Kiptily, V.; Shevelev, A.; Khilkevitch, E.; Brix, M.; Gerasimov, S.; Matthews, G. F.

MEASUREMENT OF RADIATION ASYMMETRIES DURING DISRUPTION MITIGATION AT JET 669
Drewelow, P.; Kruezi, U.; Koslowski, H. R.; Lehnen, M.; Matthews, G. F.

CONFINEMENT AND PEDESTAL IN DIMENSIONLESS COLLISIONALITY SCANS OF LOW TRIANGULARITY H-MODE PLASMAS IN JET-ILW 673
Frassinetti, L.; Beurskens, M.; Saarelma, S.; Boom, J.; Delabie, E.; Flanagan, J.; Kempenaars, M.; Giroud, C.; Lomas, P.; Meneses, L.; Menmuir, S.; Nunes, I.; Rimini, F.

CONFINEMENT AND PEDESTAL STRUCTURE IN HIGH-PERFORMANCE SCENARIOS IN JET-ILW AND COMPARISON WITH JET-C 677
Stefanikova, E.; Frassinetti, L.; Lomas, P.; Nunes, I.; Baruzzo, M.; Rimini, F.; Saarelma, S.; Wiesen, S.; Peterka, M.

ALPHA HEATING IN JET PLASMAS WITH SAWTEETH 681
Budny, R. V.
EXPERIMENTAL CHARACTERISATION OF THE M-MODE IN JET TOKAMAK 685
Vianello, N.; Solano, E. R.; Delebie, E.; Hillesheim, J.; Refy, D.; Zoletnik, S.; Buratti, P.; Boom, J. E.; Coelho, R.; Figueiredo, A.; Lerche, E.; Meneses, L.; Rimini, F.; Artaserse, G.; Belohony, E.
ELM OCCURRENCE TIMES IN RELATION TO THE PHASE EVOLUTION OF GLOBAL MEASUREMENTS IN JET 689
Dendy, R.; Chapman, S.; Watkins, N.; Todd, T.; Calderon, F.
PARTICLE SOURCE AND EDGE TRANSPORT STUDIES IN JET H-MODE GAS PUFF MODULATION EXPERIMENTS 693
Salmi, A.; Tala, T.; Mantica, P.; Järvinen, A.; Meneses, L.; Mordijck, S.; Naulin, V.; Rasmussen, J.; Svensson, J.; Giacomelli, L.; Gomes, R.; Groth, M.; Koskela, T.; Maggi, C.; Maslov, M.; Sips, G.; Weisen, H.
DIMENSIONLESS COLLISIONALITY SCANS FOR CORE PARTICLE TRANSPORT IN JET 697
Tala, T.; Mantica, P.; Salmi, A.; Bourdelle, C.; Giroud, C.; Hillesheim, J.; Maggi, C.; Meneses, L.; Maslov, M.; Moradi, S.; Naulin, V.; Rasmussen, J. J.; Sips, G.; Tsalas, M.; Weisen, H.; Sirinelli, A.; Mordijck, S.; Nordman, H.; Menmuir, S.
A COMPARATIVE MULTIVARIATE ANALYSIS OF DISRUPTION CLASSES BETWEEN JET AND AUG 701
Pau, A.; Aledda, R.; Cannas, B.; Fanni, A.; Murari, A.; Sias, G.
EDGE PLASMA – LOWER HYBRID WAVE INTERACTION AND CURRENT DRIVE EFFICIENCY 705
Goniche, M.; Kirov, K.; Mailloux, J.; Antar, G.; Ding, B. J.; Ekedahl, A.; Li, M. H.; Peysson, Y.
THE EFFECTS OF RESONANT MAGNETIC PERTURBATIONS ON FAST ION CONFINEMENT IN THE MEGA AMP SPHERICAL TOKAMAK 709
McClements, K.; Akers, R.; Boeglin, W.; Cecconello, M.; Keeling, D.; Jones, O.; Kirk, A.; Klimek, I.; Perez, R.; Shinohara, K.; Tani, K.
SEARCHING FOR ENHANCED RF FIELD AMPLITUDES IN THE SOL USING A SIMPLIFIED COLD-PLASMA MODEL 713
Perkins, R. J.; Hosea, J. C.; Bertelli, N.; Jaeger, E. F.; Phillips, C.; Taylor, G.; Wilson, J. R.
STABILIZATION OF ELECTRON-SCALE TURBULENCE BY ELECTRON DENSITY GRADIENT IN NSTX 717
Ruiz Ruiz, J.; Ren, Y.; Guttenfelder, W.; White, A.; Kaye, S. M.; Leblanc, B. P.; Mazzucato, E.; Lee, K. C.; Domier, C. W.; Smith, D. R.; Yuh, H.
MEASUREMENTS OF THE NATURAL PLASMA FLOW DURING THE PRECURSOR OF TCABR DENSITY LIMIT DISRUPTIONS 721
Salzedas, F.; Ronchi, G.; Severo, J. H.; Galvão, R. M.; Sanada, E. K.
CHARACTERIZATION OF TOROIDAL INTRINSIC ROTATION WITH MHD ACTIVITY IN THE TCABR TOKAMAK 725
Ronchi, G.; Severo, J. H.; Salzedas, F.; Galvão, R. O.
TOKAMAK EQUILIBRIUM RECONSTRUCTION CODE LIUQE: IMPLEMENTATION, APPLICATIONS, DEVELOPMENTS 729
Moret, J.; Bettini, P.; Coda, S.; Duval, B. P.; Felici, F.; Le, H.; Reimerdes, H.; Sauter, O.
INVESTIGATING THE DOUBLE SCALE LENGTH OF LIMITED PLASMAS WITH NONLINEAR SIMULATIONS OF THE TCV SCRAPE-OFF LAYER 733
Nespoli, F.; Labit, B.; Furno, I.; Halpern, F. D.; Ricci, P.
ADVANCED DIVERTOR RESEARCH ON THE TCV TOKAMAK 737
Vijvers, W. A.; Canal, G. P.; Duval, B. P.; Labit, B.; Lipschultz, B.; Lunt, T.; Nespoli, F.; Reimerdes, H.; Sheikh, U.; Theiler, C.; Tsui, C.; Verhaegh, K. H.
MODEL-BASED RECONSTRUCTION AND FEEDBACK CONTROL OF THE PLASMA PARTICLE DENSITY IN TOKAMAKS 741
Blanken, T.; Felici, F.; De Baar, M.; Heemels, M.
RUNAWAY ELECTRONS IN NON-DISRUPTIVE TORE SUPRA PLASMAS 745
Nilsson, E.; Peysson, Y.; Decker, J.; Artaud, J. F.; Aniel, T.; Irishkin, M.; Mazon, D.
LONG PULSE RF HEATING AND CURRENT DRIVE SCENARIOS FOR WEST 749
Ekedahl, A. C.; Bourdelle, C.; Artaud, J.; Colas, L.; Decker, J.; Delpech, L.; Dumont, R.; Goniche, M.; Helou, W.; Hillairet, J.; Lombard, G.; Mollard, P.; Nardon, E.; Peysson, Y.; Tsitrone, E.
PROGRESS WITH THE ENEA-ORNL HIGH-SPEED FOUR BARRELS PELLET INJECTOR 753
Frattolillo, A.; Migliori, S.; Podda, S.; Bombarda, F.; D'Elia, G.; Poggi, F.; Combs, S. K.; Foust, C. R.; Meitner, S. J.; Fehling, D. T.; Baylor, L. R.; Roveta, G.
PREDICTIONS OF NEUTRAL BEAM CURRENT DRIVE IN DEMO USING BBNBI AND ASCOT WITHIN THE EUROPEAN TRANSPORT SIMULATOR 757
Asunta, O.; Coelho, R.; Kalupin, D.; Johnson, T.; Franke, T.
GYROKINETIC INVESTIGATION OF ISOTOPE EFFECT ON FLOW OSCILLATIONS IN OHMIC TOKAMAK DISCHARGES 761
Niskala, P. E.; Kiviniemi, T.; Leerink, S.; Korpilo, T.
MICROINSTABILITIES IN THE CONFINEMENT ZONE NEAR THE TOKAMAK EDGE 765
Roach, C. M.; Abdoul, P.; Anastopoulos, M.; Connor, J. W.; Dickinson, D.; Hastie, J.; Saarelma, S.; Wilson, H. R.
BENCHMARKING NEUTRAL BEAM INJECTION CODES WITHIN THE EUROPEAN INTEGRATED MODELLING FRAMEWORK 769
Schneider, M.; Asunta, O.; Johnson, T.; Kalupin, D.; Coelho, R.

PART 2

ON THE GENERATION AND SATURATION OF THE ZONAL FLOWS 773
Norscini, C.; Ghendrih, Ph.
NEOCLASSICAL IMPURITY TRANSPORT IN FULL-F GLOBAL GYSELA SIMULATIONS 777
Esteve, D.; Garbet, X.; Sarazin, Y.; Breton, S.; Ghendrih, Ph.; Grandgirard, V.; Cartier-Michaud, T.; Dif-Pradalier, G.; Norscini, C.
KINETIC THEORY OF PHASE SPACE PLATEAUX 781
Eriksson, F.; Nyqvist, R.; Lilley, M.
TOKAMAK GOLEM FOR FUSION EDUCATION - CHAPTER 6 785
Löffelmann, V.; Dimitrova, M.; Ficker, O.; Grover, O.; Kocman, J.; Krbec, J.; Matena, L.; Stöckel, J.; Svoboda, V.; Vondrášek, G.
NONLINEAR SIMULATIONS OF THE FISHBONE INSTABILITY 789
Idouakass, M.; Faganello, M.; Berk, H. L.; Garbet, X.; Benkadda, S.
INFLUENCE OF COLLISIONS ON PARAMETRIC INSTABILITIES PRODUCED BY LOWER HYBRID WAVE POWER 793
Castaldo, C.; Di Siena, A.; Fedele, R.; Napoli, F.; Amicucci, L.; Cesario, R.; Schettini, G.
PREDICTIVE SIMULATIONS OF REACTOR-SCALE PLASMAS FUELLED WITH MULTIPLE PELLETS WITH THE EUROPEAN TRANSPORT SIMULATOR 797
Kalupin, D.; Asunta, O.; Coelho, R.; Coster, D.; Ferreira, J.; Figueiredo, A.; Gal, K.; Ivanova-Stanik, I.; Jonsson, T.; Owsiak, M.; Palak, B.; Schneider, M.; Stankiewicz, R.; Strand, P.
NEOCLASSICAL TRANSPORT IN DISPLACED TOKAMAK HELICAL CORES 801
Garcia-Regana, J. M.; Smith, H.; Turkin, Y.; Sertoli, M.; Angioni, C.; Bustos, A.; Cooper, W. A.; Geiger, J.; Kleiber, R.; Strumberger, E.
ICRH ANALYSIS OF HIGH-PERFORMANCE JET HYBRID DISCHARGES USING PION MODELLING AND NEUTRON SPECTROMETRY MEASUREMENTS 805
Mantsinen, M.; Eriksson, J.; Challis, C.; Frigione, D.; Garcia, J.; Giroud, C.; Hjalmarsson, A.; King, D.
A NOVEL GRIDDED RETARDING FIELD ENERGY ANALYZER FOR IEDF MEASUREMENT 809
Ghosh, S.; Chattopadhyay, P. K.; Ghosh, J.; Bora, D.
HIGH RESOLUTION EQUILIBRIUM AND STABILITY CALCULATIONS OF PEDESTAL AND SOL PLASMA IN TOKAMAKS 813
Medvedev, S.; Martynov, A.; Ivanov, A.; Poshekhonov, Y.
EXPERIMENTAL CAMPAIGN TO TEST THE CAPABILITY OF STARDUST-UPGRADE DIAGNOSTICS TO INVESTIGATE LOVA AND LOCA CONDITIONS 817
Poggi, L.; Malizia, A.; Ciparisse, J.; Gelfusa, M.; Murari, A.; Pierdiluca, S.; Lo Re, E.; Gaudio, P.
TRANSPORT BARRIERS FORMATION AND PROPERTIES STUDY BASED ON BIFURCATION CONCEPT 821
Onjun, T.; Chatthong, B.; Picha, R.; Poolyarat, N.; Promping, J.
PLASMA RESPONSE IN TOKAMAKS BY HELICAL CURRENT SHEET APPLICATION 825
Roberto, M.; Fraile Júnior, A. C.; Caldas, I. L.
DEVELOPMENT OF TOKAMAK PLASMA VERTICAL CONTROL SYSTEM WITH NEUTRAL POINT TAKING INTO ACCOUNT 829
Khayrutdinov, R.; Dubrov, M.; Lukash, V.; Sokolov, M.; Khayrutdinova, V.; Dokuka, V.
COMPUTATION OF DUST PARTICLE EVOLUTION IN DIVERTOR PLASMA 833
Bastykova, N.; Kodanova, S.; Ramazanov, T.; Maiorov, S.
EFFECT OF 3D FERROMAGNETIC MATERIALS ON PLASMA NONLINEAR EVOLUTION IN FUSION DEVICES 837
Barbato, L.; Mastrostefano, S.; Rubinacci, G.; Ventre, S.; Villone, F.
DESIGN OPTIONS FOR STELLARATOR DIVERTORS 841
Punjabi, A.; Boozer, A.
MAGNETIC SHEAR AND STABILITY OF GOLDEN MAGNETIC BARRIER IN DIVERTOR TOKAMAK 845
Ali, H.; Punjabi, A.
STATISTICAL PROPERTIES OF POLOIDAL TRANSPORT IN ZONAL FLOWS WITH FINITE LARMOR RADIUS EFFECTS 849
Martinell, J. J.; Velasco, H.
PECULIAR TRANSPORT BARRIERS ONSET IN LARGE ASPECT RATIO TOKAMAKS 853
Caldas, I. L.; Bartoloni, B.; Abud, C. V.
A QUANTITATIVE MODEL FOR HEAT PULSE PROPAGATION IN LARGE HELICAL DEVICE PLASMAS USING A TRAVELLING WAVE TRANSFORMATION 857
Zhu, H.; Dendy, R. O.; Chapman, S. C.; Inagaki, S.
SCALING OF THE MEASURED INTENSITY OF ION CYCLOTRON EMISSION WITH THE CONCENTRATION OF ENERGETIC IONS IN LARGE TOKAMAK PLASMAS 861
Dendy, R.; Carbajal, L.; Chapman, S.; Cook, J.
INTERACTION OF EXPLOSIVE MULTIPLE FILAMENTS IN MAGNETISED PLASMAS 865
Henneberg, S. A.; Cowley, S. C.; Wilson, H. R.
BLOB DYNAMICS IN TORPEX NULL POINT CONFIGURATIONS 869
Shanahan, B.; Dudson, B.; Avino, F.; Furno, I.; Hill, P.; Fasoli, A.
RESPONSE OF TOROIDAL DRIFT MODES TO PROFILE EVOLUTION: A SMALL-ELM MODEL? 873
Bokshi, A.; Dickinson, D.; Roach, C. M.; Wilson, H. R.
THE EFFECT OF CLUSTERS ON THE GENERATION OF HIGH HARMONICS 877
Földes, I.; Aladi, M.; Bolla, R.

AMPLIFICATION OF SHORT LASER PULSES BY STIMULATED BRILLOUIN BACKSCATTERING 881
Gangolf, T.; Lancia, L.; Marquès, J.; Giribono, A.; Glize, K.; Blecher, M.; Vassura, L.; Frank, A.; Quinn, M.; Cerchez, M.; Riconda, C.; Weber, S.; Chiaramello, M.; Mourou, G.; Willi, O.; Fuchs, J.

DYNAMICAL PROPERTIES OF DENSE PLASMA IN INERTIAL CONFINEMENT FUSION 885
Issanova, M.; Kodanova, S.; Ramazanov, T.

QUASI MONOENERGETIC ELECTRONS FROM SHOCKWAVE INJECTION 889
Koschitzki, C.; Schnuerer, M.; Ehrentraut, L.

SHOCK WAVE ACCELERATION WITH SHORT, HIGH POWER LASER PULSES IN TWO-ION-SPECIES PLASMA 893
Lécz, Z.; Andreev, A.

VISIBLE TOMOGRAPHY OF COHERENT MODES IN A LINEAR MAGNETIZED PLASMA 897
David, P.; Escarguel, A.; Camenen, Y.; Boeuf, J.

SPECTROSCOPIC DIAGNOSTICS OF WEAKLY-IONIZED ARGON SURFACE WAVE PLASMA BASED ON CR MODEL 901
Kawazoe, H.; Takeuchi, S.; Yamada, G.; Setou, M.; Matsuno, M.

MULTIRESOLUTION AND FAST MULTIPOLE METHODS FOR STREAMER SIMULATIONS 905
Bilek, P.; Bonaventura, Z.; Duarte, M.; Bourdon, A.

A THREE DIMENSIONAL SIMULATION OF INDUCTIVELY COUPLED PLASMA SOURCES FOR TFT FABRICATIONS 909
Choe, H.; Lee, Y.-J.; Kwon, D.-C.

FLUID MODELLING OF PLASMA AT LOW PRESSURES 913
Hromadka, J., Ibehej, T., Hrach, R.

SIMPLE MODEL OF THE DISCHARGE FOR HALL THRUSTERS 917
Shumilin, N. V.; Shumilin, V. P.; Shumilin, A. V.

THE INFLUENCE OF ANODE TEMPERATURE ON THE LENGTH OF THE ANODE PLASMA IN A GAS DISCHARGE UNDER CONDITIONS OF STRONG IONIZATION DEPLETION OF NEUTRAL PARTICLES 921
Shumilin, A. V.; Shumilin, V. P.; Shumilin, N. V.

2D SIMULATIONS AND EXPERIMENTS ON STREAMING INSTABILITIES IN A PENNING DISCHARGE 925
King, M.; Speirs, D. C.; Heelis, T.; Bingham, R.; Whyte, C. G.; Robertson, C. W.; Phelps, A. D.; Koepke, M. E.; McConville, S. L.; Cairns, A.; Vorgul, I.; Ronald, K.

FAST MEASUREMENTS OF THE ELECTRON TEMPERATURE IN DIVERTOR REGION OF THE COMPASS TOKAMAK USING BALL-PEN PROBE 929
Adamek, J.; Seidl, J.; Panek, R.; Komm, M.; Stöckel, J.; Vondracek, P.

EFFECTS OF PLASMA CONTROL ON RUNAWAY ELECTRONS IN THE COMPASS TOKAMAK 933
Mlynar, J.; Ficker, O.; Vlainic, M.; Weinzettl, V.; Imrisek, M.; Paprok, R.; Rabinski, M.; Jakubowski, M.; Tomes, M.; Peterka, M.; Panek, R.

OBSERVATION OF GEODESIC ACOUSTIC MODE-LIKE OSCILLATIONS ON COMPASS 937
Seidl, J.; Hron, M.; Adamek, J.; Vondracek, P.; Horacek, J.; Hidalgo, C.; Melnikov, A.; Eliseev, L.; Markovic, T.; Stockel, J.; Basu, D.; Hacek, P.; Havlicek, J.; Imrisek, M.; Kovarik, K.; Weinzettl, V.; Panek, R.

ALFVEN-WAVE CHARACTER OSCILLATIONS IN TOKAMAK COMPASS PLASMA 941
Markovic, T.; Seidl, J.; Melnikov, A.; Hacek, P.; Havlicek, J.; Havranek, A.; Hron, M.; Hronova, O.; Imrisek, M.; Janky, F.; Kovarik, K.; Mikulin, O.; Panek, R.; Paprok, R.; Pipek, J.; Vondracek, P.; Weinzettl, V.

ELM AND INTER-ELM ELECTROMAGNETIC FILAMENTS IN THE COMPASS SCRAPE OFF LAYER 945
Spolaore, M.; Kovarik, K.; Stockel, J.; Adamek, J.; Duran, I.; Komm, M.; Martines, E.; Seidl, J.; Vienello, N.

SYNCHROTRON RADIATION FROM RUNAWAY ELECTRONS IN COMPASS TOKAMAK 949
Vlainic, M.; Vondracek, P.; Mlynar, J.; Weinzettl, V.; Ficker, O.; Varavin, M.; Paprok, R.; Imrisek, M.; Havlicek, J.; Panek, R.; Noterdaeme, J.

ANALYSIS OF THE POTENTIAL OF ICRF WAVES TO HEAT BULK IONS IN DEMO 953
Gallart, D.; Mantsinen, M. J.; Kazakov, Y.

DEMO EXHAUST CHALLENGES BEYOND ITER 957
Wenninger, R.; Kemp, R.; Maviglia, F.; Zohm, H.; Albanese, R.; Ambrosino, R.; Arbeiter, F.; Aubert, J.; Bachmann, C.; Biel, W.; Fable, E.; Federici, G.; Garcia, J.; Loarte, A.; Martin, Y.; Pütterich, T.; Reux, C.; Sieglin, B.; Vincenzi, P.

IMPURITY LIMITS IN A REACTOR GRADE FUSION DEVICE 961
Pütterich, T.; Fable, E.; Dux, R.; Neu, R.; O'Mullane, M. G.; Wenninger, R.

MHD LIMIT CYCLES ON FTU 965
Pucella, G.; Buratti, P.; Cianfarani, C.; Giovannozzi, E.

RUNAWAY ELECTRON EXPERIMENTS IN FTU 969
Esposito, B.; Carnevale, D.; Martin-Solis, J.; Boncagni, L.; Popovic, Z.; Causa, F.; Agostini, M.; Alessi, E.; Apruzzese, G.; Bin, W.; Buratti, P.; Cianfarani, C.; De Angelis, R.; Galeani, S.; Galperti, C.; Garavaglia, S.; Gospodarczyk, M.; Grosso, A.; Granucci, G.; Maddaluno, G.; Marocco, D.; Mazzotta, C.; Panaccione, L.; Pensa, A.; Piergotti, V.; Podda, S.; Pucella, G.; Ramogida, G.; Riva, M.; Rocchi, G.; Sassano, M.; Sibio, A.; Sozzi, C.; Tilia, B.; Tudisco, O.; Valisa, M.

NEON TRANSPORT SIMULATION FOR HIGHLY PEAKED DENSITY FTU PLASMA 973
Mazzotta, C.; Puiatti, M.; Gabellieri, L.; Apruzzese, G.; Dolci, V.; Carraro, L.; Causa, F.; Romano, A.

EXPERIMENTAL STUDIES WITH THE IMPROVED CTS DIAGNOSTICS ON FTU AND EVIDENCES OF SCATTERED WAVE SIGNALS WITH SHORT TIME-SCALE 977
Bruschi, A.; Bin, W.; D'Arcangelo, O.; Alessi, E.; Belli, F.; Cocilovo, V.; Figini, L.; Galperti, C.; Garavaglia, S.; Granucci, G.; Grosso, G.; Korsholm, S. B.; Lontano, M.; Mellera, V.; Moro, A.; Nielsen, S. K.; Ramogida, G.; Tartari, U.

RUNAWAY ELECTRON DYNAMICS AND CRITICAL ELECTRIC FIELD FOR RUNAWAY GENERATION IN THE FTU TOKAMAK 981
Popovic, Z.; Esposito, B.; Martin-Solis, J.; Bin, W.; Boncagni, L.; Carnevale, D.; Gospodarczyk, M.; Marocco, D.; Ramogida, G.; Riva, M.

TOWARDS AN ASSESSMENT OF ALTERNATIVE DIVERTOR SOLUTIONS FOR DEMO 985
Reimerdes, H.; Aho-Mantila, L.; Albanese, R.; Ambrosino, R.; Arter, W.; Brezinsek, S.; Bufferand, H.; Calabro, G.; Ciraolo, G.; Coster, D.; Fernandes, H.; Harrison, J.; Kaldre, I.; Lackner, K.; Lielausis, O.; Loureiro, J.; Lunt, T.; Mazzitelli, G.; McIntosh, S.; Militello, F.; Morgan, T.; Pelekasis, N.; Pelka, G.; Pericoli, V.; Philipps, V.; Subba, F.; Tabares, F.; Viola, B.; Wenninger, R.; Zagorski, R.; Zohm, H.

IMPACT OF LOCALIZED ECRH ON ALFVEN EIGENMODES IN THE ASDEX UPGRADE TOKAMAK 989
Garcia-Munoz, M.; Van Zeeland, M. A.; Sharapov, S.; Classen, I. G. J.; Bobkov, B.; Galdon-Quiroga, J.; Geiger, B.; Igochine, V.; Lauber, P.; Lazanyi, N.; Nabais, F.; Nikoleva, V.; Pace, D. C.; Rodriguez-Ramos, M.; Sanchis-Sanchez, L.; Schneller, M.; Snicker, A.; Stober, J.

COUPLED CORE/SOL MODELLING OF FUELLING REQUIREMENTS DURING THE CURRENT RAMP-UP OF ITER L-MODE PLASMAS 993
Belo, P.; Romanelli, M.; Parail, V.; Corrigan, G.; Harting, D.; Garzotti, L.; Koechl, F.; Millitelo-Asp, E.; Mattei, M.; Ambrosino, R.; Loarte, A.; Kukushkin, A.; Sartori, R.; Cavinato, M.

SIMULATION OF THE INFLUENCE OF THE OPERATION CONDITIONS OF GDC AND ICWC ON ISOTOPE EXCHANGE IN BE LAYERS AS MEAN OF T INVENTORY CONTROL IN ITER 997
Douai, D.; Kogut, D.; Brezinsek, S.; Wauters, T.

COMPREHENSIVE EVALUATION OF THE LINEAR STABILITY OF ALFVÉN EIGENMODES DRIVEN BY ALPHA PARTICLES IN AN ITER BASELINE SCENARIO 1001
Figueiredo, A.; Rodrigues, P.; Borba, D.; Coelho, R.; Fazendeiro, L.; Ferreira, J.; Loureiro, N.; Nabais, F.; Pinches, S.; Polevoi, A.; Sharapov, S.

LINEAR STABILITY OF ALPHA-PARTICLE–DRIVEN ALFVÉN EIGENMODES IN ITER BURNING-PLASMA SCENARIOS 1005
Rodrigues, P.; Figueiredo, A. C.; Fazendeiro, L.; Ferreira, J.; Coelho, R.; Nabais, F.; Borba, D.; Polevoi, A.; Pinches, S. D.; Sharapov, S. E.

STUDY OF ELM TRIGGERING BY AXISYMMETRIC IN-VESSEL COILS 1009
Gribov, Y.; Kavin, A.; Lukash, V.; Khayrutdinov, R.; Huijsmans, G.; Loarte, A.

ASSESSMENT OF NEUTRON EMISSION FROM DD TO DT OPERATION OF ITER 1013
Polevoi, A. R.; Loarte, A.; Bilato, R.; Bertalot, L.; Budny, R. V.; Fable, E.; Gorelenkova, M.; Loughlin, M.; Polunovskiy, E.

SIMULATIONS OF ITER AND DEMO PLASMAS DURING PELLET OPERATION USING BALDUR CODE WITH A THEORY-BASED TOROIDAL VELOCITY MODEL 1017
Wisitsorasak, A.; Klaywittaphat, P.; Chatthong, B.; Onjun, T.

LINEAR IDEAL AND RESISTIVE MHD STABILITY ANALYSIS OF POST-DISRUPTION PLASMAS WITH RUNAWAY ELECTRONS IN ITER 1021
Aleynikova, K.; Huijsmans, G.; Aleynikov, P.

OPTIMIZATION OF PLASMA CURRENT RAMP-UP IN DINA SIMULATIONS OF 15 MA ITER SCENARIO WITH JINTRAC PLASMA TRANSPORT MODELLING 1025
Lukash, V.; Kavin, A.; Gribov, Y.; Khayrutdinov, R.; Koechl, F.; Loarte, A.

EVOLUTION OF FAST PARTICLE DRIVEN MHD INSTABILITIES FOR ITER 15MA SCENARIO 1029
Isaev, M. Y.; Konovalov, S. V.; Medvedev, S. Y.

RECOVERY OF RELATIVE CONTRIBUTIONS OF SOL EMISSION AND DIVERTOR STRAY LIGHT IN BALMER-ALPHA SPECTROSCOPY IN ITER 1033
Neverov, V.; Kukushkin, A. B.; Alexeev, A. G.; Lisgo, S. W.

MODELING OF PRE-THERMAL QUENCH STAGE OF DISRUPTION IN ITER TRIGGERED BY MASSIVE GAS INJECTION 1037
Leonov, V.; Zhogolev, V.; Konovalov, S.

COMPARATIVE ANALYSIS OF ELECTRON CYCLOTRON RADIATION POWER LOSSES IN TOKAMAKS IGNITOR AND ITER 1041
Minashin, P. V.; Kukushkin, A. B.

EXPERIMENTAL INVESTIGATION OF HALO CURRENT CHARACTERISTICS IN KSTAR 1045
Bak, J.; Kim, H. S.; Hahn, S. H.; Kim, J.

CHARACTERISTIC OF EDGE TURBULENCE IN THE ELM-CRASH-SUPPRESSED H-MODE PLASMA 1049
Lee, J.; Choi, M. J.; Yun, G.; Lee, W.; Park, H.; Luhmann, N.

ROLE OF THE EQUILIBRIUM AND PERTURBATIVE CENTRAL CURRENT DENSITY IN SAWTOOTHING AND NON-SAWTOOTHING DISCHARGES IN KSTAR 1053
Park, H. K.; Nam, Y.; Choi, M.; Choe, G.; Lee, W.; Yun, G.; Jardin, S.

STUDIES ON RFX-MOD DISCHARGES WITH SPONTANEOUS ROTATION 1057
Zaniol, B.; Bolzonella, T.; Cavazzana, R.; Innocente, P.; Zanca, P.; Zuin, M.

H-MODE ACCESSIBILITY IN OHMIC DISCHARGES ON RFX-MOD 1061
Kudlacek, O.; Cavazzana, R.; Finotti, C.; Marchiori, G.; Marrelli, L.; Piovesan, P.; Zanca, P.; Zuin, M.

HEAT FLUX MEASUREMENTS ON GRAPHITE SAMPLES IN RFX-MOD 1065
Visonà, N.; Canton, A.; Innocente

EXPLOITING GENETIC ALGORITHMS IN TRANSPORT MODELLING IN RFX-MOD 1069
Auriemma, F.; Sattin, F.; Urso, G.; Escande, D. F.

CHARACTERIZATION OF PARTICLE DYNAMICS AND MAGNETIC RECONNECTION IN THE RFX-MOD PLASMAS 1073
Zuin, M.; Stevanato, L.; Martines, E.; Auriemma, F.; Momo, B.; Cavazzana, R., De Masi, G., Gonzalez, W., Lorenzini, R., Scarin, P., Spagnolo, S., Spoloare, M., Vianello, N., Schneider, W., Cester, D., Nebbia, G., Sajo-Bohus, L., Viesti, G.

ANALYSIS OF VERTICAL STABILITY AND RESISTIVE WALL MODES IN RFX-MOD TOKAMAK DISCHARGES INCLUDING 3D EFFECTS 1077
Abate, D.; Barbato, L.; Finotti, C.; Marchiori, G.; Marconato, N.; Mastrostefano, S.; Villone, F.

TRANSPORT ANALYSIS OF IMPURITIES INJECTED BY LASER BLOW-OFF IN ECRH AND NBI HEATED PLASMAS OF TJ-II 1081
Zurro, B.; Velasco, J. L.; Hollmann, E. M.; Baciero, A.; Ochando, M. A..; Dux, R.; McCarthy, K. J.; Medina, F.; Pastor, I.; Hajjar, R. J.; García-Regaña, J. M.; López-Bruna, D.; Melnikov, A. V.; Eliseev, L. G.

LONG-LASTING CORE COHERENT MODES IN TJ-II STELLARATOR PLASMAS 1085
Ochando, M. A.; Sun, B.; Lopez-Bruna, D.

MAGNETIC ISLAND ROTATION IN TJ-II PLASMAS 1089
Sun, B.; Lopez-Bruna, D.; Ochando, M. A.; Pedrosa, M. A.

INFLUENCE OF LONG-SCALE LENGTH RADIAL ELECTRIC FIELD COMPONENTS ON ZONAL FLOW-LIKE STRUCTURES IN THE TJ-II STELLARATOR 1093
Losada Rodríguez, U.; Pedrosa Luna, M.; Alonso De Pablo, J.; Silva, C.; Van Milligen, B.; Hidalgo, C.

PROGRESS ON SMALL MODULAR STELLARATOR SCR-1 1097
Vargas-Blanco, I., Mora, J., Otárola, C., Zamora, E., Asenjo, J., Mora, A., Villalobos, E.

ANALYSIS OF THE ENERGY DISTRIBUTION OF ESCAPING SUPRATHERMAL IONS IN NEUTRAL-BEAM INJECTION PHASE OF THE TJ-II STELLARATOR 1101
Martínez Fuentes, M. A.; Zurro, B.; Baciero, A.; Jiménez Rey, D.; Tribaldos, V.

ELECTROMAGNETIC TURBULENCE MEASUREMENTS DURING THE L-H TRANSITION IN THE TJ-II STELLARATOR 1105
Liu, B.; Spolaore, M.; Losada, U.; Alonso, A.; Pedrosa, M.; Estrada, T.; Van Milligen, B.; Nicola, V.; Hidalgo, C.

THE INFLUENCE OF ALFVÉN WAVES ON FAST ION CONFINEMENT IN TJ-II PLASMAS 1109
Fontdecaba, J.; Castejón, F.; Ascasíbar, E;, Cappa, Á.; Estrada, T., Liniers, M., De Bustos, A.

NBI RELATED GAS SOURCES IN THE TJ-II STELLARATOR 1113
Liniers, M.; Martín-Díaz, F.; Sebastián, J. A.; Wolfers, G.; Carrasco, R.; Rojo, B.; Miguel, F.; Sánchez, E.; Martín, F.; De La Cal, E.; Fontdecaba, J. M.; Ascasíbar, E.; Guasp, J.

SIMULATING BURNING PLASMA OPERATION IN ITER 1117
Kim, S.; Casper, T. A.; Campbell, D. J.; Snipes, J. A.; Bulmer, R.; LoDestro, L. L.; Meyer, W. H.; Pearlstein, L. D.

RELIABILITY STUDY OF PELLET ELM PACE MAKING 1121
Kocsis, G.; Lang, P. T.; Cseh, G.; Dunne, M.; Horváth, L.; Mertens, V.; Meyer, H.; Ploeckl, B.; Pokol, G. I.; Pölöskei, P. Z.; Sieglin, B.; Szepesi, T.; Viezzer, E.

RELAXATION OF ZONAL FLOWS IN STELLARATORS: INFLUENCE OF THE MAGNETIC CONFIGURATION 1125
Sánchez, E.; Monreal, P.; Calvo, I.; Kleiber, R.

INERTIA AND EQUILIBRIUM IMPURITY FLOW IN 3D MAGNETIC SURFACES 1129
Alonso, J. A.; Velasco, J. L.; Calvo, I.

REFMULF: 2D FULLWAVE FDTD FULL POLARIZATION MAXWELL CODE 1133
Da Silva, F.; Heuraux, S.; Ribeiro, T.; Aguiam, D.

NUMERICAL EVALUATION OF X-BEAM BROADENING AT PLASMA EDGE USING A FDTD FULLWAVE CODE 1137
Da Silva, F. J.; Heuraux, S.; Sysoeva, E.; Gusakov, E.; Popov, A.

SIMULATION OF MULTIBAND SWEPT REFLECTOMETRY FOR PROFILE EVALUATION ON DEMO USING A FDTD MAXWELL FULLWAVE CODE 1141
Silva, A. E.; Da Silva; F., Heuraux, S.

SCIENTIFIC WORKFLOWS FOR MHD STABILITY CHAIN ANALYSIS OF TOKAMAK PLASMASSCIENTIFIC WORKFLOWS FOR MHD STABILITY CHAIN ANALYSIS OF TOKAMAK PLASMAS 1145
Coelho, R.; Merle, A.; Vlad, G.; Yadikin, D.; Owsiak, M.; Dunne, M.; Buratti, P.; Sauter, O.; Chapman, I.

PERSPECTIVE OF NEGATIVE TRIANGULARITY TOKAMAK AS FUSION ENERGY SYSTEM 1149
Kikuchi, M.; Medvedev, S.; Takizuka, T.; Fasoli, A.; Wu, Y.; Diamond, P.; Duan, X.; Kishimoto, Y.; Hanada, K.; Villard, L.; Sauter, O.; Coda, S.; Duval, B.; Reimerdes, H.; Brunner, S.; Merlo, G.; Jiang, J.; Wang, M.; Ni, M.; Chen, D.; Du, H.; Duan, W.; Ivanov, A.; Martynov, A., Poshekhonov, Y.; Ueda, Y.; Yan, L.; Song, X.; Zheng, G.; Liu, L.; Nagasaki, K.; Imadera, K.; Zushi, H.; Fujisawa, A.; Nakamura, K.; Mishra, K., Pueschel, M.; Xu, X.; Zhu, P.; Told, D.; Li, G.; Furukawa, M.; Ozeki, T.; Shimizu, K.; Kawashima, H.; Urano, H.; Honda, M.; Ando, T.; Kuriyama, M.

DEVELOPMENT OF THE MULTI-FLUID TRANSPORT CODE ON THE TOKAMAK FLUX COORDINATES 1153
Honda, M.; Fukuyama, A.

TWO-FLUID EQUILIBRIUM ANALYSIS OF SPHERICAL TORUS PLASMAS SUSTAINED BY MULTI-PULSING COAXIAL HELICITY INJECTION 1157
Kanki, T.; Nagata, M.

IMPURITY TRANSPORT STUDY BASED ON RADIAL PROFILE ANALYSIS OF FE L_α ARRAY WITH N=3-2 TRANSITIONS OF FEXVII TO FEXXIV IN LHD 1161
Huang, X.; Morita, S.; Oishi, T.; Goto, M.; Zhang, H.; Murakami, I.

EFFECT OF ASPECT-RATIO ON CONFINEMENT PROPERTIES OF PLANAR-AXIS AND NON-PLANAR-AXIS STELLARATORS 1165
Okamura, S.

IMPACTS OF SHEARED TOROIDAL ROTATION ON MAGNETIC ISLAND IN 3D MHD EQUILIBRIA 1169
Suzuki, Y.; Nakamura, Y.

TURBULENT FLUCTUATIONS AND UNSTABLE DRIFT WAVE IN PLASMA SHEARED FLOW 1173
Chirkov, A. Y.; Karbushev, D. N.; Khvesyuk, V. I.

COMMISSIONING OF A NON-CIRCULAR VDE-FREE TOKAMAK WITH SADDLE COILS 1177
Kobayashi, T.; Hatakeyama, S.; Watanabe, M.; Tsutsui, H.; Tsuji-Iio, S.

APPLICATION OF MICROWAVE FREQUENCY COMB FOR PLASMA REFLECTOMETRY 1181
Inagaki, S.; Tokuzawa, T.; Mizokami, T.; Yamada, T.; Nagashima, Y.; Fujisawa, A.

PARAMETER RESEARCH IN MAGNETIC FIELD STRUCTURE AROUND THE OUTERMOSTSURFACES OF L=1 HELICAL SYSTEMS 1185
Aizawa, M.; Nagamine, Y.

CONTROL-ORIENTED DYNAMICAL MODEL OF DISRUPTION GENERATED RE BEAM 1189
Carnevale, D.; Gospodarczyk, M.; Esposito, B.; Boncagni, L.; Sassano, M.; Galeani, S.; Bin, W.; Buratti, P.; Calabrò, G.; Cianfarani, C.; Gabrielli, A.; Ferrò, G.; Granucci, G.; Marocco, D.; Martin-Solis, J.; Martinelli, F.; Panaccione, L.; Popovic, Z.; Ramogida, G.; Riva, M.; Tudisco, O.; Pucella, G.

THEORY FOR NEOCLASSICAL TOROIDAL PLASMA VISCOSITY IN FINITE ASPECT RATIO TOKAMAKS WITH BROKEN SYMMETRY 1193
Shaing, K.

IMPROVEMENT OF ONE-DIMENSIONAL FLUID MODELING OF THE SOL-DIVERTOR PLASMAS AND NEUTRALS CONCERNING THE ANISOTROPY OF ION TEMPERATURE AND THE DIFFUSION COEFFICIENT OF NEUTRALS 1197
Togo, S.; Takizuka, T.; Nakamura, M.; Hoshino, K.; Ibano, K.; Lang, T.; Ogawa, Y.

INFLUENCE OF CHARGE STATE EVOLUTION IN THE ENERGY DEPOSITION OF URANIUM IONS TRAVELING THROUGH HYDROGEN PLASMA 1201
Morales, R.; Barriga-Carrasco, M.; Casas, D.; Boine-Frankenheim, O.; Jacoby, J.

GENERATION AND TRANSPORT OF GAMMA-RAYS IN ULTRA-INTENSE LASER-MATTER INTERACTIONS 1205
Nakamura, T.; Hayakawa, T.

COMPREHENSIVE INVESTIGATIONS OF ABLATIVE PLASMA AND CRATER FORMATION IN EXPERIMENTS AT PALS RELATED TO SHOCK IGNITION CONCEPT 1209
Pisarczyk, T.; Gus'kov, S. Y.; Renner, O.; Demchenko, N. N.; Smid, M.; Dudzak, R.; Chodukowski, T.; Kalinowska; Rosinski, M.; Parys, P.; Dostal, J.; Badziak, J.; Batani, D.; Borodziuk, S.; Krousky, E.; Antonelli, L.; Maheut, Y.; Cristoforetti, G.; Gizzi, L. A.; Koester, P.; Labate, L.; Baffigi, F.; Ullschmied, J.; Hrebicek, J.; Medrik, T.; Pfeifer, M.; Skala, J.; Pisarczyk

X-RAY SPECTROSCOPIC DIAGNOSIS OF HOT ELECTRON PRODUCTION IN LASER-IRRADIATED CU TARGETS 1213
Renner, O.; Smid, M.; Batani, D.; Antonelli, L.; Barbato, F.; Rosmej, F.

ON A HIGHLY IONIZING SHOCK WAVE IN A GAS OF HIGH ATMOSPHERIC PRESSURE 1217
Sadykova, S. P.; Rukhadze, A. A.; Samkharadze, T. G.

COMPLEX SPACE-CHARGE CONFIGURATION INSIDE AND AROUND A GRID CATHODE WITH HOLE 1221
Schrittwieser, R. W.; Teodorescu-Soare, C. T.; Dimitriu, D. G.; Ionita, C.

ELECTRON KINETICS IN ATMOSPHERIC-PRESSURE DISCHARGES OF HELIUM MIXTURES WITH N_2 AND O_2 1225
Viegas, P.; Bourdon, A.; Alves, L. L.; Guerra, V.

VACUUM ULTRAVIOLET EMISSION FROM MICROWAVE DRIVEN HYDROGEN PLASMAS 1229
Espinho, S.; Felizardo, E.; Tatarova, E.; Dias, F. M.

ACTIVE RIBLETS 1233
Ivchenko, A. V.

ADAPTATION OF PLASMA FOCUS TYPE FACILITIES FOR LABORATORY SIMULATION OF ASTROPHYSICAL JETS 1237
Kraus, V.; Myalton, V.; Vinogradov, V.; Velikhov, E.; Ananyev, S.; Dan'Ko, S.; Kalinin, Y.; Kharrasov, A.; Mitrofanov, K.; Vinogradova, Y.

LABORATORY MODELING OF MAGNETIZED ACCRETION DYNAMICS 1241
Revet, G.; Higginson, D. P.; Beard, J.; Bleicher, M.; Burdocov, K.; Borghesi, M.; Chen, S. N.; Khagani, D.; Khiar, B.; Naughton, K.; Pikuz, S.; Riconda, C.; Riquier, R.; Soloviev, A.; Vinci, T.; Willi, O.; Portugall, O.; Pepin, H.; Ciardi, A.; Fuchs, J.

PERTURBATION THEORY FOR THE COLLECTIVE INTERACTION OF RELATIVISTIC PARTICLES WITH A LOCALISED EM WAVE IN A MAGNETIZED PLASMA 1245
Anastassiou, G.; Kominis, Y.; Zestanakis, P. A.; Hizanidis, K.

ION ACOUSTIC ROGUE WAVES IN A MAGNETIZED PLASMA WITH A Q NONEXTENSIVE ELECTRON VELOCITY DISTRIBUTION: APPLICATION TO SOLAR WIND PLASMA 1249
Bacha, M.; Shahmansouri, M.; Tribeche, M.

PIC SIMULATIONS OF COLLISIONLESS SHOCKS IN LABORATORY-SCALED MINI MAGNETOSPHERES 1253
Cruz, F.; Alves, E.; Bamford, R.; Bingham, R.; Fonseca, R.; Silva, L.

POD ANALYSIS OF HEAT TRANSPORT IN THE SOLAR CORONA FROM SDO IMAGES 1257
Gamborino, D.; Del-Castillo-Negrete, D.; Martinell, J. J.

FLUCTUATION STATISTICS IN THE SCRAPE-OFF LAYER OF ALCATOR C-MOD 1261
Kube, R.; Garcia, O.; Labombard, B.;, Terry, J.

COMPARISON OF ELECTRON INTERNAL TRANSPORT BARRIER FORMATION BETWEEN CHS AND HELIOTRON J 1265
Kenmochi, N.; Takahashi, C.; Bishioka, K.; Kobayashi, S.; Nakamura, Y.; Okada, H.; Kado, S.; Yamamoto, S.; Ohshima, S.; Konoshima, S.; Weir, G.; Ohtani, Y.; Nagasaki, K., Mizuuchi, T., Sano, F.

TURBULENCE STABILISATION BY PARALLEL FLOWS FOR THE DIII-D SHORTFALL CASE 1269
Camenen, Y.; Casson, F. J.; Manas, P.; Peeters, A. G.

COMPARISON OF RAY-TRACING AND FULL-WAVE CODE MODELING OF HELICON HEATING AND CURRENT DRIVE IN DIII-D 1273
Pinsker, R. I.; Bertelli, N.; Green, D. L.; Jaeger, E. F.; Lau, C. H.; Park, J. M.; Porkolab, M.; Prater, R.

DIVERTOR DETACHMENT STUDIES IN DIII-D 1277
Hill, D. N.; McLean, A. G.; Leonard, A. W.; Allen, S.; Briesemeister, A.; Covele, B. M.; Groth, M.; Makowski, M. A.; Petrie, T. W.; Soukhanovskii, V.; Guo, H.

MEASUREMENTS OF THE PERTURBED ROTATION IN SLOWLY ROTATING TEARING MODE ISLANDS IN DIII-D 1281
Taylor, N. Z.; La Haye, R. J.; Petty, C. C.; Ferraro, N. M.; Bowman, C.

ENHANCED H-MODE PEDESTALS WITH INCREASED DENSITY FLUCTUATIONS DURING LITHIUM AEROSOL INJECTION IN DIII-D 1285
Yan, Z.; McKee, G. R.; Osborne, T. H.; Jackson, G. L.; Maingi, R.; Mansfield, D. K.; Roquemore, A. L.; Grierson, B. A.; Chrobak, C. P.; McLean, A. G.; Allen, S. L.; Battaglia, D. J.; Briesemeister, A. R.; Fenstermacher, M.; Snyder, P. B.

CHARACTERIZATION OF HEAT LOADS FROM MITIGATED UPWARD OR DOWNWARD VDES IN DIII-D 1289
Hollmann, E. M.; Commaux, N.; Eidietis, N. W.; Lasnier, C. J.; Moyer, R. A.; Parks, P. B.; Shiraki, D.

INTER-ELM PEDESTAL EVOLUTION AND THE ROLE OF EDGE FLUCTUATIONS IN THE C-MOD AND DIII-D TOKAMAKS 1293
Diallo, A.; Groebner, R. J.; Hughes, J. W.; Rhodes, T. L.; Baek, S. G.; Labombard, B.; Terry, J. L.; Cziegler, I.; Walk Jr, J. R.; Hubbard, A. E.; Smith, D. R.; Osborne, T. H.; Canik, J. M.; Guttenfelder, W.; Snyder, P. B.

AVOIDANCE OF M=2, N=1 TEARING MODE WALL-LOCKING BY TORQUE-BALANCE CONTROL WITH MAGNETIC FEEDBACK IN DIII-D AND RFX-MOD 1297
Zanca, P.; Okabayashi, M.; Paccagnella, R.; Strait, E. J.; Garofalo, A. M.; Hanson, J. M.; In, Y.; La Haye, R. J.; Marrelli, L.; Martin, P.; Piovesan, P.; Piron, C.; Piron, L.; Shiraki, D.; Volpe, F.

UNDERSTANDING THE PHYSICS OF EHO IN QH-MODE ON DIII-D INCLUDING THE ROLE OF ROTATION SHEAR 1301
Chen, X.; Burrell, K. H.; Ferraro, N. M.; Osborne, T. H.; Muscatello, C. M.; Petty, C. C.; Garofalo, A. M.; Snyder, P. B.; Groebner, R. J.; Nazikian, R.; Kramer, G. J.; Tobias, B. J.; Solomon, W. M.; Yan, Z.; McKee, G. R.; Ren, X.; Luhmann, N. C.; Austin, M. E.

EXPERIMENTAL OBSERVATION OF AXIAL ION LOSS DURING THE ALFVEN ION-CYCLOTRON INSTABILITY IN THE GDT MIRROR 1305
Murakhtin, S. V.; Anikeev, A.; Bagryansky, P.; Korobeynikova, O.; Zaytsev, K.; Yurov, D.

STUDY OF THE NBCD IN THE SPHERICAL TOKAMAK GLOBUS-M 1309
Minaev, V. B.; Shchegolev, P. B.; Bakharev, N. N.; Chernyshev, F. V.; Gusev, V. K.; Kurskiev, G. S.; Miroshnikov, I. V.; Patrov, M. I.; Petrov, Y. V.; Sakharov, N. V.; Senichenkov, I. Y.; Telnova, A. Y.; Tolstyakov, S. Y.; Zhilin, E. G.

MODELING OF THE FAST ION BEHAVIOR IN THE GLOBUS-M SPHERICAL TOKAMAK 1313
Bakharev, N.; Chernyshev, F.; Goncharov, P.; Gusev, V.; Iblyaminova, A.; Kornev, V.; Kurskiev, G.; Melnik, A.; Minaev, V.; Mironov, M.; Patrov, M.; Petrov, Y.; Sakharov, N.; Shchegolev, P.; Tolstyakov, S.; Zadvitskiy, G.

PLASMA INVESTIGATION USING SPD XUV SILICON PHOTODIODES ON THE GLOBUS-M TOKAMAK 1317
Ibliaminova, A.; Alekseyev, A.; Aruev, P.; Bakharev, N.; Gusev, V.; Khromov, N.; Kurskiev, G.; Minaev, V.; Mukhin, E.; Zabrodsky, V.; Panov, A.; Patrov, M.; Petrov, Y.; Sakharov, N.; Shchegolev, P.; Tolstyakov, S.; Voronin, A.

GOL-NB PROJECT: NEW MULTIPLE-MIRROR TRAP WITH NBI-HEATED PLASMA 1321
Postupaev, V. V.; Batkin, V. I.; Burdakov, A. V.; Ivanov, I. A.; Kuklin, K. N.; Mekler, K. N.; Polosatkin, S. V.; Rovenskikh, A. F.; Sudnikov, A. V.

FIRST OBSERVATION OF AN ELECTRON INTERNAL TRANSPORT BARRIER IN HELIOTRON J 1325
Kenmochi, N.; Minami, T.; Takahashi, C.; Tei, S.; Nishioka, K.; Mizuuchi, T.; Kobayashi, S.; Nagasaki, K.; Nakamura, Y.; Okada, H.; Kado, S.; Yamamoto, S.; Ohshima, S.; Konoshima, S.; Weir, G. M.; Otani, Y.; Sano, F.

TEMPORAL EVOLUTION OF HIGH-DENSITY PLASMAS PRODUCED BY ADVANCED FUELLING TECHNIQUES IN HELIOTRON J 1329
Ohtani, Y.; Ohshima, S.; Asavathavornvanit, N.; Akiyama, T.; Minami, T.; Tanaka, K.; Sano, F.; Nagasaki, K.; Nakamura, Y.; Okada, H.; Kado, S.; Kobayashi, S.; Yamamoto, S.; Konoshima, S.; Weir, G. M.; Kenmochi, N.; Lu, X.; Mizuuchi, T.

PLASMA START-UP BY USING TRANSIENT COAXIAL HELICITY INJECTION ON HIST 1333
Nagata, M.; Hanao, T.; Oki, N.; Uesaka, Y.; Kawai, T.; Kikuchi, Y.; Fukumoto, N.; Kanki, T.

FISHBONE INSTABILITY TRIGGERED NONLOCAL TRANSIENT TRANSPORT IN HL-2A NBI PLASMAS 1337
Chen, W.; Xu, Y.; Ding, X. T.; Shi, Z. B.; Jiang, M.; Zhong, W. L.; Ji, X. Q.; Yu, D. L.; Yang, Z. C.; Yu, L. M.; Li, J. X.; Li, Y. G.; Cao, J. Y.; Song, X. M.; Xu, M.; Yan, L. W.; Liu, Y.; Yang, Q. W.; Duan, X. R.

INVESTIGATION OF NON-LOCAL HEAT TRANSPORT AND ITS INTERPLAY WITH NEOCLASSICAL TEARING MODES IN THE HL-2A TOKAMAK 1341
Xu, Y.; Ji, X. Q.; Pan, O.; Liu, Y.; Zhong, W. L.; Shi, Z. B.; Jiang, M.; Feng, B. B.; Yu, D. L.; Zhou, Y.; Cheng, J.; Xu, M.; Chen, W.; Xu, Y.; Dong, Y. B.; Yan, L. W.; Ding, X. T.; Yang, Q. W.; Duan, X. R.; Liu, Y.

COUPLING OPTIMIZATION EXPERIMENT ON HL-2A BASED ON PASSIVE-ACTIVE MULTIJUNCTION ANTENNA FOR 3.7GHZ LOWER HYBRID SYSTEM 1345
Bai, X.; Zeng, H.; Lu, B.; Zou, X.; Magne, R.; Ekedahl, A.; Hillairet, J.; Wang, C.; Liang, J.; Wang, H.; Chen, Y.; He, J.; Wang, J.; Feng, K.; Rao, J.

FIRST OBSERVATION OF THERMAL ION INTERNAL TRANSPORT BARRIER ON THE HL-2A TOKAMAK 1349
Yu, D.; Wei, Y. L.; Liu, L.; Cao, J. Y.; Sun, A. P.; Shi, Z. B.; Yuan, B. S.; Chen, W. J.; Ma, Q.; He, X. X.; Zhao, K. J.; Ji, X. Q.; Zhou, Y.; Jiang, M.; Zhong, W. L.; Deng, W.; Li, Y. G.; Gao, J. M.; Liu, Y.; Xu, Y.; Yan, L. W.; Yang, Q. W.; Ding, X. T.; Dong, J. Q.; Duan, X. R.; Liu, Y.

VDE SIMULATION OF THE SNOWFLAKE DIVERTOR CONFIGURATION IN HL-2M 1353
Xue, L.; Duan, X. R.; Zheng, G. Y.; Pan, Y. D.; Yan, S. L.; Dokuka, V. V.; Lukash, V. E.; Khayrutdinov, R. R.

CURRENT RAMP-UP SCENARIO WITH REDUCED CENTRAL SOLENOID MAGNETIC FLUX CONSUMPTION IN JT-60SA 1357
Wakatsuki, T.; Suzuki, T.; Hayashi, N.; Shiraishi, J.; Ide, S.; Takase, Y.

ADVANCE IN INTEGRATED MODELLING TOWARDS PREDICTION AND CONTROL OF JT-60SA PLASMAS 1361
Hayashi, N.; Honda, M.; Shiraishi, J.; Miyata, Y.; Wakatsuki, T.; Hoshino, K.; Toma, M.; Suzuki, T.; Urano, H.; Shimizu, K.; Hamamatsu, K.; Ide, S.

DEPENDENCE OF PEDESTAL STRUCTURE ON COLLISIONALITY IN JT-60U 1365
Urano, H.; Aiba, N.; Kamiya, K.; Kamada, Y.

PLASMA DENSITY FLUCTUATIONS AND TURBULENT THERMAL FLUXES IN THE TRANSIENT PROCESS AT ECH IN THE L-2M STELLARATOR 1369
Borzosekov, V.; Batanov, G.; Kharchev, N.; Kholnov, Y.; Konchekov, E.; Malakhov, D.; Sarksyan, K.; Vasilkov, D.

FORMATION OF NON-MAXWELLIAN SXR SPECTRA AT VARIOUS PLASMA PARAMETERS AND ECRH POWER AT THE L-2M STELLARATOR 1373
Meshcheryakov, A.; Vasilkov, D.; Vasileva, A.; Vaphin, I.; Voronova, E.; Grishina, I.; Logvinenko, V.; Stepakhin, V.

MODELLING OF NON-INDUCTIVE CURRENT GENERATION UPON SUPERPOSITION OF VERTICAL FIELD ON EC HEATED PLASMA IN THE LATE DEVICE 1377
Uchida, M.; Maekawa, T.; Kuroda, K.; Wada, M.; Tanaka, H.

OBSERVATION OF TOROIDAL AND VERTICAL CURRENTS IN EC HEATED PLASMAS UNDER VERTICAL FIELD IN THE LATE DEVICE 1381
Kuroda, K.; Wada, M.; Uchida, M.; Tanaka, H.; Maekawa, T.

CORRELATION STUDY BETWEEN TWO-DIMENSIONAL IMPURITY DISTRIBUTION AND EDGE MAGNETIC STRUCTURE IN LARGE HELICAL DEVICE 1385
Zhang, H.; Morita, S.; Oishi, T.; Huang, X.; Narusima, Y.; Goto, M.; Kobayashi, M.

OBSERVATION OF ASYMMETRIC RADIAL PROFILE OF TUNGSTEN IONS IN LOW IONIZATION STAGES LOCATED IN EDGE PLASMAS OF LARGE HELICAL DEVICE 1389
Oishi, T.; Morita, S.; Huang, X.; Zhang, H.; Goto, M.

ELECTRON TEMPERATURE MEASUREMENTS USING THE LHD THOMSON SCATTERING SYSTEM HAVING FOUR SCATTERING CONFIGURATIONS 1393
Yamada, I.; Yasuhara, R.; Funaba, H.; Narihara, K.; Hayashi, H.; Yatsuka, E.; Hatae, T.; Tojo, H.; Yoshikawa, M.; Minami, T.

STUDY OF ICRF HEATING CHARACTERISTICS OF VARIOUS ANTENNA IN THE LARGE HELICAL DEVICE 1397
Kamio, S.; Seki, T.; Saito, K.; Kasahara, H.; Seki, R.; Nomura, G.; Goto, M.; Osakabe, M.; Mutoh, T.

STUDY OF THE LARGE-SCALE MHD MODE AND ITS EFFECT ON GAM IN THE T-10 TOKAMAK 1401
Eliseev, L.; Ivanov, N.; Kakurin, A.; Lysenko, S.; Maltsev, S.; Melnikov, A.; Perfilov, S.; Zenin, V.

CHARACTERISTICS OF TURBULENCE AND ELECTRIC FIELDS IN THE PERIPHERAL PLASMA OF THE T-10 TOKAMAK 1405
Solomatin, R.; Budaev, V.; Grashin, S.; Dzyatko, E.; Eliseev, L.; Melnikov, A.; Perfilov, S.; Zenin, V.

MEASUREMENTS OF IMPURITIES CONCENTRATIONS USING MODERNIZED CXRS DIAGNOSTICS AT T-10 1409
Klyuchnikov, L.; Krupin, V.; Korobov, K.; Nemets, A.; Nurgaliev, M.; Dnestrovskij, Barsukov, A.; Naumenko, N.; Tugarinov, S.; Serov, S.; Troinov, V.; Gorbunov, A.; Denshchikov, D.

HYDROGEN PELLET INITIATED H-MODE IN TUMAN-3M TOKAMAK 1413
Belokurov, A.; Askinazi, L.; Kornev, V.; Lebedev, S.; Smirnov, A.; Tukachinsky, A.; Zhubr, N.

CONNECTING MICROSCOPIC L-H TRANSITION PHYSICS TO THE POWER THRESHOLD 1417
Schmitz, L.; Grierson, B. A.; Yan, Z.; Gohil, P.; McKee, G. R.; Zeng, L.; Rhodes, T. L.; Boedo, J. A.; Eldon, D.; Bardoczi, L.; Chrystal, C.; Groebner, J. R.; Burrell, K. H.; Doyle, E. J.; Wang, G.

ION VELOCITY DISTRIBUTION FUNCTION IN THE PLASMA OF ITS OWN GAS 1421
Grabovskiy, A.; Soukhomlinov, V.; Mustafaev, A.; Ainov, M.

APPLICATION LIMITS OF RUNAWAY ELECTRON MODELING BASED ON ANALYTICAL FORMULAS OF GENERATION AND LOSS RATES 1425
Pokol, G. I.; Lohner, R.; Papp, G.; Erdos, B.

DYNAMIC EQUILIBRIA AND MHD INSTABILITIES IN TOROIDAL PLASMAS WITH NON-UNIFORM TRANSPORT COEFFICIENTS 1429
Futatani, S.; Morales, J.; Bos, W.

RESONANCES OF ENERGETIC PARTICLE INSTABILITIES DURING FREQUENCY CHIRPING 1433
Pace, D. C.; Heidbrink, W. W.; Van Zeeland, M. A.

HELIUM FUELLING FOR EDGE PLASMA PARAMETERS CONTROL IN THE THERMONUCLEAR EXPERIMENTS 1437
Lashkul, S. I.; Altukhov, A. B.; Gurchenko, A. D.; Gusakov, E. Z.; Dyachenko, V. V.; Esipov, L. A.; Kantor, M. Y.; Kouprienko, D. V.

EXPERIMENTAL STUDIES OF CYCLICAL PLASMA EFFECTS ON TUNGSTEN 1441
Voronin, A. V.; Alexandrov, S. E.; Avdeeva, G. F.; Ber, B. Y.; Brunkov, P. N.; Bormatov, A. A.; Gusev, V. K.; Demina, E. V.; Kazantsev, D. Y.; Konnikov, S. G.; Miroshnikov, I. V.; Novokhazky, A. N.; Pavlov, S.; Petrov, Y. V.; Prusakova, M. D.; Sakharov, N. V.; Sotnikova, G. Y.; Mukhin, E. E.

MODELING OF IMPURITY DISTRIBUTION AND RADIAL TRANSPORT IN THE H-MODE EDGE PLASMA 1445
Kaveeva, E.; Rozhansky, V.; Senichenkov, I.; Veselova, I.; Voskoboynikov, S.

3D PROBE DIAGNOSTICS OF PLASMAS 1449
Grabovskiy, A.; Mustafaev, A.; Strakhova, A.

ANALYTICAL EVALUATION OF THE FORCES DURING FAST CURRENT QUENCHES IN TOKAMAKS 1453
Pustovitov, V. D.

SIMULATION OF RESONANT MAGNETIC FIELD PENETRATION DYNAMICS WITH THE TEAR CODE 1457
Ivanov, N.; Kakurin, A.

COMPLEX DIAGNOSTICS OF ELECTRON VELOCITY DISTRIBUTION WITH THOMSON SCATTERING AND ELECTRON CYCLOTRON EMISSION IN TOKAMAKS 1461
Sdvizhenskii, P. A.; Minashin, P. V.; Kukushkin, A. B.; Kurskiev, G. S.; Mukhin, E. E.

A MODEL OF RECOVERING THE FAST NONLOCAL TRANSPORT PARAMETERS IN MAGNETIC FUSION PLASMAS 1465
Kukushkin, A. B.; Sdvizhenskii, P. A.; Voloshinov, V. V.; Kulichenko, A. A.
ANALYTICAL MODEL OF WALL FORCE PRODUCED BY KINK MODES COMBINED WITH PLASMA VERTICAL DISPLACEMENT 1469
Mironov, D.; Pustovitov, V.
IMPROVEMENT OF ENERGETIC PARTICLE CONFINEMENT THROUGH STELLARATOR OPTIMIZATION 1473
Lazerson, S. A.; Bolgert, P.; Gates, D.; McMillan, M.
MYSTERIES OF PEDESTAL POLOIDAL ASYMMETRIES REVEALED 1477
Espinosa, S.; Catto, P. J.
PROPAGATION OF RADIO FREQUENCY WAVES THROUGH FLUCTUATIONS IN PLASMAS 1481
Ram, A.; Hizanidis, K.; Valvis, S.
ROLE OF ELECTRIC FIELD IN THE FORMATION OF DETACHED REGIME 1485
Senichenkov, I.; Kaveeva, E.; Rozhansky, V.; Sytova, E.; Veselova, I.; Voskoboynikov, S.; Coster, D.
A VLASOV CODE SIMULATION OF THE AMPLIFICATION OF SEED PULSES BY BRILLOUIN BACKSCATTERING IN PLASMAS 1489
Shoucri, M.; Matte, J.; Vidal, F.
BACKWARD RAMAN AMPLIFICATION IN EXTENDED REGIMES OF PUMP PULSE PARAMETERS 1493
Toroker, Z.; Malkin, V.; Fisch, N.
A TRANSPORT BEAMLINE SOLUTION TO CONTROL OPTICALLY ACCELERATED PROTON BEAMS 1497
Schillaci, F.; Amato, A.; Andò, L.; Borghesi, M.; Candiano, G.; Cirrone, G.; Cosentino, L.; Costa, M.; Cuttone, G.; De Luca, G.; Doria, D.; Gallo, G.; Larosa, G.; Leanza, R.; Korn, G.; Manna, R.; Maggiore, M.; Marchese, V.; Margarone, D.; Maugeri, A.; Milluzzo, G.; Musumarra, A.; Pandola, L.; Petringa, G.; Pulvirenti, S.; Rifuggiato, D.; Rizzo, D.; Romano, F.; Salamone, N.; Sedita, M.; Seminara, A.; Scuderi, V.; Tramontana, A.; Trovato, B.; Viglianisi, C.
ADJUSTABLE TEMPORAL CONTRAST FOR LASER PLASMA EXPERIMENTS AT THE PHELIX LASER FACILITY 1500
Wagner, F.; Bedacht, S.; Joao, C. P.; Ortner, A.; Roth, M.; Stöhlker, T.; Tauschwitz, A.; Bagnoud, V.
SLOWING-DOWN OF PROTON BEAMS IN PLASMAS AND GAS-JET TARGETS WITH NON-UNIFORM FEATURES 1504
Casas, D.; Barriga-Carrasco, M. D.; Andreev, A. A.; Schnurer, M.
STUDY OF HOT ELECTRON PRODUCTION IN SI-RELEVANT REGIME 1508
Afshari, M.; Peres, G.; Renner, O.; Šmíd, M.; Krousky, E.
EFFECT OF ELECTRON TEMPERATURE ON MAGNETIZED PLASMA SHEATHS CONTAMINATED BY MULTI-SIZED IMPURITIES 1512
Samir, C.; Tahraoui, A.; Benlemdjaldi, D.
CONVERSION OF METHANE TO C_2 HYDROCARBONS AND HYDROGEN USING MICROWAVE 'TORNADO'-TYPE PLASMA 1516
Tsyganov, D.; Bundaleska, N.; Tatarova, E.
NUMERICAL SIMULATIONS OF ASTROPHYSICAL CYCLOTRON-MASER EMISSION 1520
Speirs, D.; Bingham, R.; Ronald, K.; Phelps, A. D. R.; McConville, S. L.; Gillespie, K. M.; Cairns, R. A.; Kellett, B. J.; Vorgul, I.; Cross, A. W.
A TWT-UPGRADE TO STUDY WAVE-PARTICLE INTERACTIONS 1524
Caetano De Sousa, M.; Guyomarc'h, D.; Doveil, F.
FREAK WAVES AND MODULATIONAL DYNAMICS IN PLASMAS WITH NEGATIVE IONS 1528
El-Kamash, I. S.; Reville, B.; Kourakis, I.
THEORY OF THE ORDINARY AND EXTRAORDINARY MODE COUPLING IN FLUCTUATING PLASMAS 1532
Gospodchikov, E. D.; Shalashov, A.; Khusainov, T.
INVESTIGATION OF THE O-MODE ANOMALOUS ABSORPTION IN THE UH RESONANCE 1536
Arkhipenko, V.; Gusakov, E.; Simonchik, L.; Sysoeva, E.; Usachonak, M.
SPONTANEOUS EXCITATION OF CONVECTIVE CELLS BY KINETIC ALFVÉN WAVES 1540
Zonca, F.; Lin, Y.; Chen, L.
Author Index

On the generation and saturation of the Zonal Flows

C. Norscini[1], Ph.Ghendrih[1],
T.Cartier-Michaud[1], G.Dif-Pradalier[1], X.Garbet[1], N.Nace[1], Y.Sarazin[1], P.Tamain[1]
[1] *CEA Cadarache, Saint Paul lez Durance, France*

Introduction

In fusion plasmas heat transport is deleterious, therefore transport barrier (TB) generation is a key performance indicator. The spontaneous generation of a transport barrier is due to the interplay between turbulence and zonal flows (ZF). Turbulent eddies can transfer energy via non linear coupling to ZF that tend to store it for long time scale. On the other hand the efficiency of the energy transfer between turbulence and zonal flows can vary and different transport regimes have been observed. Two opposite regimes have been identified: (1) fully turbulent, where one can retrieve an homogeneous turbulence distribution and ZF are weak, (2) zonation, where the ZF dominate and the turbulence is damped. In many dynamical systems one can observe these various regimes, from oceans to planetary atmosphere [1].

We present here an analytical work on the interaction between turbulence and ZF reducing our model to a limited number of modes. The results are then compared with those obtained via a 2D fluid code. The role of non linear coupling in the ZF generation and saturation is defined and appears crucial in the transition from turbulent to zonation regime.

Zonal flow source and sink: study of three modes coupling

Departing from the charge conservation equation, in an isothermal plasma, in the cold ions limit and in the case of absence of interchange forcing, the vorticity equation is derived as following

$$\partial_t W \quad + \quad [\phi, W] = \nu_\perp \Delta_\perp W + J \tag{1}$$

where W is the vorticity $W = \Delta_\perp \Phi$, x and y, the space coordinates corresponds to the poloidal angle and radial direction, J is the parallel current loss. The convective turbulent transport $[\Phi, W] = \partial_x(W(-\partial_y \Phi)) + \partial_y(W(\partial_x \Phi))$ competes with the small scale diffusive transport with coefficient ν. The loss term is defined as $< J >_y = 0$. Averaging along the flux surfaces, there is no current loss in parallel direction and the zonal flows $V_z = \partial_x < \Phi >_y$ evolution can be rewritten as

$$\partial_t V_z + \partial_x RS - \nu \Delta_x V_z = 0 \tag{2}$$