

7 Publications

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- [32] J. Rządkiwicz, I. Książek, K-D. Zastrow, I. H. Coffey, K. Jakubowska, K. D. Lawson, and JET EFDA Contributors, ITER-relevant calibration technique for soft x-ray spectrometer. *Review of Scientific Instruments* (2010) **81**, 10E315:1-3
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Research projects granted from The Ministry of Science and Higher Education

- Research Project No N N202207438 *Studies of laser-induced acceleration and collimation of dens plasma.*
- Research Project No N N202 130639 *Investigation of new concepts of plasma stream generation and their usefulness for realisation of IFE as well as for astrophysical applications.*
- Research Project No O N202 049735 *Preparation of theoretical and experimental bases for new method of detection of dangerous materials using Plasma Focus neutron source.*

10 Research projects granted from the 7th FP and other international programmes

Research projects carried out within programme of EURATOM-IPPLM Association

- JET - MCNP simulation for JET 3U irradiation–end (P4)
- Assessment of the suitability of neutron and gamma detectors in the future experiment at JET for the validation of shutdown dose rate prediction (JET JW9-NFT-POL-05)
- Radiation tests on neutron attenuator prototype (P4. JW6-TA-EP2-GRC-05 JET notification)
- Development of gas detectors for 2.5 and 14 MeV neutron measurements utilizing activation method (WP10-DIA-04-01)
- Development of novel gas detectors for soft X-ray (WP10-DIA-04-01.)
- Integrating tokamak modelling
- Gas electron multiplier detector for x-ray crystal spectrometry
- P1 (W7-X). Spectrometry of soft X-ray emission from W7-X Stellarator
- P19 (TGS). Portable LIBS device for calibrated measurements of material deposition and composition of the walls on plasma source
- P26 (DEM for ITER). Study of laser and spectroscopic techniques in perspective of next-step fusion devices (including ITER)
- UT1. Spectroscopic and ion diagnostics for laser-induced removal of fuel and co-deposits from PFCs in tokamaks
- (JET Notification). Laser detritiation and co-deposit removal for various plasma-facing components supported by optical spectroscopy and ion diagnostics
- (JET Notification) Assessment of efficiency of laser removal of fuel-inventory for mixed material samples using LIBS
- IFE Task: Analysis of newest options of IFE on the basis of results of experiments and numerical simulations

Other international research programmes and projects

- LASERLAB-Europe PALS 0012 Project: *PALS experiment: Plasma jet generation, characterization and their interaction with a gas cloud*
- LASERLAB-Europe PALS 001514 Project: *PALS experiment: Highly efficient acceleration and collimation of high-density plasma for fusion-related applications*
- SILMI - Super-Intense Laser-Matter Interactions, Research Networking Programme (RNP) of ESF

- IAEA CR Project (Contract No 13794): *Studies of Phenomena related to fast ignition of a fusion target by laser-driven proton beams*, CRP No. F1.30.11: Pathways to Energy from Inertial Fusion – An integrated approach
- XIX Executive Programme of Scientific and Technological Co-operation between Italy and Poland. Co-operation of IPPLM with Univ. of Milan Bicocca
- COST Action MP 0601: *Short Wavelength Laboratory Sources*
- HIPER Design Study of an European High Power Laser Experim. Research Facility. *Study and verification of the scientific and technological basis for IFE Fast Ignition Facility*. Work Packages: WP9, WP10 and WP12
- ELI Proposal for an European Extreme Light Infrastructure
- Contract with EC (No FU07-CT-2010-00223); notification: JW10-NEP-POL-09: *Gaseous detectors of a new generation (GEM) for a high-resolution X-ray diagnostic of plasma*
- Contract with French Network for Research within CNRS (about 10 labs, including CNES (French Space Agency), Snecma – company producing Hall engines, Universités (Orléans, Paris-6): *Evaluation of the guiding center approximation for the simulation of electrons in Hall effect motors*
- FP7 Grant Agreement No 218859: Project HiPER – High Power Electric Propulsion

11 International conferences with IPPLM participation

- 24th Symposium on Plasma Physics and Technology, 14 – 17 June 2010 in Prague, Czech Republic
 - P. Rączka, *Efficient acceleration and collimation of dense plasma using laser-induced cavity pressure*
 - S. Jabłoński, *Production of ultraintense proton beams by a short-wavelength laser pulse*
 - S. Barral *Application of ecological dynamics to discharge ionization instabilities*
 - K. Jakubowska, M. Kubkowska, E. Składnik-Sadowska, K. Malinowski, M.J. Sadowski, M. Paduch, M. Scholz, *Optical Spectroscopy of plasma beam interaction with tungsten target, and temporal characteristic of spectral line emission in PF-1000*
 - J. Miedzik, *Electron guiding center modeling coupled with kinetic description of ion motion in PIC simulation for Hall thruster*
 - R. Miklaszewsk, *MHD similarity laws in the plasma-focus discharge*
 - M. Scholz, *Status of MJ Plasma-Focus Experiments* – invited

- International Conference on Plasma Diagnostics 2010, 12 - 16 April 2010, Pont-à-Mousson, France
 - J. Wołowski, A. Czarnecka, P. Gąsior, M. Kubkowska, P. Parys, M. Rosiński, *Application of a low intensity repetitive laser for modification of material properties*
 - M. Kubkowska A. Czarnecka, S. Jablonski, J. Kaczmarczyk, L. Ryc, J. Wolowski, R. Koenig, A. Weller, *Prospects of soft X-ray diagnostics in the stellarator Wendelstein 7-X*
 - M. Scholz, et al., *Development of Diagnostics for Large-Scale Experiments with Dense Magnetized Plasmas* – invited
 - E. Zielińska, M Paduch, et al., *Sixteen-Frame interferometer for study of a pinch dynamics in PF-1000 device*

- 18th Conference on High-Temperature Plasma Diagnostics, May 16-20, 2010, Join us in Wildwood, New Jersey
 - J. Rzakiewicz, I. Książek, K-D Zastrow, I.H. Coffey, K. Jakubowska, K.D. Lawson, and JET EFDA Contributors, *ITER – relevant calibration technique for Soft X-ray spectrometer*
 - S. Zając, J. Rzakiewicz, O. Rosmej, M. Scholz, Zhao-Yongtao, A. Gójska, M. Paduch, E. Zielińska, *Spatially resolved high-resolution x-ray spectroscopy of high current plasma-focus discharge*

- 9th Kudowa Summer School: Towards Fusion Energy, 8 - 12 June 2010, Kudowa Zdrój, Poland
 - J. Miedzik , *Electron guiding center modeling for Hall thruster simulations*

- D. Twaróg, R. Stankiewicz, D. Coster, A. Figueiredo, D. Kalupin, G. Pereverzov, M. Tokar, R. Zagórski and ETS Team, *The European Transport Solver*
- K. Jakubowska, M. Kubkowska, E. Składnik-Sadowska, K. Malinowski, A. K. Marchenko, M. Paduch, M. J. Sadowski, M. Scholz, *Optical emission spectroscopy of plasma streams in PF-1000 experiments*
- 37 EPS Conf. on Plasma Physics and Controlled Fusion, 22-25 June 2010, Dublin, Ireland
 - J. Badziak et al., *Laser acceleration and collimation of plasma by laser-induced cavity pressure*
 - T. Pisarczyk et al., *Plasma jet creation by direct and indirect irradiations of conically shaped foils*
 - S. Borodziuk et al., *Plastic plasma influence on formation of laser-produced copper plasma jet*
 - J. Wołowski, A. Czarnecka, P. Gąsior, M. Kubkowska, P. Parys, M. Rosiński "Study of physics and applications of ions produced by medium intensity laser beam"
 - A. Czarnecka, V. Bobkov, I. H. Coffey, L. Colas, A. C. A. Figueiredo, P. Jacquet, K. D. Lawson, E. Lerche, M. -L. Mayoral, I. Monakhov, J. Ongena, D. Van Eester, K.-D. Zastrow and JET-EFDA contributors, *Impurity production by the ICRF antennas in JET*
- ECLIM 2010, 6-10 September 2010, Budapest, Hungary
 - T. Chodukowski et al., *Interaction of two Cu plasma jets produced succesively from the cylindrically shaped massive target*
 - S. Borodziuk et al., *Cavity Pressure Acceleration – an efficient laser-based method of production of high-velocity macroparticles*
- 4th Intern. Conf. on Superstrong Fields in Plasmas, 3-9.10.2010, Varenna, Italy
 - P. Rączka, *Production of positrons on a plasma target of solid density*
 - S. Jabłoński, *Efficient generation of ultra-intense proton beams for FI-related applications using radiation pressure in a cavity*
- International Conference and School on Plasma Physics and Controlled Fusion and 4th Alushta International Workshop on the Role of Electric Fields in Plasma Confinement in Stellarators and Tokamaks. September 13-18 (2010) Alushta (Crimea), Ukraine
 - M. Kubkowska, K. Jakubowska, E. Składnik-Sadowska, K. Malinowski, M. Paduch, M. J. Sadowski, M. Scholz, and A. K. Marchenko, *Spectroscopic investigation of PF-1000 discharges under different experimental conditions*
 - M. J. Sadowski and M. Scholz, *Highlights of dense magnetized plasma research in Poland*

Workshops

- Intern. Advanced Workshop on the Frontiers of Plasma Phys., 5-16.07.2010, Trieste, Italy
 - P. Rączka, *Report on Works performed within SILMI project*
 - S. Jabłoński, *Efficient generation of ultra-intense proton beams for FI-related applications using radiation pressure in a cavity*
- J. Badziak *Summary of the recent HiPER –related experiments at PALS by the IPPLM and collaborators*, HiPER WP10/WP12 workshop, Abingdon, UK
- J. Badziak *PALS experiments on acceleration and collimation of dense plasma*, (invited) 10th Anniversary PALS Workshop, Prague, Czech Rep.
- J. Wolowski *Study of the ion generation and acceleration in plasma prod. By the PALS laser pulse* (invited) 10th Anniversary PALS Workshop, Prague, Czech Rep.
- M. Rosiński *Optimization of electrostatic acceleration and focusing systems for Ge laser ion source*, MRS Conf. Symp. - Semicond. Nanostruct. and Appl., Boston, USA
- P. Gąsior *Laser induced breakdown spectroscopy as diagnostics for fuel retention and removal and wall composition in fusion reactors with mixed-material components*, SOFT, Porto, Spain,
- J. Wołowski *Progress Report on works performed by IPPLM within IAEA_CRP Project*, IAEA_CRP Meeting, Prague, Czech Rep,
- P. Rączka *Information on IPPLM activities in 2010 within the IFE K-i-T program*, 4th IFEWG Meeting, Brussels, Belgium,
- Kalupin D., Pereverzev G., Coster D., Stankiewicz R., Ivanova-Stanik I., Basiuk V., Huynh Ph., Ferreira J., Figueiredo A., Alves L.L., Bizarro J.P.S. Voitsekhovitch I. and contributors to the ITM-TF work programme, *Validation and verification of the European Transport Solver*, 3rd EFDA Transport Topical Group Meeting (TTG2010) combined with the 15th EU-US Transport Task Force Workshop, Spain, September 7 - 10, 2010, Córdoba, Spain,
- Code_Camp: Garching (13-27.03), Cadarache (05-16.07), Lisbona (12-18), Innsbruck (05-18.12),
- M: Scholz, et al., *GEM Gas detector for neutrons and SXR*, EFDA Workshop on Diagnostics, Garching Aug.31 –Sep.2 2010,
- R. Miklaszewski, K. Drozdowicz, U. Wiącek, D. Dworak, V. Gribkov, *Detection of explosives and other illicit materials by a single nanosecond neutron pulses - Monte Carlo simulations of the detection process*, NEMEA-6 (Workshop on Nuclear Measur., Evaluation and Appl.), 25-28 October 2010, Kraków, Poland

Conferences organized by IPPLM

- Joint ICTP-IAEA Workshop on Dense Magnetized Plasmas and Plasma Diagnostics, International Centre for Theoretical Physics, Trieste, 15 – 26 November, 2010
- 9th Kudowa Summer School: Towards to Fusion Energy, Kudowa Zdrój, Poland, 8 - 12 June 2010

12 Seminars and lectures

1. M. Kubkowska, P. Gąsior – wykład *Energetyka termojądrowa* na Politechnice Warszawskiej dla V roku Wydziału Fizyki (in Polish).
2. J. Kurzyna, *IFPiLM – od impulsowych układów plazmowych wielkiej mocy do miniaturowych silników kosmicznych*, Wydz. Fizyki UMCS (in Polish)
3. A. Czarnecka *Impurity production by ILA/A2 antennas and influence of phasing* General Task Force H meeting, Brussels, Belgium, 17.03.2010
4. P. Gąsior *Assessment of efficiency of laser removal of fuel inventory for mixed material samples using LIBS*, Task Force Fusion Technology 2010 Semi-Annual Monitoring and 2011 Kick-off meeting - JET Culham Science Centre 8.12. 2010
5. M. Kubkowska *Assessment of efficiency of laser removal of fuel inventory for mixed material samples using LIBS*, Task Force Fusion Technology Semi-Annual Monitoring Meeting –7.06. 2010
6. P. Gąsior *Study of DEM system – estimation of a possibility of usage of optimised laser-based techniques and spectroscopy for ITER divertor*, Summary of the Final Meeting of the EFDA-EMT on Dust and Tritium Removal 10.06.2010 Garching
7. M. Kubkowska *Zastosowanie metod spektroskopii optycznej do badań gęstej plazmy w układach laserowych oraz PF1000 i RPI-IBIS – seminarium Sekcji Fizyki Plazmy PAN*, 18.05.2010 (in Polish)
8. A. Czarnecka, *Presentation of the RayX code*, Meeting on X-Ray Diagnostics for W7-X, IPP Greifswald, Germany, 13.07.2010
9. L. Ryć, *SDD detectors for PHA measurement system*, Meeting on X-Ray Diagnostics for W7-X, IPP Greifswald, Germany, 13.07.2010
10. M. Kubkowska, *Further development of PHA and MFS diagnostic systems - plans for nearest future*, Meeting on X-Ray Diagnostics for W7-X, IPP Greifswald, Germany, 13.07.2010
11. S. Borodziuk, *Laserowa akceleracja makrocząstek*, IPPLM seminar, II 2010 (in Polish)
12. J. Badziak, *Badania ultraintensywnych oddziaływań lasera z materią*, IPPLM seminar, IV 2010 (in Polish)
13. P. Rączka *Szkolenie dla nauczycieli pt. Fuzja jądrowa - czysta i bezpieczna energia przyszłości*, godzinny wykład *Synteza laserowa - przełom czy miraż?*, Dobczyce, 9.04.2010 (in Polish)

