

## Invited lectures

- I1 Physics basis and status of the ITER divertor**  
R. A. Pitts, A. S. Kukushkin, A. Loarte, A. Martin, M. Merola, M. Shimada
- I2 Acceptance criteria for the ITER high heat flux components**  
F. Escourbiac, M. Richou, R. Guigon, N. Vignal, V. Cantone, S. Constans, J.L. Jouvelot, I. Bobin, A. Durocher, J. Schlosser, M. Merola, B. Riccardi
- I3 Recent activity on the development of the plasma facing components for ITER and fusion DEMO plant**  
S. Suzuki, K. Ezato, Y. Seki, K. Yokoyama, T. Hirose, S. Mori, M. Enoda
- I4 Latest Results from ELM-simulation Experiments in Plasma Accelerators**  
I.E. Garkusha, N.I. Arkhipov, N.S. Klimov, V.A. Makhlai, V.M. Safronov, I. Landman, V.I. Tereshin
- I5 Deuterium Retention in Tungsten from Exposure to Plasma**  
W.R. Wampler, R. Doerner
- I6 Qualification of Tungsten Coatings on Plasma-Facing Components for JET**  
H. Maier, R. Neu, H. Greuner, B. Böswirth, M. Balden, S. Lindig, G. F. Matthews, M. Rasinski, P. Wienhold
- I7 Recent fuel retention studies in Tore Supra, ASDEX Upgrade and TEXTOR**  
E. Tsitrone, C. Brosset, J. Bucalossi, T. Dittmar, E. Gauthier, F. Linez, T. Loarer, B. Pégourié, H. Khodja, C. Martin, P. Roubin, K. Krieger, M. Mayer, R. Neu, V. Rohde, J. Roth, A. Kirschner, A. Kreter, A. Litnovsky, V. Philipps, M. Rubel, P. Wienhold
- I8 An overview of recent erosion - deposition studies at JET**  
A. Widdowson, S. Brezinsek, J.P. Coad, H.G. Esser, D.E. Hole, J. Likonen, A.G. Meigs, V. Philipps, M. Rubel, M.F. Stamp
- I9 Be migration studies at JET**  
K. Krieger, S. Brezinsek, S. Jachmich, S. Lisgo, M. Stamp, H.G. Esser, A. Kreter, S. Menmuir, Ph. Mertens, V. Philipps
- I10 Laser techniques implementation for wall surface characterisation and conditioning**  
B. Schweer, A. Huber, V. Philipps, M. Zlobinski, U. Samm
- I11 Fuel Removal from Tile Gaps with Oxidizing Glow Discharges: the Role of Ions and Neutrals**  
T. Schwarz-Selinger, C. Hopf, U. von Toussaint, W. Jacob
- I12 An overview of recent erosion - deposition and hydrogen retention studies in JT-60U**  
T. Tanabe, K. Masaki, K. Sugiyama
- I13 Modeling of erosion-deposition by the Monte Carlo codes EDDY and ERO**  
K. Ohya, K. Inai, A. Kirschner
- I14 Prediction of long-term tritium retention in the divertor of ITER: influence of modelling assumptions on retention rates**  
A. Kirschner, K. Ohya, D. Borodin, R. Ding, D. Matveev, V. Philipps, U. Samm
- I15 Material Degradation under DEMO Relevant Neutron Fluences**  
N. Baluc
- I16 Plasma-facing materials and components for fusion devices - Are we on the right track?**  
H. Bolt

## Contributed orals

- C1 Current Status of the JET ITER-like Wall Project**  
G. F. Matthews, P. Edwards, A. Loving, V. Philipps, V. Riccardo, M. Rubel, E. Villedieu
- C2 Ten years of W programme in ASDEX Upgrade – Challenges and Conclusions**  
R. Neu, V. Bobkov, R. Dux, J.C. Fuchs, O. Gruber, A. Herrmann, A. Kallenbach, H. Maier, M. Mayer, T. Pütterich, V. Rohde, A.C.C. Sips, J. Stober
- C3 Tungsten erosion and redeposition in the all-tungsten divertor of ASDEX Upgrade**  
M. Mayer, V. Rohde, G. Ramos, K. Sugiyama, K. Krieger, R. Neu, A. Hakola, J. Likonen
- C4 Thermal mechanical characterization of W and W alloys**  
I. Uytendhouwen, G. Pintsuk, J. Linke, R. Chaouadi, G. Van Oost
- C5 Dust Investigations at ASDEX Upgrade**  
V. Rohde, M. Balden, T. Lunt
- C6 Fuel retention in carbon materials under ITER-relevant mixed species plasma conditions**  
A. Kreter, M.J. Baldwin, R.P. Doerner, D. Nishijima, P. Petersson, A. Pospieszczyk, M. Rubel, K. Umstadter
- C7 Diamond as a plasma-facing material for fusion?**  
G. De Temmerman, S. Lisgo, M. J. Baldwin, R.P. Doerner, P. John, A. Litnovsky, L. Marot, S. Porro, P. Petersson, M.J. Rubel, D.L. Rudakov, G. Van Rooij, I. Villalpando, J. Westerhout, J. Wilson
- C8 Fuel retention in L and H mode experiments in JET**  
T. Loarer, S. Brezinsek, V. Philipps, J. Bucalossi, I. Coffey, G. Esser, S. Gruenhagen, S. Jachmich, S. Knipe, R. Stagg, Ph. Morgan
- C9 Overview of the Recent DiMES and MiMES Experiments in DIII-D**  
D.L. Rudakov, C.P.C Wong, J.A. Boedo, N.H. Brooks, M.E. Fenstermacher, M. Groth, W. Jacob, S.I. Krasheninnikov, K. Krieger, A. Litnovsky, C.J. Lasnier, R.A. Moyer, V. Philipps, R.D. Smirnov, P.C. Stangeby, W.R. Wampler, J.G. Watkins, W.P. West, J.H. Yu
- C10 Temperature programmed desorption of tritium loaded into beryllium**  
V. Chakin, R. Rolli, P. Kurinskiy, P. Vladimirov, A. Moeslang
- C11 Microstructure and Mechanical Properties of Helium-containing Beryllium**  
W. Kesternich, V.N. Chernikov, H. Ullmaier

# Posters

## A Carbon-based materials

- P1 Behaviour of Ti-doped 3D C/C Composites under Heat Flux Tests**  
A.Centeno, C. Blanco, R. Santamaría, M. Granda, R. Menéndez, G. Pintsuk, J. Linke
- P2 Erosion and Dust Formation of Graphite Materials under Low Energy and High Flux Atomic Hydrogen Irradiation**  
Y. Takeguchi, M. Kyo, Y. Uesugi, Y. Tanaka, S. Masuzaki
- P3 Damage of CFC Armoured Actively Cooled Plasma Facing Components**  
J. Schlosser, V. Herb, G. Chevet, E. Martin, G. Camus, F. Escourbiac, M. Missirlian, M. Lipa, M. Braccini
- P4 Structural and spectroscopic analyses of CFC components extracted from the Tore Supra toroidal pump limiter**  
C. Martin, C. Pardanaud, R. Ruffe, C. Brosset, B. Pégourié, E. Tsitrone, P. Roubin

## B Beryllium

- P5 Ab initio study of beryllium hydrides**  
A.Allouche
- P6 Study of Beryllides at Forschungszentrum Karlsruhe**  
P. Kurinskiy, V. Chakin, A. Moeslang, M. Rohde, R. Rolli, A.A. Goraieb, H. Harsch, J. Reimann, C. Dorn, W. Haws
- P7 Modelling of the influence of dynamic beryllium-carbide formation on chemical erosion at PISCES-B**  
D.Borodin, A.Kirschner, R.Doerner, D.Nishijima, A.Kreter, R.Ding, D.Matveev, V. Philipps
- P8 Ab Initio Modelling of Point Defects and Gas Atoms in Beryllium**  
P.V. Vladimirov, M.G. Ganchenkova, A. Möslang, V.A. Borodin
- P9 Modelling of erosion and deposition in cracks and dust particles on beryllium surface**  
D.Kogut, N.Trifonov
- P10 HHF Tests of RF Beryllium for ITER First Wall Application**  
I.B. Kupriyanov, L.A. Kurbatova, N.E. Zabirowa, A.A. Gervash
- P11 Towards a detailed understanding of the mechanisms of hydrogen retention in beryllium**  
M. Oberkofler, M. Reinelt, A. Allouche, Ch. Linsmeier
- P12 Novel electrochemically-based technologies for tungsten as plasma facing material**  
J. Konys, W. Krauss, N. Holstein
- P13 High heat flux test with HIP bonded Be/Cu mock-ups for the ITER first wall**  
D.W. Lee, Y.D. Bae, S.K. Kim, B.G. Hong, J.Y. Park, Y.H. Jeong, B.K. Choi

## C Tungsten and tungsten coatings

- P14 Project of Tungsten PFMC for EAST and Related PWI Studies**  
G. -N. Luo, J. G. Li, PWI Group
- P15 The influence of the Mo interlayer on the properties of W coatings deposited on CFC and FGG substrates by Combined Magnetron Sputtering and Ion Implantation technique**  
C.Ruset, E.Grigore, H.Maier, H.Greuner, R.Neu, G.Matthews
- P16 Performance of the different forged tungsten grades under transient high heat loads**  
Z. Zhou, G. Pintsuk, J. Linke, Y. Ma, M. Rödiger
- P17 Experiences with tungsten coatings in high heat flux tests and under plasma load in ASDEX Upgrade**  
A. Herrmann, H. Greuner, R. Neu

- P18 Interaction of Nitrogen Plasmas with Tungsten PFCs**  
A. Manhard, K. Schmid, T. Schwarz-Selinger
- P19 Subsurface morphology changes due to deuterium bombardment of tungsten**  
S. Lindig, M. Balden, V.Kh. Alimov, T. Yamanishi, W.M. Shu, J. Roth
- P20 Thermal Diffusivity of a Porous Tungsten Coating via 2D Direct Mapping Finite Element Simulation**  
A. Zivelonghi, S.Lindig, J.H.You
- P21 Compatibility of Plasma Sprayed Tungsten Based Materials With Graphite Substrates**  
H. Boldyryeva, P. Ctibor, V. Brozek, D.-I. Cheong, S.H. Yang
- P22 Processing and Temperature-dependent Properties of Plasma Sprayed Tungsten-stainless Steel Composites**  
J. Matejicek, H. Boldyryeva
- P23 Clamping of solid tungsten components for the bulk W divertor row in JET**  
Ph. Mertens, V. Philipps, G. Pintsuk, V. Riccardo, U. Samm, V. Thompson, I. Uytendhouwen
- P24 Enhancing the Thermal Diffusivity of Vacuum Plasma Sprayed Tungsten Coatings by Annealing above 1100 K**  
S. Lindig, M. Balden
- P25 Surface Morphology Characterization of Tungsten Exposed to High Fluxes of D+ Ions in the Tritium Plasma Experiment**  
R.D. Kolasinski, M. Shimada, D.A. Buchenauer, W.M. Clift, R.A. Causey, J.P. Sharpe
- P26 Surface Modification of Tungsten due to Plasma Irradiation**  
M. Sakamoto, T. Miyazaki, Y. Higashizono, K. Ogawa, K. Ozaki, N. Ashikawa, M. Tokitani, T. Shoji, S. Masuzaki, K. Tokunaga, K. Ohya, A. Sagara, N. Yoshida, K.N. Sato
- P27 Oxidation resistant quaternary tungsten-based alloys as plasma-facing material for DEMO**  
F. Koch, C. Lenser, M. Balden, M. Rasinski, Ch. Linsmeier
- P28 Advantages of application of enriched tungsten in fusion reactors**  
G. L. Dowling, J. van der Laan, Z. Vroon, F. Gubbels
- P29 Properties of Metal Injection Moulded Tungsten Components for Fusion Application**  
J. Opschoor, J.G. v. d. Laan, G. Pintsuk, M. Walter, A.A. Heumen, E.J.M. Houet, J.J. Wang, B.H. Zeep, D.K. Dijken, W.J.H. v. Gennip

## **D Mixed materials**

- P30 Molecular dynamics simulations of deuterium co-bombardment with impurities on tungsten carbide surface**  
K. Vörtler, K. Nordlund
- P31 Modelling of carbon deposition from hydrocarbon injection through graphite and tungsten test limiters in TEXTOR**  
R. Ding, A. Kirschner, D. Borodin, S. Brezinsek, M. Tokar, J. Chen, A. Kreter, O. Schmitz, V. Philipps, U.Samm, J. Li and TEXTOR team
- P32 Deuterium retention of tungsten-doped carbon films**  
P.A. Sauter, M. Balden, C. Adelhelm
- P33 Tungsten and carbon sputtering by carbon at elevated temperatures**  
H.T. Lee, K. Krieger
- P34 Retention in mixed species He, D<sub>2</sub>-He and D<sub>2</sub>-He-Ar Plasma Exposed Tungsten at Elevated Temperature**  
M. J. Baldwin, R. P. Doerner, J. Hanna, D. Nishijima
- P35 Influence of thermal treatment of Beryllium thin films deposited on graphite on the Be - C mixture formation**  
A. Anghel, C. Porosnicu, C. P. Lungu, I. Mustata, K. Krieger
- P36 Collisions of CD<sub>n</sub><sup>+</sup> (n=2-4) with room temperature magnetron-sputtered tungsten and beryllium surfaces at low incident energies of 0-100 eV**  
B. Rasul, N. Endstrasser, A. Keim, A. Kendl, F. Zappa, Z. Herman, P. Scheier, T.D. Märk

- P37 Deposition results from rotating collector diagnostics in JET**  
J.P. Coad, D.E. Hole, M. Rubel, A. Widdowson, J. Vince
- P38 Substrate Temperature Influence in Formation of Stable Be-W Composite Films Prepared by Thermionic Vacuum Arc Method**  
C. Porosnicu, C. P. Lungu, A. Anghel, K. Sugiyama, K. Krieger, J. Roth, V. Andrei
- P39 Molecular Dynamics simulations of amorphous tungsten-carbide under deuterium bombardment**  
E.D. de Rooij, U. von Toussaint, A.W. Kleyn, W.J. Goedheer

## **E Erosion & redeposition**

### ***Carbon based materials***

- P40 Nano-scale structural features and properties of smooth hydrocarbon films from T-10**  
V.G. Stankevich, N.Yu. Svechnikov, Y.V. Zubavichus, A.A. Veligzhanin, L.P. Sukhanov, K.A. Menshikov, A.M. Lebedev, B.N. Kolbasov, K.Yu. Vukolov, D. Rajarathnam, L.N. Khimchenko
- P41 withdrawn**
- P42 Hydrocarbon chemistry in fusion edge plasmas: a sensitivity analysis**  
D. Reiter, B. Küppers, R.K. Janev
- P43 Effect of wall conditions on the final products originated from scavenger mixtures**  
F.L. Tabarés, J.A. Ferreira, D. Alegre
- P44 Chemical sputtering of metal-doped carbon-based materials by deuterium bombardment from ion beam and plasma**  
M. Balden, P. Starke, C. Adelhelm, P.A. Sauter, I. López-Galilea, N. Ordas, C. García-Rosales, J.M. Ramos Fernández, M. Martínez Escandell, A. Centeno, C. Blanco
- P45 Determination of the sticking probability of hydrocarbons on an amorphous hydrocarbon surface**  
K. Tichmann, U. von Toussaint, T. Schwarz-Selinger, W. Jacob
- P46 Bonding States of Hydrogen in Plasma-deposited Hydrocarbon Films**  
W. Jacob, Th. Dürbeck, T. Schwarz-Selinger, U. von Toussaint
- P47 Experimental Setup for Studying Erosion of Carbon Deposits by Neutral Oxygen Atoms**  
A. Drenik, A. Vesel, M. Mozetič
- P48 Recombination Coefficient for Neutral Hydrogen and Oxygen Atoms on Graphite**  
M. Mozetič, A. Vesel, A. Drenik, P. Panjan, A. Kreter, S. Brezinsek
- P49 Chemical Erosion of CFC at Medium Flux Densities**  
W. Bohmeyer, A. Markin, C. Biedermann
- P50 Chemical Erosion Yields of Different Carbon Composites under ITER-Relevant Plasma Conditions**  
J. Westerhout, D. Borodin, G.J. van Rooij, R.S. Al, S. Brezinsek, M.H.J. 't Hoen, A. Kirschner, S. Lisgo, H.J. van der Meiden, V. Philipps, M.J. van de Pol, A.E. Shumack, G. De Temmerman, W.A.J. Vijvers, G.M. Wright, N.J. Lopes Cardozo, J. Rapp
- P51 Hydrogen-enhanced Erosion of Amorphous Hydrocarbon Films**  
U. von Toussaint, P.N. Maya, C. Hopf

### ***High Z materials***

- P52 Ion-driven deuterium retention in self-damaged tungsten**  
B. Tyburska, O.V. Ogorodnikova, K. Schmid, V. Alimov, K. Ertl
- P53 Reduction of thin oxide films on tungsten substrate with highly reactive cold hydrogen plasma**  
A. Vesel, A. Drenik, M. Mozetic, M. Balat – Pichelin

- P54 Erosion of tungsten and a-C:H surfaces by slow singly and multiply charged ions**  
K. Dobes, A. Golczewski, T. Schwarz-Selinger, F. Aumayr
- P55 Long-term compositions of surface layers in the all-tungsten divertor of ASDEX Upgrade**  
A. Hakola, J. Likonen, S. Koivuranta, M. Mayer, R. Neu, V. Rohde
- P56 Oxygen Sorption in Tungsten Irradiated with Deuterium**  
R.Kh. Zalavutdinov, V.Kh. Alimov, A.E. Gorodetsky, A.P. Zakharov
- P57 Plasma induced surface modification in the divertor strike point region of ASDEX Upgrade**  
E. Fortuna-Zalesna, R. Neu, J. Sobczak, M. Pisarek, M. Andrzejczuk, M. Rasinski, W. Zielinski, K. J. Kurzydowski
- P58 Effect of Wall Temperature on Damage Formation in PFMs Exposed to LHD Helium Plasma**  
M. Miyamoto, M. Tokitani, N. Ashikawa, M. Kobayashi, M. Shoji, S. Masuzaki, N. Yoshida, K. Ono
- P59 In situ deposition of W layers by local WF6 injection through TEXTOR testlimiters**  
V. Philipps, F. Nachtrodt, A. Pospieszczyk, P. Wienhold, A. Huber, U. Samm, S. Richter
- P60 Study of material and their erosion products modification**  
L.N. Khimchenko, V.M. Gureev, S.A. Kamneva, A.V. Karpov, N.S. Klimov, B.V. Kuteev, J. Linke, A. Loarte, M. Merola, V.L. Podkovirov, A.M. Zhitlukhin
- P61 Tungsten divertor erosion and prompt redeposition in nitrogen seeded discharges measured by W I and W II spectroscopy**  
G. van Rooij, J. Rapp, R. Dux, A. Kallenbach, A. Manhard, H.-W. Müller, R. Neu, A. Pospieszczyk, S. Potzel
- P62 Effect of shaping on fuel retention and carbon deposition in ITER-like castellated structures**  
A. Litnovsky, D. Rudakov, V. Philipps, C. Wong, W. West, N. Brooks, P. Wienhold, G. Sergienko, O. Schmitz, J. Watkins, J. Brooks, Ch. Lasnier, M. Fenstermacher, A. McLean
- P63 Measurement of Tungsten deposition on JT-60U Tile with Neutron Activation Analysis**  
K. Ochiai, A. Watanabe, Y. Ueda, K. Takakura, H. Nakano, J. Yagyu, C. Konno
- P64 Effect of Bulk Temperature on Enhanced Erosion of Tungsten Plasma Facing Components Subject to Simultaneous Deuterium Plasma and Heat Pulses**  
K.R. Umstadter, R. Doerner G. Tynan

### ***Material migration and edge plasma properties***

- P65 Modelling of 13CH4 Injection and Local Carbon Deposition at the Outer Divertor of ASDEX Upgrade**  
L.K. Aho-Mantila, M.I. Airila, M. Wischmeier, K. Krieger, R. Pugno, V. Rohde, D.P. Coster, A.V. Chankin, R. Dux, T. Lunt, R. Neu, S. Potzel, B. Sieglin
- P66 Numerical estimates of the ITER first wall erosion due to fast neutral particles**  
V. Kotov, D. Reiter, A. S. Kukushkin, H. D. Pacher
- P67 ERO modelling of local deposition of 13C tracer at the outer divertor of JET**  
M.I. Airila, L.K. Aho-Mantila, S. Brezinsek, J.P. Coad, A. Kirschner, J. Likonen, D. Matveev, M. Rubel, J.D. Strachan, A. Widdowson, S. Wiesen
- P68 Spectroscopic studies of hydrogen and carbon species**  
M. Clever, S. Brezinsek, A. Pospieszczyk, O. Schmitz, B. Schweer, U. Samm
- P69 COMPARISON OF 13C2H4 AND 13CH4 INJECTION THROUGH C AND W LIMITERS IN TEXTOR**  
S. Brezinsek, A. Kreter, A. Pospieszczyk, A. Kirschner, R. Ding, O. Schmitz, V. Philipps, U. Samm, K. Sugiyama, Y. Ueda, T. Tanabe, T. Hirai
- P70 Deposition of 13C tracer at the JET MKII-HD divertor**  
J. Likonen, A. Hakola, J. P. Coad, A. Widdowson, J. Strachan, S. Koivuranta, D. E. Hole, M. Rubel

## F Fuel retention & removal

### *Fuel retention*

- P71 Deuterium retention in tungsten exposed to low-energy, high-flux pure and helium-seeded D plasmas**  
V.Kh. Alimov, W.M. Shu, J. Roth, K. Sugiyama, K. Isobe, T. Yamanishi
- P72 Interaction of the energetic deuteron and molybdenum**  
T. S. Wang, H.Y. Lv, Z. Yang, J.T. Zhao, X. Meng, Q.H. He
- P73 Tritium release from SS316 under vacuum conditions**  
Y. Torikai, S. Naoe, R.-D. Penzhorn, K. Akaishi, K. Watanabe, M. Matsuyama
- P74 Analysis of Tritium Distribution in Carbon Based Tiles**  
G. Kizane, A. Vitins, E. Pajuste, S. Kaleja, I. Dusenkova, M. Halitovs
- P75 Long-term deuterium release from CFC in the air atmosphere**  
K. Sugiyama, V. Kh. Alimov, J. Roth
- P76 Retention and Surface Pore Formation in Helium-Implanted Nano-Grain Tungsten for Fusion Reactor First-Wall Materials and Divertor Plates**  
S.J. Zenobia, G.L. Kulcinski
- P77 Deuterium ion-driven permeation through carbon coated tungsten**  
Yu. Gasparyan, M. Mayer, A. Pisarev, J. Roth, A. Wiltner, C. Adelhelm, M. Rasinski
- P78 Carbon film growth and hydrogenic retention of tungsten exposed to CH<sub>4</sub>-seeded plasmas in Pilot-PSI**  
G.M. Wright, R.S. Al, E. Alves, L.C. Alves, N.P. Barradas, A.W. Kleyn, N.J. Lopes Cardozo, H.J. van der Meiden, V. Philipps, G.J. van Rooij, A.E. Shumack, W.A.J. Vijvers, J. Westerhout, J. Rapp
- P79 Deuterium retention in boronized and Al<sub>2</sub>O<sub>3</sub>-coated tungsten**  
K.A. Moshkunov, K. Schmid, W. Jacob, V.A. Kurnaev
- P80 Deuterium retention in NSTX**  
C.H. Skinner, H.W. Kugel, L. Roquemore, J.P. Allain, C.N. Taylor W. Wampler
- P81 Deuterium Inventory in Tore Supra:**  
T. Dittmar, E. Tsitron, E. Gauthier, A. Hakola, J. Likonen, F. Linez, C. Martin, M. Mayer, JY Pascal, B. Pasquet, B. Pégourié, J. Roth, P. Roubin, I. Roure
- P82 withdrawn**
- P83 Trapping behaviour of deuterium ions implanted into tungsten simultaneously with carbon ions**  
M. Kobayashi, Y. Inagaki, S. Suzuki, K. Kida, R. Kurata, N. Ashikawa, A. Sagara, N. Yoshida, Y. Oya, K. Okuno
- P84 Hydrogen isotope retention, surface profile and depth profile of polycrystalline tungsten exposed to high flux deuterium plasma**  
M. Shimada, R. D. Kolasinski, T. Otsuka, J. M. Shea, T. R. Allen, P. Calderoni, J. P. Sharpe, R. A. Causey
- P85 Deuterium retention in tungsten at high temperatures**  
R. Mateus, A.M. Deus, P.A. Carvalho, D. Nunes, J.B. Correia, N. Shohoji, H. Fernandes, C. Silva, N. Barradas, L.C. Alves, E. Alves
- P86 Nuclear Microbeam Analysis of Deuterium Distribution on Surfaces of Plasma-Facing Materials**  
P. Petersson, A. Kreter, G. Possnert
- P87 Correlation between deuterium retention and microstructure change for tungsten under triple ion implantation**  
Y. Oya, S. Suzuki, Y. Inagaki, W. Wang, N. Ashikawa, A. Sagara, N. Yoshida and K. Okuno
- P88 Visualization of Implanted Hydrogen Diffusion Profile in Tungsten**  
T. Otsuka, T. Hoshihira, T. Tanabe
- P89 Deuterium retention in different tungsten grades**  
O.V. Ogorodnikova, T. Schwarz-Selinger, K. Sugiyama, T. Dürbeck, A. Manhard, U. von Toussaint, W. Jacob, M. Mayer

## ***Wall conditioning and fuel removal***

- P90 Laser Induced Breakdown Spectroscopy investigation of fuel removal from samples of ASDEX Upgrade divertor strike-point tiles combined with ion time-of-flight diagnostics**  
P. Gasior, M. Kubkowska, R. Neu, J. Wolowski
- P91 Residual gas analysis by high-resolution mass spectrometry**  
Takao Hayashi, Atsushi Kaminaga, Takashi Arai, Akira Sakasai
- P92 Removal of amorphous hydrocarbon films from castellated structures by glow discharge plasmas**  
C. Schulz, V. Philipps, A. Litnovsky, A. Kreter, U. Samm
- P93 Amorphous hydrogenated carbon etching with a plasma jet**  
T.A.R. Hansen, P.G.J. Colsters, J.W. Weber, M.C.M. van de Sanden, R. Engeln
- P94 Laser ablation for layer removal process on plasma facing components: from laboratory studies to tokamak integration.**  
H. Roche, C. Grisolia, C. Hernandez, C. Pocheau, A. Semerok, D. Farcage, X. Courtois, N. Vignal

## **G Materials under high heat loads**

- P95 Residual stresses in tungsten under Exposures with ITER ELM-like Plasma loads**  
V.A. Makhelai, I.E. Garkusha, S.V. Malykhin, A.T. Pugachov, I. Landman, J. Linke, S. Pestchanyi, V.V. Chebotarev, V.I. Tereshin
- P96 Exploring the relationship between the condition of plasma facing surfaces and diagnostic measurements of heat flux to the surface**  
E. Delchambre-Demoncheaux, G. DeTemmerman, S. Lisgo, A. Kirk
- P97 Droplet Emission From Tungsten Melt Layer under Transients.**  
B. Bazylev, I.S. Landman, A. Loarte, N.S. Klimov, V.L. Podkovyrov, V.M. Safronov
- P98 Operational limits for the ITER-like wall in JET**  
V. Riccardo, E. Joffrin, G. Matthews, Ph. Mertens, V. Thompson, E. Villedieu
- P99 Manufacturing and high heat flux testing of brazed actively cooled mock-ups with Ti-doped graphite and CFC as plasma-facing materials**  
C. García-Rosales, G. Pintsuk, C. Gualco, I. López-Galilea, N. Ordás, J.M. Ramos Fernández, M. Martínez Escandell, A. Centeno, C. Blanco, J. Linke, M. Grattarola, F. Mataloni
- P100 High heat flux testing of actively cooled tungsten and CFC mock-ups produced within the ExtreMat project**  
G. Pintsuk, V. Casalegno, M. Ferraris, M. Grattarola, C. Gualco, K. Izdinsky, T. Koppitz, M. Salvo, F. Simancik, J. Linke
- P101 withdrawn**

## **H Technology and testing of plasma-facing components**

- P102 One-step brazing process and mechanical tests for CFC monoblock joints**  
V. Casalegno, M. Salvo, S. Murdaca, M. Ferraris
- P103 Solid State Bonding of Graphite to Stainless Steel (AISI304) and Molybdenum alloy (TZM alloy)**  
K. Bhanumurthy, R. K. Fotedar, A. L. Pappachan
- P104 A Material and Plasma Evaluation System (MAPES) on EAST**  
H. S. Zhou, C. S. Xu, C. Wong, G. -N. Luo
- P105 Preliminary Structure Design of W/Cu-PFC in EAST**  
Q. Li, H. S. Zhou, G. -N. Luo

- P106 Implementation of automated IR image processing as quality assessment for high heat flux components of W7-X**  
H. Greuner, P. de Marné, A. Herrmann, B. Böswirth, T. Schindler, M. Smirnow
- P107 TechnoFusion: A new facility for Material and Technologic Studies**  
J.A. Ferreira, F.L. Tabarés, A. Ibarra, R. Vila
- P108 Design and Fabrication of Actively Water Cooled W/Cu Functionally Graded Materials Based High Heat Flux Components**  
J. Tan, Z. Zhou, Y. Yum, W. Shen, C. Ge
- P109 IR Reflection Properties and Modelling of In-situ Reflection Measurements on Plasma Facing Materials in Tore Supra**  
R. Reichle, C. Desgranges, F. Faisse, J.-P. Lasserre, F. Oelhoffen, C. Pocheau, L. Eupherte, M. Todeschini
- P110 The Performance of a Divertor Component produced with the aid of W-wire reinforced Copper (Alloy)**  
P.W.M. Peters, J. Hemptenmacher, H. Schurmann
- P111 Non destructive tests on tungsten coated JET divertor CFC tiles**  
A. Schmidt, T. Hirai, S. Keuseman, M. Rödiger, G. Pintsuk, J. Linke, H. Maier, G. F. Matthews, M. Hill, H. Altmann
- P112 withdrawn**
- P113 Failure study of helium-cooled tungsten divertor components tested at DEMO relevant steady-state heat loads**  
G. Ritz, T. Hirai, J. Linke, P. Norajitra, R. Giniyatulin, L. Singheiser
- P114 Testing the ITER first wall at ITER relevant conditions**  
B.P. Jonker, J. van der Laan, S. Kamer
- P115 Plasma facing components by vacuum brazing**  
C.Divakar, P.M.Jaman, L.Rangaraj, Y.Giridharababu
- P116 Mechanical Properties of SiC-Fibre and W-Wire Reinforced Cu- and CuCr1Zr-Matrix Composites for Heat Sink Applications**  
J. Hemptenmacher, H. Schurmann, P.W.M. Peters
- P117 Thermal Cycle Test Facility KoHLT-1 for Plasma Facing Components**  
Y.D. Bae, D.W. Lee, S.K. Kim, H.Y. Shin, B.G. Hong

## **I Radiation damage effects in plasma-facing materials**

- P118 Radiation damage effects on erosion of plasma facing materials for fusion applications under plasma impact.**  
A.I. Ryazanov, B.I. Khripunov, V.S. Koidan, A. N. Bryukhanov, O.K. Chugunov, V.M. Gureev, S.N. Kornienko, S.T. Latushkin, A.M. Muksunov, V.B. Petrov, E.V. Semenov, V.P. Smirnov, V.G. Stolyarova, V.N. Unezhev
- P119 Modeling of cascade and sub-cascade formation in structural materials under fast neutron irradiation in plasma-facing materials.**  
A.I. Ryazanov, E.V. Semenov
- P120 withdrawn**
- P121 Effects of Helium Irradiation on Degradation of Optical Properties in Single and Poly Crystalline Mo Mirrors for Plasma Diagnostics**  
K. Ono, M. Miyamoto, T. Nakano, H. Kurata
- P122 Radiation defects in tungsten, bombarded with 10 keV D<sub>3</sub><sup>+</sup> ions**  
A. Rusinov, Yu. Gasparyan, P. Pyankov, N. Trifonov A. Pisarev
- P123 Radiation Stability of Ion-Irradiated Graphite**  
M. Tomut, M. Krause, A. Kelić, C. Trautmann, R. Neumann

## J Others

- P124 Lithium capillary-pore system as plasma-facing material for high heat loaded in-vessel components application**  
A.V. Vertkov, I.E. Lyublinski, D.Yu. Prokhorov
- P125 Cleaning of the first mirrors and diagnostic windows by YAG laser on HL-2A**  
Y.Zhou, L.Zheng, Y.G Li , L.C.Li
- P126 Surface Structure and Composition of First Mirrors Tested in JET for ITER**  
M. Rubel, I. Uytendhouwen, J. P. Coad, G. De Temmerman, A. Hakola, D. Hole, J. Likonen, A. Widdowson
- P127 A study of Cu/Graphite and Cu/Diamond interfaces reinforced with chromium**  
D. Nunes, V. Livramento, J.B. Correia, P.A. Carvalho, R. Mateus, N. Shohoji, H. Fernandes, C. Silva, L.C. Alves, K. Hanada, E. Ōsawa
- P128 Survey of Dust Formed in TEXTOR and of Debris Generated by Fuel and**  
D. Ivanova, M. Rubel, V. Philipps, M. Freisinger, B. Schweer, M. Źłobiński, P. Sundelin, H. Penkalla, E. Wessel
- P129 Introduction of an experimental low-temperature plasma reactor for simulating parasitic discharges such as those expected under Tokamak divertor dome**  
L. Colina Delacqua, M. Redolfi, G. Lombardi, A. Michau, X. Bonnin, K. Hassouni
- P130 Optical characterization of a dusty plasma: simulations and experiments of light scattering in a radiofrequency discharge**  
Y. Peng, R. Hugon, D. Lacroix, F. Brochard, L. De Poucques, J-L. Vasseur, J. Bougdira
- P131 Semi-automated visual inspection system for crack detection of flat tiles for divertor components**  
M. Smirnow, J. Boscary, R. Stadler, R. Guigon, M. Missirlianm, J. Schlosser
- P132 Visible Tungsten Spectroscopy at the Plasma Generator PSI-2**  
C. Biedermann, R. Radtke, P. Rieck
- P133 Chaotic Dynamics of Plasma Produced in Metallic Vapours by a Thermionic Vacuum Arc**  
C. M. Ticos, C. P. Lungu, P. Chiru, V. Zaruschi, I. Jepu, C. Porosnicu
- P134 Study of the temperature effect on hydrocarbon deposition on molybdenum mirrors under ITER-relevant long term plasma operation in Pilot-PSI**  
J. Rapp, G.J. van Rooij, A. Litnovsky, L. Marot, G. De Temmerman, J. Westerhout
- P135 Dependence on plasma parameters of dust detected after FTU disruptions**  
A. Rydzy, E. Giovannozzi, G. Maddaluno
- P136 Investigation of Thermal Contact Resistance Between Graphite and Aluminium Nitride for Developing Imbedded Probes for W7-X**  
S. Lindig, M. Laux, R. Laube, M. Ye
- P137 Characterization of SiC Coated Graphite Limiter Tiles for ADITYA Tokamak**  
S. B. Bhatt, Ajai Kumar, P. Santra, P. A. Rayjada, K. A. Jadeja, R. K. Singh, N. L. Chauhan, K. M. Patel, D. Chenna Reddy, P. M. Raole
- P138 Development of High Pressure Non-Thermal Argon Plasma Torch**  
S. Mukherjee, R. Rane