

Plasma Physics and Controlled Fusion

Volume 52 Number 12 December 2010

**PART 2: INVITED PAPERS FROM THE 37TH EUROPEAN PHYSICAL SOCIETY
CONFERENCE ON PLASMA PHYSICS (DUBLIN, IRELAND, 21–25 JUNE 2010)**

EDITORIAL

- 120301 37th European Physical Society Conference on Plasma Physics**
Tito Mendonça and Carlos Hidalgo

INVITED PAPERS

- 124001 A memoir of the scientific work of Beatrice Maria Annaratone**
John Allen, Gregor Morfill and Hubertus Thomas
- 124002 Mathematics and Maxwell's equations**
Allen H Boozer
- 124003 Development of quasi-isodynamic stellarators**
Jürgen Nührenberg
- 124004 Wake effects and Mach cones behind objects**
Wojciech J Miloch
- 124005 Flowing plasmas and absorbing objects: analytic and numerical solutions culminating 80 years of ion-collection theory**
I H Hutchinson and L Patacchini
- 124006 On the structure and scale of cosmic ray modified shocks**
M A Malkov, P H Diamond and R Z Sagdeev
- 124007 Similarities and differences between dust produced in laboratory plasmas and in the MAST and Tore Supra tokamaks**
C Arnas, C Martin, P Roubin, B Pégourié, G De Temmerman, K Hassouni, A Michau, G Lombardi and X Bonnin
- 124008 Turbulence and zonal flows in edge plasmas of the HL-2A tokamak**
K J Zhao, J Q Dong, L W Yan, W Y Hong, A Fujisawa, C X Yu, Q Li, J Qian, J Cheng, T Lan, A D Liu, H L Zhao, D F Kong, Y Huang, Yi Liu, X M Song, Q W Yang, X T Ding, X R Duan and Yong Liu
- 124009 Oscillatory processes in solar flares**
V M Nakariakov, A R Inglis, I V Zimovets, C Foullon, E Verwichte, R Sych and I N Myagkova
- 124010 Snowflake divertor experiments on TCV**
F Piras, S Coda, B P Duval, B Labit, J Marki, S Yu Medvedev, J-M Moret, A Pitzschke, O Sauter and the TCV team
- 124011 Monitoring of PVD, PECVD and etching plasmas using Fourier components of RF voltage**
P Dvořák, P Vašina, V Buršíková and R Žemlička
- 124012 Dust in the interplanetary medium**
Ingrid Mann, Andrzej Czechowski, Nicole Meyer-Vernet, Arnaud Zaslavsky and Hervé Lamy
- 124013 Tuning correlations in multi-component plasmas**
Patrick Ludwig, Hauke Thomsen, Karsten Balzer, Alexei Filinov and Michael Bonitz
- 124014 Modeling carbonaceous particle formation in an argon graphite cathode dc discharge**
A Michau, G Lombardi, L Colina Delacqua, M Redolfi, C Arnas, X Bonnin and K Hassouni
- 124015 Non-linear dynamics and plasma flows in a basic toroidal plasma experiment**
M Ramisch, P Manz, U Stroth, G Birkenmeier, S Enge, E Holzhauser, A Köhn and B Nold

(Continued on inside back cover)

- 124016 P³M simulations of dusty plasmas**
K Matyash, R Schneider, R Ikkurthi, L Lewerentz and A Melzer
- 124017 Interaction of current filaments in a dielectric barrier discharge system**
L Stollenwerk
- 124018 JET disruption studies in support of ITER**
V Riccardo, G Arnoux, P Cahyna, T C Hender, A Huber, S Jachmich, V Kiptily, R Koslowski, L Krllin, M Lehnen, A Loarte, E Nardon, R Paprok, D Tshkakhaya (Sr) and JET-EFDA contributors
- 124019 Modeling and comparison of sinusoidal and nanosecond pulsed surface dielectric barrier discharges for flow control**
T Unfer and J-P Boeuf
- 124020 Electrostatic instabilities, turbulence and fast ion interactions in the TORPEX device**
A Fasoli, A Burckel, L Federspiel, I Furno, K Gustafson, D Iraj, B Labit, J Loizu, G Plyushchev, P Ricci, C Theiler, A Diallo, S H Mueller, M Podestà and F Poli
- 124021 Gyrokinetic and gyrofluid investigation of magnetic islands in tokamaks**
E Poli, A Bottino, W A Hornsby, A G Peeters, T Ribeiro, B D Scott and M Siccino
- 124022 Quasilinear theory revisited: general kinetic formulation of wave-particle interactions in plasmas**
Kyriakos Hizanidis, Yannis Kominis and Abhay K Ram
- 124023 A 3D approach to equilibrium, stability and transport studies in RFX-mod improved regimes**
D Terranova, D Bonfiglio, A H Boozer, A W Cooper, M Gobbin, S P Hirshman, R Lorenzini, L Marrelli, E Martines, B Momo, N Pomphrey, I Predebon, R Sanchez, G Spizzo, M Agostini, A Alfier, L Apolloni, F Auriemma, M Baruzzo, T Bolzonella, F Bonomo, M Brombin, A Canton, S Cappello, L Carraro, R Cavazzana, S Dal Bello, R Delogu, G De Masi, M Drevlak, A Fassina, A Ferro, P Franz, E Gaio, E Gazza, L Giudicotti, L Grandò, S C Guo, P Innocente, D Lòpez-Bruna, G Manduchi, G Marchiori, P Martin, S Martini, S Menmuir, S Munaretto, L Novello, R Paccagnella, R Pasqualotto, G V Pereverzev, R Piovan, P Piovesan, L Piron, M E Puiatti, M Recchia, F Sattin, P Scarin, G Serianni, A Soppelsa, S Spagnolo, M Spolaore, C Taliercio, M Valisa, N Vianello, Z Wang, A Zamengo, B Zaniol, L Zanutto, P Zanca and M Zuin
- 124024 Characterization of laser-produced fast electron sources for fast ignition**
A Debayle, J J Honrubia, E d'Humières and V T Tikhonchuk
- 124025 Experimental study of radial electric field and electrostatic potential fluctuation in the Large Helical Device**
T Ido, A Shimizu, M Nishiura, K Nagaoka, M Yokoyama, K Ida, M Yoshinuma, K Toi, K Itoh, H Nakano, S Nakamura, F Watanabe, S Satake, Y Yoshimura, M Osakabe, K Tanaka, T Tokuzawa, Y Takeiri, K Tsumori, K Ikeda, S Kubo, T Shimozuma, H Igami, H Takahashi, N Tamura and LHD Experiment Group
- 124026 Modern magnetic mirrors and their fusion prospects**
A V Burdakov, A A Ivanov and E P Kruglyakov
- 124027 Diagnosing indirect-drive inertial-confinement-fusion implosions with charged particles**
C K Li, F H Séguin, J A Frenje, M Rosenberg, A B Zylstra, R D Petrasso, P A Amendt, J A Koch, O L Landen, H S Park, H F Robey, R P J Town, A Casner, F Philippe, R Betti, J P Knauer, D D Meyerhofer, C A Back, J D Kilkenny and A Nikroo
- 124028 Finite dust clusters in dusty plasmas**
A Melzer, B Buttenschön, T Miksch, M Passvogel, D Block, O Arp and A Piel
- 124029 Waves in pulsar winds**
J G Kirk

(Continued from inside back cover)

- 124030 FlareLab: early results**
H Soltwisch, P Kempkes, F Mackel, H Stein, J Tenfelde, L Arnold, J Dreher and R Grauer
- 124031 Lower hybrid current drive for the steady-state scenario**
M Goniche, L Amicucci, Y Baranov, V Basiuk, G Calabro, A Cardinali, C Castaldo, R Cesario, J Decker, D Dodt, A Ekedahl, L Figini, J Garcia, G Giruzzi, J Hillairet, G T Hoang, A Hubbard, E Joffrin, K Kirov, X Litaudon, J Mailloux, T Oosako, R Parker, V Pericoli, Ridolfini, Y Peysson, P Platania, F Rimini, P K Sharma, C Sozzi and G Wallace
- 124032 High quality electron beams from a laser wakefield accelerator**
S M Wiggins, R C Issac, G H Welsh, E Brunetti, R P Shanks, M P Anania, S Cipiccia, G G Manahan, C Aniculaesei, B Ersfeld, M R Islam, R T L Burgess, G Vieux, W A Gillespie, A M MacLeod, S B van der Geer, M J de Loos and D A Jaroszynski
- 124033 The physics of DEMO**
D J Ward
- 124034 Nonlinear modification of the stability of fast particle driven modes in tokamaks**
C Nguyen, X Garbet, V Grandgirard, J Decker, Z Guimarães-Filho, M Lesur, H Lütjens, A Merle and R Sabot
- 124035 Evolution of ETG mode scale turbulence and anomalous electron transport in dynamic tokamak experiments**
A D Gurchenko and E Z Gusakov
- 124036 Stationary density profiles in the Levitated Dipole Experiment: toward fusion without tritium fuel**
J Kesner, M S Davis, J L Ellsworth, D T Garnier, J Kahn, M E Mauel, P Michael, B Wilson and P P Woskov
- 124037 Experimental demonstration of an up-down asymmetry effect on intrinsic rotation in the TCV tokamak**
Y Camenen, A Bortolon, B P Duval, L Federspiel, A G Peeters, F J Casson, W A Hornsby, A N Karpushov, F Piras, O Sauter, A P Snodin, G Szepesi and the TCV Team
- 124038 Gyrokinetic simulations of turbulent transport: size scaling and chaotic behaviour**
L Villard, A Bottino, S Brunner, A Casati, J Chowdhury, T Dannert, R Ganesh, X Garbet, T Görler, V Grandgirard, R Hatzky, Y Idomura, F Jenko, S Jolliet, S Khosh Aghdam, X Lapillonne, G Latu, B F McMillan, F Merz, Y Sarazin, T M Tran and T Vernay
- 124039 Relativistic laser plasmas for electron acceleration and short wavelength radiation generation**
A Pukhov, D an der Brügge and I Kostyukov
- 124040 Recent developments in quantum plasma physics**
P K Shukla and B Eliasson
- 124041 New physics capabilities from the upgraded Thomson scattering diagnostic on MAST**
K J Gibson, N Barratt, I Chapman, N Conway, M R Dunstan, A R Field, L Garzotti, A Kirk, B Lloyd, H Meyer, G Naylor, T O’Gorman, R Scannell, S Shibaev, J Snape, G J Tallents, D Temple, A Thornton, S Pinches, M Valovic, M J Walsh, H R Wilson and the MAST team
- 124042 Non-equilibrium phase transitions in complex plasma**
K R Sütterlin, A Wysocki, C R ath, A V Ivlev, H M Thomas, S Khrapak, S Zhdanov, M Rubin-Zuzic, W J Goedheer, V E Fortov, A M Lipaev, V I Molotkov, O F Petrov, G E Morfill and H L owen
- 124043 Perturbative studies of transport phenomena in fusion devices**
F Rytter, R Dux, P Mantica and T Tala
- 124044 On the heating mix of ITER**
F Wagner, A Becoulet, R Budny, V Erckmann, D Farina, G Giruzzi, Y Kamada, A Kaye, F Koechl, K Lackner, N Marushchenko, M Murakami, T Oikawa, V Parail, J M Park, G Ramponi, O Sauter, D Stork, P R Thomas, Q M Tran, D Ward, H Zohm and C Zucca

(Continued overleaf)

(Continued from overleaf)

- 124045 Plasmas for aerodynamic control**
D Caruana
- 124046 New developments in energy transfer and transport studies in relativistic laser-plasma interactions**
P A Norreys, J S Green, K L Lancaster, A P L Robinson, R H H Scott, F Perez, H-P Schlenvoight, S Baton, S Hulin, B Vauzour, J J Santos, D J Adams, K Markey, B Ramakrishna, M Zepf, M N Quinn, X H Yuan, P McKenna, J Schreiber, J R Davies, D P Higginson, F N Beg, C Chen, T Ma and P Patel
- 124047 FIREX project and effects of self-generated electric and magnetic fields on electron-driven fast ignition**
Kunioki Mima, A Sunahara, Hiroyuki Shiraga, H Nishimura, H Azechi, T Nakamura, T Johzaki, H Nagatomo, C Garcia and P Veralde
- 124048 Generation and confinement of hot ions and electrons in a reversed-field pinch plasma**
B E Chapman, A F Almagri, J K Anderson, D L Brower, K J Caspary, D J Clayton, D Craig, D J Den Hartog, W X Ding, D A Ennis, G Fiksel, S Gangadhara, S Kumar, R M Magee, R O'Connell, E Parke, S C Prager, J A Reusch, J S Sarff, H D Stephens and Y M Yang