

# Poster Session Program

(To fit the poster arrangement, the poster number was renumbered. The correspondence table of old and new numbers is posted at the end of this program.)

## Poster Session 1 (16:00-18:00 Monday 25<sup>th</sup>, September)

### **P1-001 Novel DEMO Divertor Target Design Concepts with Advanced Materials Solutions**

Jeong-Ha You (Max-Planck-Institut für Plasmaphysik, Germany), E. Visca, G. Mazzone (ENEA, Italy), Ch. Bachmann (EUROfusion, Germany), T. Barrett (CCFE, UK), B. Böswirth (Max-Planck-Institut für Plasmaphysik, Germany), F. Crescenzi (ENEA, Italy), F. Domptail, M. Fursdon (CCFE, UK), F. Gally (CEA, France), B-E. Ghiders (KIT, Germany), H. Greuner, M. Li, A.v. Müller (Max-Planck-Institut für Plasmaphysik, Germany), J. Nicholas (University of Oxford, UK), J. Prokupek (Research Center Rez, Czech Republic), J. Reiser (KIT, Germany), M. Richou (CEA, France), S. Roccella (ENEA, Italy)

### **P1-002 Computational thermofluid-dynamic analysis of DEMO divertor cassette body cooling circuit**

Pietro Alessandro Di Maio, Silvia Garitta (University of Palermo, Italy), Jeong-Ha You (Max-Planck-Institut für Plasmaphysik, Germany), Giuseppe Mazzone (ENEA, Italy), Eugenio Vallone (University of Palermo, Italy)

### **P1-003 On the thermal-hydraulic optimization of DEMO divertor plasma facing components cooling circuit**

Pietro Alessandro Di Maio, Silvia Garitta (University of Palermo, Italy), Jeong-Ha You (Max-Planck-Institut für Plasmaphysik, Germany), Giuseppe Mazzone (ENEA, Italy), Eugenio Vallone (University of Palermo, Italy)

### **P1-004 Preliminary estimation of electromagnetic loads on the K-DEMO divertor system**

Sungjin Kwon, Kihak Im, Jong Sung Park (NFRI, Korea)

### **P1-005 Numerical study of influence of $J \times B$ force on melt layer under conditions relevant to ITER ELMs**

Dezhen Wang, Jizhong Sun, Chaofeng Sang, Dezhen Wang (Dalian University of Technology, China)

### **P1-006 Design and thermal-hydraulics of LLCB TBM First wall and its manifolds**

Deepak Sharma, S. Ranjithkumar, Paritosh Chaudhuri, E.Rajendra Kumar (Institute for Plasma Research, India)

### **P1-007 Numerical and experimental study of coolant water flow in ITER divertor outer vertical target**

Yohji Seki, Koichiro Ezato, Satoshi Suzuki, Kenji Yokoyama, Hirokazu Yamada, Tomoyuki Hirayama (QST, Japan), Takeshi

Hirai (ITER Organization, France)

### **P1-008 Operational Characteristics of the Superconducting High Flux Plasma Generator Magnum-PSI**

Hans van Eck, S. Alonso van der Westen, M.A. van den Berg, S. Brons, G.G. van Eden, H.J. van der Meiden, T.W. Morgan, M.J. van de Pol, J. Scholten, J.W.M. Vernimmen, E.G.P. Vos, M.R. de Baar (DIFFER, Netherlands)

### **P1-009 Plasma-Wall Interaction on the Divertor Tiles of JET ITER-Like Wall from the Viewpoint of Micro/Nanosopic Observations**

Masayuki Tokitani (NIFS, Japan), Mitsutaka Miyamoto (Shimane University, Japan), Suguru Masuzaki, Ryuichi Sakamoto (NIFS, Japan), Yasuhisa Oya (Shizuoka University, Japan), Yuji Hatano (University of Toyama, Japan), Teppei Otsuka (Kindai University, Japan), Makoto Oyaidzu, Hironori Kurotaki, Takumi Suzuki, Dai Hamaguchi, Kanetsugu Isobe, Nobuyuki Asakura (QST, Japan), Anna Widdowson (EUROfusion Consortium, UK), Kalle Heinola (University of Helsinki, Finland), Marek Rubel (KTH, Sweden), JET Contributors

### **P1-010 CFD analysis and heat load test on ion dump with hypervapotron for KSTAR NBI-2**

Kyungmin Kim, Y.B. Chang, S. Kwon, H.T. Kim, S.W. Jung, N.H. Song, K.S. Lee, K.P. Kim, H.T. Park, J.S. Kim, D.S. Lim, S.W. Kwag, K. Im, S.H. Hong, Y.S. Kim (NFRI, Korea)

### **P1-011 Fatigue Life Assessment of Baffles in Wendelstein 7-X**

Joris Fellingner (Max-Planck-Institut für Plasmaphysik, Germany), Roberto Citarella, Venanzio Giannella, Marcello Lepore (University of Salerno, Italy), Michael Czerwinski, Reinhold Stadler (Max-Planck-Institut für Plasmaphysik, Germany)

### **P1-012 Comparison of gas and pellet injection as ITER disruption mitigation technique**

Sergey Pestchanyi (KIT, Germany), Michael Lehnen, Richard Pitts (ITER, France), Gabriella Saibene (F4E, Spain)

### **P1-013 Current Status and Progress on the 4.6GHz LH Antennas Guard Limiter for EAST Tokamak**

Changle Liu, Liangliang Zhang, Lei Cao, Le Han, Lei Li, Zhaoliang Wang, Houchang Xu, Jie Zhang, Tiejun. Xu, Zibo Zhou, Damao. Yao (ASIPP, China)

### **P1-014 Cracks behavior of the new tungsten divertor set up in ASDEX Upgrade**

Irene Zammuto, Muyuan Li, Albrecht Herrmann, Nikola Jaksic, Henri Greuner (Max-Planck-Institut für Plasmaphysik, Germany), Rudolf Neu (Max-Planck-Institut für Plasmaphysik & Technische Universität München, Germany), Arne Kallenbach, The ASDEX Upgrade Team (Max-Planck-Institut für Plasmaphysik, Germany)

### **P1-015 Stabilization of Shower Jets by Inserting Internal Flow Resistances for the Liquid Metal Divertor in the Helical Fusion Reactor FFHR-d1**

Takeru Ohgo (SOKENDAI, Japan), Junichi Miyazawa, Takuya Goto (SOKENDAI & NIFS, Japan), Takanori Murase (NIFS, Japan)

**P1-016 Surface Waves of Liquid Metal Film under the Influence of Horizontal Magnetic Field**

JuanCheng Yang (Xi'an Jiaotong University, China), Tian Yu Qi, Dong Wei Ren, Bai Qi Liu, Ming Jiu Ni (University of Chinese Academy and Sciences, China)

**P1-017 Helium-cooled Divertor: Design and DEMO Integration Studies**

Bradut-Eugen Ghidersa, J. Reiser, Y. Chen (KIT, Germany), Joon-Soo Lim, Namkyu Lee (Yonsei University, Korea)

**P1-018 Nozzle-to-Target Distance Effect on the Cooling Performances of a Jet-Impingement Helium-Cooled Divertor**

Namkyu Lee, Joon-Soo Lim (Yonsei University, Korea), B-E. Ghidersa (KIT, Germany), Hyung Hee Cho (Yonsei University, Korea)

**P1-019 Enhancement of Cooling Performance of a Helium-Cooled Divertor via the Addition of Rib Structures on the Jet-Impingement Area**

Joon-Soo Lim, Namkyu Lee, Hyung Hee Cho (Yonsei University, Korea), B-E Ghidersa (KIT, Germany)

**P1-020 Experimental and Numerical Studies of Helium-Cooled Modular Divertors with Multiple Jets**

Bailey Zhao, Shekaib Musa, Said Abdel-Khalik, Minami Yoda (Georgia Institute of Technology, USA)

**P1-021 Novel High Heat Flux Geometries for Fusion Applications Enabled by Additive Manufacturing**

David Hancock (CCFE & University of Sheffield, UK), Michael Porton, David Homfray (CCFE, UK), Iain Todd (University of Sheffield, UK), Brad Wynne (CCFE & University of Sheffield, UK)

**P1-022 Design, manufacturing and first measurements of the new WEST IR thermography system**

Xavier Courtois, Marie-Hélène Aumeunier, Colette Balorin, Michael Houry, Michel Jouve, Philippe Jacques Moreau, Christine Pocheau, Hélène Roche (CEA IRFM, France)

**P1-023 Effect of Resonant Magnetic Perturbation on Erosion of Divertor region in KSTAR**

Eunnam Bang, Soohyun Son (NFRI, Korea), Suk-Ho Hong (NFRI & Hanyang University, Korea)

**P1-024 Spectroscopic Study of Hydrogen Reflection at Modified Tungsten Surface**

Kenta Doi (Doshisha University, Japan), Hitoshi Yamaoka (RIKEN SPring-8 Center, Japan), Motoi Wada (Doshisha University, Japan)

**P1-025 Characteristics of retention and transmission of deuterium in tungsten on D-He mixture plasma**

Tatsuya Hayashi, Toshikio Takimoto, Akira Tonegawa, Yoshihito Matsumura (Tokai University, Japan), Kohnosuke Sato (Chubu Electric Power Co. Inc., Japan), Kazutaka Kawamura (Tokai University, Japan)

**P1-026 Heat Loading Behavior and Thermomechanical Analyses on Plasma Spray Tungsten Coated**

## **Reduced-activation Ferritic/martensitic Steel**

Kazutoshi Tokunaga, Hotta Tomohiro (Kyushu University, Japan)

## **P1-027 Qualification and Post-mortem Investigation of actively cooled W flat-tile mock-ups for WEST divertor**

Marc Missirlian (CEA IRFM, France), Gerald Pintsuk (FZJ-Juelich, Germany), Guangnan Luo (ASIPP, China), Marianne Richou (CEA IRFM, France)

## **P1-028 Fabrication and characterization of Be-Zr-Ti ternary beryllide pebbles**

Jae-Hwan Kim, Masaru Nakamichi (QST, Japan)

## **P1-029 Effect of moisture in sweep gas on chemical compatibility between ceramic breeder and EUROFER97**

Keisuke Mukai (KIT, Germany), Maria Gonzalez (CIEMAT, Spain), Regina Knitter (KIT, Germany)

## **P1-030 D<sub>2</sub>-Release Behaviour of Long Term Annealed Electron-Irradiated Ceramic Breeders**

Julia Heuser (KIT, Germany), Marta Malo, Maria Gonzalez (CIEMAT, Spain), Regina Knitter (KIT, Germany)

## **P1-031 Evaluation of the Stability of Irradiation Defects in Neutron-irradiated Li<sub>4</sub>SiO<sub>4</sub>**

Guangming Ran, Chengjian Xiao, Xiaojun Chen, Linjie Zhao, Yu Gong, Xiulong Xia, Jingwei Hou, Xiaolong Fu, Lei Yue, Chao Chen, Heyi Wang (INPC, CAEP, China)

## **P1-032 Effects of Spatially Varying Nuclear Heating and Tritium Production Rate on Temperature and Tritium Inventory in Ceramic Breeder Blankets**

Marco Riva, Jon van Lew, Alice Ying, Mohamed Abdou (UCLA, USA)

## **P1-033 Granulation Examination of Beryllide Pebbles by a Rotating Electrode Method**

Petr Kurinskiy, Jae-Hwan Kim, Masaru Nakamichi (QST, Japan)

## **P1-034 Molecular Dynamics Studies of Primary Damage in $\beta$ -Li<sub>2</sub>TiO<sub>3</sub>**

Mohammed Suhail, Baldev Puliyeri, Paritosh Chaudhuri, Narasimhan Swaminathan (Indian Institute of Technology Madras, India)

## **P1-035 Characterization of Beryllide Pebble Bed in Japan DEMO Blanket Application**

Masaru Nakamichi, Jae-Hwan Kim (QST, Japan)

## **P1-036 Influence of modified neutron emission spectrum on tritium production performance in blanket systems with NBI-heated deuterium plasma**

Tomoki Urakawa, Hideaki Matsuura, Yasuko Kawamoto (Kyushu University, Japan), Satoshi Konishi (Kyoto University, Japan)

**P1-037 Wall effects on cyclic behaviour of ceramic pebble beds under mechanical loading**

Simone Pupleschi (KIT, Germany), Yixiang Gan (The University of Sydney, Australia), Marigrazia Moscardini, Regina Knitter, Marc Kamlah (KIT, Germany)

**P1-038 Molten Salt Thermal Conductivity Enhancement by Mixing Nanoparticles**

Yoshitaka Ueki, Naoyuki Fujita, Masaya Kawai, Masahiko Shibahara (Osaka University, Japan)

**P1-039 Experimental Progress in Effective Thermal Conductivity Measurement of Ceramic Pebble Beds**

Shuang Wang, Shuai Wang, QingQing Xu, Cheng Jin, Hongli Chen (University of Science and Technology of China, China)

**P1-040 Discrete element method to evaluate the effective thermal conductivity of pebble beds in a fusion reactor**

Marigrazia Moscardini (KIT, Germany), Yixiang Gan (The University of Sydney, Australia), Simone Pupleschi, Marc Kamlah (KIT)

**P1-041 Investigation on the “advanced-plus” Helium Cooled Lithium Lead Breeding Blanket design concept for TBR enhancement regarding thermal and mechanical behavior**

Rémi Boullon, Julien Aubert, Giacomo Aiello, Jean-Charles Jaboulay, Alexandre Morin (CEA, France), Justine Peyraud (CEA & Université Pierre et Marie Curie, France)

**P1-042 Status of the EU DEMO HCLL breeding blanket design development and associated R&D**

Julien Aubert, Giacomo Aiello (CEA, France), Pietro Arena (Università di Palermo, Italy), Tom Barrett (UKAEA, UK), Lorenzo Virgilio Boccaccini (KIT, Germany), Gaetano Bongiovì (Università di Palermo, Italy), Rémi Boullon (CEA, France), Fabio Cismondi (EUROfusion Consortium, Germany), Ion Critescu (KIT, Germany), Phani Kumar Domalapally (Centrum výzkumu Řež, Czech Republic), Laurent Forest, Jean-Charles Jaboulay (CEA, France), Béla Kiss (Budapest University of Technology and Economics, Hungary), Alexandre Morin (CEA, France), Justine Peyraud (Sorbonne Universités, France), Gabor Porempovics (Budapest University of Technology and Economics, Hungary), Marco Utili (ENEA, Italy), Ladislav Vala (Centrum výzkumu Řež, Czech Republic)

**P1-043 Development of HCLL DEMO First Wall design for SYCOMORE System Code**

Gandolfo Spagnuolo (KIT, Germany), Giacomo Aiello, Julien Aubert (CEA, France)

**P1-044 Numerical assessment of the thermomechanical behaviour of the DEMO Water-Cooled Lithium Lead inboard blanket equatorial module**

Pietro Di Maio, Pietro Arena, Gaetano Bongiovì, Pierluigi Chiovaro (Università di Palermo, Italy), Alessandro Del Nevo (ENEA, Italy), Ruggero Forte (Università di Palermo, Italy)

**P1-045 Development of a thermal-hydraulic model of a Back Supporting Structure Segment of the EU DEMO HCPB Breeding Blanket**

Andrea Bertinetti, Antonio Froio (Politecnico di Torino, Italy), Bradut Ghidersa, Francisco Hernández González (KIT,

Germany), Laura Savoldi, Roberto Zanino (Politecnico di Torino, Italy)

**P1-046 The European ITER Test Blanket Modules: Assessment of manufacturing technologies for HCLL**

Laurent Forest, Jérôme Tosi, Antonella Li Puma, Olivier Doyen (CEA Saclay, France), Noel Thomas, Melchior Simon-Perret (ATMOSTAT, France), Milan Zmitko (F4E, Spain)

**P1-047 Development of manufacture technology for the CFETR WCCB blanket component**

Wanjing Wang, Jichao Wang, Ran Wei, Xingli Wang, Zhaoxuan Sun, Chunyi Xie, Qiang Li (ASIPP, China), Sigui Qin, Yingli Shi, Guohui Liu (AT&M, China), Guang-Nan Luo (ASIPP, China)

**P1-048 Microstructure Anisotropy and Its Effect on Mechanical Properties of Reduced Activation Ferritic/Martensitic Steel Fabricated by Selective Laser Melting**

Bo Huang, Yutao Zhai, Shaojun Liu, Xiaodong Mao (INEST CAS, China)

**P1-049 Numerical simulation of the forced convective heat transfer between liquid metal PbLi and pressured helium gas**

Lujun Sun, Wangli Huang, Zhiqiang Zhu, Shaoqiu Huang (INEST CAS, China)

**P1-050 Thermal and Flow Analyses on the Cartridge-Type Blanket CARDISTRY-B for the Helical Fusion Reactor FFHR-c1**

Takanori Murase, Junichi Miyazawa, Teruya Tanaka, Hitoshi Tamura, Takuya Goto, Nagato Yanagi, Ryuichi Sakamoto, Akio Sagara (NIFS, Japan), The FFHR Design Group

**P1-051 The HICU PIE Results of EU Reference Ceramic Breeder Pebbles**

Matthias Kolb, Julia Heuser, Rolf Rolli, Regina Knitter (KIT, Germany), Milan Zmitko (F4E, Spain)

**P1-052 Improvement of flow evaluation and fabrication method of a three-surface-multi-layered channel with a reinforced metal layer**

Kenta Muraoka, Daichi Isshiki, Makoto Kawamoto, Satoshi Ito, Hidetoshi Hashizume (Tohoku University, Japan), Takeo Muroga (NIFS, Japan)

**P1-053 Numerical analysis of thermal convection in models of liquid metal blankets**

Oleg Zikanov, Xuan Zhang (University of Michigan-Dearborn, USA), Yaroslav Listratov (Joint Institute of High Temperatures RAS, Russia)

**P1-054 Engineering Design and Development of Lead Lithium Loop for Thermo-fluid MHD studies**

Mritunjay Kumar, Anita Patel, Ankur Jaiswal, Ashish Ranjan, Dusmantra Mohanta, Srikant Sahu, A. Saraswat, Prasad Rao, T. S. Rao, V. Mehta, A. Prajapati, R. Bhattacharyay, E. Rajendra Kumar (IPR, India), S. Malhotra (Bhabha Atomic Research Center, India), P. Satyamurthy (IPR, India)

**P1-055 Magnetohydrodynamic and thermal analysis of PbLi flows in poloidal channels with flow**

### **channel insert for the EU-DCLL blanket**

Fernando Ugorri (CIEMAT, Spain), Sergey Smolentsev (UCLA, USA), David Rapisarda, Iván Fernández-Berceruelo, Iole Palermo, María González, Ángel Ibarra (CIEMAT, Spain)

### **P1-056 Numerical Simulation on Corrosion Behavior in MHD Thermal Convection of Molten Pb-17Li**

Tsubasa Ando, Takehiko Yokomine, Tomoaki Kunugi (Kyoto University, Japan)

### **P1-057 Corrosion experiments on IN-RAFM Steel in flowing Lead-Lithium for Indian LLCB TBM**

Sarada Atchutuni, Abhishek Saraswat, Chandra Sekhar Sasmal, Shrikant Verma, Ashok Prajapati, Ankur Jaiswal, Sandeep Gupta, Jignesh Chauhan, Karishma Pandya, Mayank Makwana, Hardik Tailor, Hemang S Agravat, Srinivas Rao T., E. Rajendra Kumar (IPR, India)

### **P1-058 3D Thermo-fluid MHD analysis of LLCB TBM**

Anita Patel, S. Ranjithkumar, H.L. Swami, P. Satyamurthy, R. Bhattacharyay (IPR, India)

### **P1-059 DNS of Turbulent Heat Transfer in pipe flow at high Reynolds number**

Kazuki Hosaka, Shin-ichi Satake (Tokyo University of Science, Japan), Tomoaki Kunugi (Kyoto University, Japan)

### **P1-060 Experimental Study on the Dryout Point and Post-Dryout Heat Transfer in Square Channel**

Hui Bao (CAS, China), Yun Guo (University of Science and Technology of China, China), Songlin Liu (CAS, China), Changhong Peng (University of Science and Technology of China, China)

### **P1-061 Experimental Study on the Natural Circulation Subcooled Boiling and Flow Instability in Square Channel**

Changhong Peng (University of Science and Technology of China, China), Hui Bao (CAS, China), Yun Guo (University of Science and Technology of China, China), Songlin Liu (CAS, China)

### **P1-062 Thermal Hydraulic Analysis of Water Cooled Blanket under Transient Condition**

Qinglan Cui, Yun Guo, Changhong Peng (University of Science and Technology of China, China)

### **P1-063 Testing of Plasma Enhancement Gases separation through ceramic membranes**

Domenico De Meis (ENEA, Italy), Giacomo Bruni, Marco Incelli (Università della Toscana, Italy), Alessia Santucci, Silvano Tosti (ENEA, Italy)

### **P1-064 Assessment of the JT-60SA Divertor Cryopump Performance**

Xueli Luo, Matthieu Scannapiego, Christian Day (KIT, Germany), Shinji Sakurai (QST, Japan)

### **P1-065 Hydrogen Permeation through Flibe and Flinabe Including Ti Powder**

Jun Yamashita, Ryosuke Nishiumi, Satoshi Fukada, Kazunari Katayama (Kyushu University, Japan), Akio Sagara, Juro Yagi



(NIFS, Japan)

**P1-066 Fluid-thermal coupled analysis on the hot metal reducing bed of HCCB-TBM tritium extraction system**

Huaming Chen, Jiangfeng Song, Guoqiang Huang, Yong Yao, Peilong Li, Deli Luo (CAEP, China)

**P1-067 The Cryosorbent and Regeneration Properties of Activated Charcoal for Tokamak Exhaust**

Yu Gong, Yue Lei, Jiamao Li, Jingwei Hou, Guangming Ran, Linjie Zhao, Xiaolong Fu, Xiulong Xia, Xiaojun Chen, Chengjian Xiao, Chao Chen, Heyi Wang (CAEP, China)

**P1-068 Preliminary Structure Design of ITER FPSS Box**

Wei Li, Bo Li, Zhiwei Xia, Xiaoli Ren, Tao Jiang, Yudong Pan (SWIP, China), Bo Zhang, Tongzhen Fang, Kaihui He (CINFEPEC, China), Yu Yang, So Maruyama (ITER Organization, France)

**P1-069 Study of hydrogen isotope recovery from Li-Pb using packed tower**

Terunori Nishikawa, Mao Kinjo, Satoshi Fukada, Kazunari Katayama (Kyushu University, Japan)

**P1-070 Lithium Isotope Separation Using Displacement Chromatography by Cation Exchange Resin with High Degree of Cross-linkage**

Andri Putra, Yu Tachibana (Nagaoka University of Technology, Japan), Masahiro Tanaka (NIFS, Japan), Tatsuya Suzuki (Nagaoka University of Technology, Japan)

**P1-071 Preliminary Dimensioning of a Zeolite Membrane Cascade System for Tritium Processing in the Future Fusion Reactors**

Rodrigo Antunes, Laëtitia Frances, Alejandro Muñoz (KIT, Germany)

**P1-072 Research on Hydrogen storage behavior of Mg nanoparticles synthesized by acetylene plasma**

Yifu Xiong, Lang Liu, Jingwen Ba, Wenyong Jing (CAEP, China), Xingguo Li, Yan Shi (Peking University, China), Mingmin He (CAEP, China)

**P1-073 Recent Results of 20 Hz Pellet Injection System in KSTAR**

SooHwan Park, HongTack Kim, JaeIn Song, InSik Woo, KunSu Lee, HyunMyung Lee, YoungOk Kim, Hirofumi Yonekawa, KwangPyo Kim, Yong Chu, YeongKook Oh (NFRI, Korea)

**P1-074 Ultrafine Pt nanoparticles on superhydrophobic 3D graphene aerogel for hydrogen-water exchange reactions**

Xiaolong Fu, Chengjian Xiao, Jingwei Hou, Jiamao Li, Lei, Yue, Yu Gong, Guangming Ran, Chao Chen, Xiulong Xia, Linjie Zhao, Xiaojun Chen, Heyi Wang (CAEP, China)

**P1-075 Progress of the tritium science and technology research in DT center of CAEP**

Jiangfeng Song, Deli Luo, Changan Chen, DT Team of CAEP (CAEP, China)



**P1-076 Initial conditions and heating scenarios for optimum hydrogen delivery in hydrogen isotope storage and delivery system**

Kwangjin Jung (University of Science and Technology, Korea), Sei-Hun Yun (NFRI, Korea), Hee-Seok Kang, Hongsuk Chung (KAERI, Korea)

**P1-077 Innovative Joining of Pd-Ag Permeators Tubes**

Andrea Moriani (ENEA, Italy), Giacomo Bruni, Marco Incelli (CIRDER University of Tuscia, Italy), Alessia Santucci (ENEA, Italy), Karine Liger, Michele Troulay (CEA, France), Silvano Tosti (ENEA, Italy)

**P1-078 Hydrogen Isotope Separation by Cryogenic Chromatography in Processing Tokamak Exhaust Gas**

Chengjian Xiao, Xiaolong Fu, Chengwen Weng, Heyi Wang, Shuming Peng (CAEP, China)

**P1-079 An Analysis of Tritium Self-sufficiency for Fuel Cycle of CFETR**

Xiulong XIA (INPC, China)

**P1-080 Experimental Evaluation of Tritium Oxidation Efficiency in the Room Temperature Recombiner**

Yasunori Iwai, Yuki Edao, Katsumi Sato, Akiko Kondo, Hiroo Asahara, Hiroshi Inomiya (QST, Japan)

**P1-081 First results from a new tritium capable ion implantation materials experiment**

Anthony Hollingsworth, Andree De Backer (UKAEA, UK)

**P1-082 Monte Carlo studies of alternative coatings for BIXS systems for reduction of the tritium memory effect**

Marco Röllig (KIT, Germany)

**P1-083 Monte Carlo simulation of tritium gas analysis by beta induced X-ray spectrometry**

Masanori Hara, Shinsuke Abe, Masao Matsuyama (University of Toyama, Japan), Tsukasa Aso (National Institute of Technology, Toyama College, Japan), Katsuyoshi Tatenuma, Tomohiko Kawakami, Takeshi Ito (Kaken Company Limited, Japan)

**P1-084 Tritium Extraction from Liquid Breeding Blankets Using Vacuum Sieve Trays**

Ester Diaz-Alvarez, Laëtitia Frances, David Demange (KIT, Germany), Merlijn Mertens (Ghent University, Belgium), Alejandro Muñoz (KIT, Germany)

**P1-085 Conceptual Design and Analysis for Tritium Extraction System of HCCR-TBS**

Mu-Young Ahn, Soon Chang Park, Youngmin Lee, Seungyon Cho, Yi-Hyun Park, Duck Young Ku (NFRI, Korea)

**P1-086 Progresses and overview over Tritium modeling simulator challenges and results on HCPB**

## **blanket concept**

Elisabetta Carella, Carlos Moreno, Fernando Urgorri, David Rapisarda, Angel Ibarra (CIEMAT, Spain)

## **P1-087 Assessment of the neutron irradiation properties of CLAM steel for fusion engineering application**

Jingping Xin, Shaojun Liu, Mingjie Zheng, Xiaodong Mao, Gang Xu, Qunying Huang, Yican Wu, FDS Team (INEST CAS, China)

## **P1-088 The influence of Rhenium and Tantalum on the mono-vacancy migration in bcc tungsten**

Min Pan, Shulong Wen, Zheng Huang, Zhanghong, Yong Zhao (Southwest Jiaotong University, China)

## **P1-089 Overview of the Current Status of IFMIF-DONES Test Cell Biological Shielding Design**

Kuo Tian (KIT, Germany), Begoña Ahedo (CIEMAT, Spain), Frederik Arbeiter (KIT, Germany), German Barrera (CIEMAT, Spain), Lukasz Ciupinski (Warsaw University of Technology, Poland), Tamás Dézsi, Dániel Kovács (Wigner RCP/C3D Ltd., Hungary), Joaquin Molla, Fernando Mota (CIEMAT, Spain), Yuefeng Qiu, Florian Schwab (KIT, Germany), Marcin Siwek, Tamás Varga (Warsaw University of Technology, Poland)

## **P1-090 Development of Long-Distance Laser Probe Method for Li Target Diagnostics of Intense Fusion Neutron Source**

Hiroo Kondo, Takuji Kanemura (QST, Japan), Yasushi Hirakawa, Tomohiro Furukawa (JAEA, Japan)

## **P1-091 ITER ECRH Upper Launcher Diamond Window – Qualification and Testing of a Protection Important Component**

Sabine Schreck, Gaetano Aiello, Stefan Dieterle (KIT, Germany), Mario Gagliardi (F4E, Spain), Andreas Meier (KIT, Germany), Gabriella Saibene (F4E, Spain), Theo Scherer, Dirk Strauss (KIT, Germany)

## **P1-092 Effects of test environment on high temperature fatigue properties of reduced activation ferritic/martensitic steel, F82H**

Takanori Hirose, Hideo Sakasegawa, Motoki Nakajima, Takeshi Miyazawa, Hiroyasu Tanigawa (QST, Japan)

## **P1-093 Broken Mechanism of ITER Large Diameter Fastener**

Pengyuan Li, Teng Zhang, B.L. Hou, D.A. Kang, S.L. Han, Z.C. Sun, R.R. Lou (SWIP, China), B. Zhang (CNDA, China)

## **P1-094 Challenges of Lead-6Lithium Eutectic manufacturing and Nuclear Standards**

Luis Sedano (FUS\_ALIANZ Science, Engineering & Consulting, Spain), Jordi Abella (IQS, Spain), Francisco Medina (URV, Spain), Jordi Sort (UAB, Spain), Jordi Llorca (UPC, Spain), José Luis Herranz (FUS\_ALIANZ Science, Engineering & Consulting, Spain)

## **P1-095 Fabrication of advanced structural steels for fusion reactors by laser-laser hybrid processing**

Wojciech Suder, Supriyo Ganguly, Stewart Williams (Cranfield University, UK), Keelan Keogh, Simon Kirk (UKAEA, UK)

**P1-096 The Effect of Wall Flow Velocity on Compatibility of SiC Materials with Liquid Pb-Li Alloy by Rotating Disc Testing for 3000 h up to 900 °C**

ChangHo Park, Takashi Nozawa (QST, Japan), Ryuta Kasada (Kyoto University, Japan), Hiroyasu Tanigawa (QST, Japan), Satoshi Konishi (Kyoto University, Japan)

**P1-097 Thermal and Microstructural Characterizations of W-SiC/SiC Clad Plate by the Divertor Plasma Exposure in LHD**

Yuuki Asakura, Hirotatsu Kishimoto, Joon-Soo Park, Naofumi Nakazato (Muroran Institute of Technology, Japan), Suguru Masuzaki, Masayuki Tokitani (NIFS, Japan), Akira Kohyama (Muroran Institute of Technology, Japan)

**P1-098 Irradiation Effects in a Co-free High Entropy Alloy**

Congyi Li (University of Tennessee, USA), Xunxiang Hu (ORNL, USA), Tengfei Yang, Jie Qiu, Steve Zinkle, Brian Wirth (University of Tennessee, USA)

**P1-099 Application of 3D View Factor method for heat fluxes deposition on ITER Cryostat Thermal Shield**

Flavien Sabourin, Jean-Marc Martinez, Nareshchand Gupta, Nam Il Her, Chang-Ho Choi (ITER Organization, France)

**P1-100 Heat Loads and Design Temperature Optimization of DEMO Thermal Shields**

Boštjan Končar, Martin Draksler (Jožef Stefan Institute, Slovenia), Richard Brown, Christian Bachmann (EUROfusion, Germany)

**P1-101 Damping effect on the ITER vacuum vessel displacements during slow downward rotating and non-rotating Asymmetric VDEs**

Pietro Testoni (F4E, Spain), Ruggero Forte (Università di Palermo, Italy), Alfredo Portone (F4E, Spain), Guglielmo Rubinacci (Università di Napoli Federico II, Italy), Salvatore Ventre (Università di Cassino, Italy)

**P1-102 Overview of CFETR Vacuum Vessel Research Progress in China**

Shijun Qin, Kun Lu, Yuntao Song, Jiefeng Wu (ASIPP, China)

**P1-103 Manufacturing Progress of the ITER Upper Ports**

Yury Utin, Alexander Alekseev, Cecile Boudot, Changho Choi, Vladimir Barabash (ITER Organization, France), Sergey Fabritsiev (Efremov Institute, Russia), Markus Hruschka (MAN Diesel & Turbo SE, Germany), Igor Kedrov, Evgeny Kuzmin (Efremov Institute, Russia), Alex Martin, Jean-Marc Martinez, Arnaud Mestric, Nuno Pedrosa (ITER Organization, France), Markus Prebeck (MAN Diesel & Turbo SE, Germany), Elena Privalova (Efremov Institute, Russia), Elena Rodilla (ITER Organization, France), Petr Savrukhin (Russian Federation ITER Domestic Agency, Russia), Thomas Schiller Url (MAN Diesel & Turbo SE, Germany), Nuria Valverde (ITER Organization, France)

**P1-104 Cooling Pipe Inspection and Testing of ITER Vacuum Vessel Thermal Shield Segments**

Dong Kwon Kang, Kwanwoo Nam (NFRI, Korea), Kisuk Lim, Youngkil Kang (SFA Engineering Corp., Korea)

### **P1-105 Nuclear heat analysis for the ITER Vacuum Vessel regular sector**

Marco Fabbri, Dieter Leichtle (F4E, Spain), Alex Martin (ITER Organisation, France), Raul Pampin (F4E, Spain), Eduard Polunovskiy (ITER Organisation, France)

### **P1-106 Thermo-mechanical analyses of the Closure Plate Sub-Plate for the ITER Electron Cyclotron Upper Launchers**

Avelino Mas Sánchez, René Chavan (EPFL, Switzerland), Mario Gagliardi (F4E, Spain), Timothy Goodman, Jean-Daniel Landis (EPFL, Switzerland), Gabriella Saibene (F4E, Spain), Florian Ramseyer, Phillip Santos Silva (EPFL, Switzerland), Alessandro Vaccaro (KIT, Germany), Matteo Vagnoni (EPFL, Switzerland)

### **P1-107 Application of ultrasonic techniques using low frequency dual 2D-matrix phased array to austenitic steel welds**

Gwang-Ho Kim, Wooho Chung, Hyun-Soo Kim, Chulkyu Park, Yu-Gyeong Kim, Hokyu Moon, Kwen-Hee Hong (NFRI, Korea), Gi-Hwan Moon (Hyundai Heavy Industries Co. Ltd., Korea), Jeong-Woo Sa, Chang-Ho Choi (ITER Organization, France)

### **P1-108 System Design and Engineering for Baking of the KTM Vacuum Vessel**

Victor Tanchuk, Eduard Bondarchuk, Sergey Grigoriev, Vyacheslav Krylov, Konstantin Senik, Oleg Smirnov (JSC "NIEFA", Russia), Gennady Shapovalov, Irina Tazhibaeva (Atomic Energy Institute of NNRC RK, Kazakhstan)

### **P1-109 Mechanical Evaluation of the CFETR Central Solenoid Model Coil Design**

Xiaogang Liu, Zhaoliang Wang, Yong Ren, Junjun Li, Dapeng Yin, Yu Wu (ASIPP, China)

### **P1-110 Design and Analysis of the First Mirror Assembly of the ITER EC H&CD Upper Launcher**

Matteo Vagnoni, René Chavan (École polytechnique fédérale de Lausanne, Switzerland), Mario Gagliardi (F4E, Spain), Timothy Goodman, Jean-Daniel Landis, Florian Ramseyer, Avelino Sanchez, Phillip Silva (École polytechnique fédérale de Lausanne, Switzerland)

### **P1-111 Shutdown Dose Rate calculation along the ITER IVVS port**

Davide Flammini (ENEA, Italy), Ulrich Fischer (KIT, Germany), Fabio Moro (ENEA, Italy), Raul Pampin, Adrian Puiu (F4E, Spain), Yuefeng Qiu (KIT, Germany), Roger Reichle (ITER Organization, France), Anton Travleev (KIT, Germany), Rosaria Villari (ENEA, Italy)

### **P1-112 Design of remote handling, nuclear and vacuum compatible connectors for mineral insulated thermocouples of ITER neutral beam injectors**

Mauro Dalla Palma, Nicola Pomaro (CNR - Consorzio RFX, Italy), Etienne Delmas (CEA-IRFM, France), Lennart Svensson (ITER Organization, France), Gonzalo Micó Montava (F4E, Spain), Roberto Pasqualotto (CNR - Consorzio RFX, Italy)

### **P1-113 Concept Design of GDT-Based Fusion Neutron Source for Improving the Q with High Field Neutral Beam Injection**

Dehong Chen, Qiusun Zeng, Minghuang Wang, Zhibin Chen, Yican Wu, FDS Team (INEST CAS, China)

**P1-114 Neutronics Design Analyses of the Stellarator Power Reactor HELIAS**

André Häußler, Ulrich Fischer (KIT, Germany), Felix Warmer (Max-Planck-Institut für Plasmaphysik, Germany)

**P1-115 Preliminary Application of SuperMC Activation Function in Production of Activation Data Handbook for ITER**

Shengpeng Yu, Nana Bao, Jing Song, Qi Yang, Bin Li, Binhang Zhang, Peng Ge, Lijuan Hao, FDS Team (INEST CAS, China)

**P1-116 Study of the energy storage system with S-CO<sub>2</sub> for the DEMO Fusion Power Reactor**

Jan Syblik, Slavomir Entler (Institute of Plasma Physics of the CAS, Czech), Ladislav Vesely, Vaclav Dostal (Czech Technical University in Prague, Czech)

**P1-117 Optimization of S-CO<sub>2</sub> Power Cycle with Energy Storage System**

Ladislav Vesely, Slavomir Entler, Vaclav Dostal, Jan Syblik (Czech Technical University in Prague, Czech)

**P1-118 Tritium breeding performance of a DEMO based on the Double Null divertor configuration**

Pavel Pereslavitsev, Ulrich Fischer, Lei Lu (KIT, Germany), Christian Bachmann, Gianfranco Federici, Francesco Maviglia (EUROfusion-PMU, Germany)

**P1-119 Preliminary engineering design of DONES Target Assembly**

Pietro Arena (University of Palermo, Italy), Davide Bernardi (ENEA, Italy), Gaetano Bongiovì, Pietro Alessandro Di Maio (University of Palermo, Italy), Gioacchino Micciché, Francesco Saverio Nitti (ENEA, Italy), Maria Lorena Richiusa (University of Palermo, Italy)

**P1-120 Analytical Experiments on Scattering of High Energy Ions in a Secondary Electron Direct Energy Converter Simulator**

Satoshi Nakamoto, Shota Konno, Kazuya Ichimura, Hiromasa Takeno, Yuichi Furuyama, Akira Taniike (Kobe University, Japan),

**P1-121 Development of Calorimeter System for a Conceptual Study of CuspDEC Divertor**

Kazuya Ichimura, Yuki Kitahara, Yuya Nonda, Satoshi Nakamoto, Hiromasa Takeno (Kobe University, Japan), Hiroto Matsuura (Osaka Prefecture University, Japan), Yousuke Nakashima (University of Tsukuba, Japan)

**P1-122 Compatibility Test of Common Electronics with Gaseous Tritium**

Florian Priester (KIT, Germany)

**P1-123 Proposal for Combined Electrolysis and Catalytic Exchange System (CECE) Development within the Pilot Plant**

Anisia Bornea, Marius Zamfirache, Nicolae Bidica (National R&D Institute for Cryogenics and Isotopic Technologies - ICSI

Rm. Valcea, Romania)

**P1-124 Final Status of Water Detritiation System (WDS) for Cernavoda Tritium Removal Facility (CTRF)**

Marius Zamfirache, Anisia Bornea, Ovidiu Balteanu, Ciprian Bucur, Nicolae Sofalca, Liviu Stefan, Ioan Stefanescu (National R&D Institute for Cryogenics and Isotopic Technologies - ICSI Rm. Valcea, Romania)

**P1-125 The Effect of Tracer Particle Concentration on UDV Measurement in Liquid Heavy Metals**

Wangli Huang, Shaoqiu Huang, Zhiqiang Zhu, Zunqi Xiao, Lujun Sun (INEST CAS, China)

**P1-126 Assessment of Activated Corrosion Products for the DEMO WCLL**

Luigi Di Pace, Lina Quintieri (ENEA, Italy)

**P1-127 Activation Analysis of Coolant in a Water-cooled Loop of China Fusion Engineering Test Reactor**

Qingyang Guo, Jingyu Zhang, Lu Li (North China Electric Power University, China), Xiaokang Zhang, Songlin Liu (ASIPP, China), Bin Zhang, Bo Cao, Yixue Chen (North China Electric Power University, China)

**P1-128 Melting Simulation of the First Wall in K-DEMO Blanket under High Heat Flux Condition using Effective Heat Capacity Method with Mesh Adaptation Technique**

Hee Su Choe, Geon-Woo Kim, Goon Cherl Park, Hyoung Kyu Cho (Seoul National University, Korea), Kihak Im (NFRI, Korea)

**P1-129 LOCA analysis for the reference design of the EU DEMO HCPB blanket concept**

Xue Zhou Jin (KIT, Germany)

**P1-130 Development and validation of the blanket First Wall mock-up model in RELAP5-3D**

Valentino Di Marcello, Bradut-Eugen Ghidersa, Xue Zhou Jin, Ali Abou-Sena, Robert Stieglitz (KIT, Germany)

**P1-131 Smart first wall materials for intrinsic safety of a future power plant**

Andrey Litnovsky, Felix Klein, Tobias Wegener, Christian Linsmeier, Marcin Rasinski, Arkadi Kreter, Xiaoyue Tan, Janina Schmitz, Yiran Mao, Jan Coenen, Martin Bram, Jesus Gonzalez-Julian (Forschungszentrum Juelich, Germany)

**P1-132 Tritium Source Term estimation for European DEMO Reactor in Accident Conditions**

Guido Mazzini (CVRez, Czech), Tadas Kaliatka (Lithuanian Energy Institute, Lithuania), Maria Porfiri (ENEA, Italy)

**P1-133 Performance Evaluation of Multithreaded ITER Activation Analysis MCNP Simulation Using an Intel Xeon Knight Landing System**

JinHun Park, KiHyun Park, KoanSik Joo (Myongji University, Korea), JungHoon Han (Seoul National University, Korea)

**P1-134 Assessment of Mixed Neutron and Photon Ratios using a Tissue Equivalent Proportional**

## **Counter on KSTAR**

Y.S Lee (NFRI, Korea), U.W Nam (KASI, Korea), J.G Kwak, H.S Kim (NFRI, Korea), S.H Kim (Cheongju University, Korea)

## **P1-135 Numerical Simulation of Single Bubble Growth in Subcooled Nucleate Boiling**

Ning CHENG, Yun GUO, Chang PENG (University of Science and Technology of China, China)

## **P1-136 Commissioning of Materials Detritiation Facility at Culham Science Centre**

Michal Kresina, Christelle Decanis (CEA, France), Mark Newman, Ian Wilson, Dave Coombs (CCFE, UK), Daniel Canas (CEA, France), JET Contributors

## **P1-137 Methodology to identify appropriate options to manage tritiated waste**

Christelle Decanis, Michal Kresina, Daniel Canas (CEA, France)

## **P1-138 Numerical Simulation of Li Pellet Ablation in the H-mode pedestal region**

Lijun Liu, Songbo Wang, Jizhong Sun (Dalian University of Technology, China), Zhen Sun (ASIPP, China), Naimi Li, Dezhen Wang (Dalian University of Technology, China)

## **P1-139 Simulation of plasma breakdown on a reversed field pinch**

Yanli Peng, Wei Jiang (Huazhong University of Science and Technology, China), Ya Zhang (Wuhan University of Technology, China), Wenzhe Mao (University of Science and Technology of China, China)

## **P1-140 On the Plasma Breakdown Modes during Ohmic Tokamak startup**

Yanli Peng, Wei Jiang (Huazhong University of Science and Technology, China), Ya Zhang (Wuhan University of Technology, China), Xiwei Hu, Ge Zhuang (Huazhong University of Science and Technology, China), Maria Innocenti, Giovanni Lapenta (Katholieke Universiteit Leuven, Belgium)

## **P1-141 Measurement of supersonic plasma flow in DiPS-2 linear device**

In Je Kang, Min-Keun Bae, Hye Taek Oh, In Sun Park, Seung-Hwa Lee, Seo Jin Jeong, Kyu-Sun Chung (Hanyang University, Korea)

## **P1-142 Nonlinear simulation of quasi-coherent mode on HL-2A**

Han Shi, Dezhen Wang (Dalian University of Technology, China)

## **P1-143 Technology Developments for a Beam Source of a NNBI System for DEMO**

Ursel Fantz, Christian Hopf (Max-Planck-Institut für Plasmaphysik, Germany), Roland Friedl (University of Augsburg, Germany)

## **P1-144 Conceptual Designs of PHTS, ESS and PCS Components for DEMO BoP with Helium Cooled BB Concept**



Evaldas Bubelis, Wolfgang Hering, Sara Perez-Martin (KIT, Germany)

**P1-145 Studies of edge impurity transport in the scrape-off layer of EAST with EMC3-EIRENE modelling**

Shuyu Dai, T. Xie (Dalian University of Technology, China), Y. Feng (Max-Planck-Institut für Plasmaphysik, Germany), W. Gao, J. Huang, H.M. Zhang, B. Lu (ASIPP, China), G. Kawamura (NIFS, Japan), Dezhen Wang (Dalian University of Technology, China)

**P1-146 Analysis of Shutdown Dose Rate Measurements after the 2016 Deuterium-Deuterium Campaign at JET**

Nicola Fonnesu (ENEA & University of Rome 'Tor Vergata', Italy), Rosaria Villari, Stefano Loreti (ENEA, Italy), Axel Klix (KIT, Germany), Paola Batistoni (ENEA, Italy), Jet Contributors (EUROfusion Consortium, UK)

**P1-147 Prediction modelling of impurity erosion and deposition on rough surfaces under ITER-relevant plasma conditions**

Shuyu Dai, Yuping Wang, Quan Shi (Dalian University of Technology, China), Andreas Kirschner (Forschungszentrum Jülich, Germany), Dezhen Wang (Dalian University of Technology, China)

**P1-148 Studies of impurity erosion and deposition on rough surfaces with SURO/SDPIC modelling**

Shuyu Dai, Quan Shi, Yuping Wang (Dalian University of Technology, China), Andreas Kirschner (Forschungszentrum Jülich, Germany), Dezhen Wang (Dalian University of Technology, China)

**P1-149 Simulations and uncertainty analyses for a hydrogen diffusion experiment using a “two side purged membrane” setup**

Frederik Arbeiter, Dmitry Klimenko, Christine Klein, Georg Schlindwein, Volker Pasler, Axel von der Weth (KIT, Germany)

**P1-150 Definition of the Q-PETE Experiment for Investigation of Hydrogen Isotopes Permeation through the Metal Structures of a DEMO HCPB Breeder Zone**

Dmitry Klimenko, Frederik Arbeiter, Volker Pasler, Georg Schlindwein, Axel von der Weth, Kevin Zinn (KIT, Germany)

**P1-151 Methodology to evaluate hydrogen isotopes diffusivities and permeabilities from experiments with a purged permeator setup**

Axel Weth, Frederik Arbeiter, Dmitry Klimenko, Volker Pasler, Georg Schlindwein, Kevin Zinn (KIT, Germany)

**P1-152 Neutron Calibration Experiment and the Neutronics Analyses for the Deuterium Plasma Experiments on LHD**

Takeo Nishitani (NIFS, Japan), Kunihiro Ogawa, Mitsutaka Isobe (NIFS, SOKENDAI, Japan), Hiroki Kawase, Neng Pu (SOKENDAI, Japan), Yuri Kashchuk (Project Center ITER, Russia), Vitaly Krasilnikov (ITER Organization, France), Jungmin Jo (Seoul National University, Korea), Munseong Cheon (NFRI, Korea), Tomoyo Tanaka, Sachiko Yoshihashi, Siyuan Li (Nagoya University, Japan), Masaki Osakabe (NIFS, SOKENDAI, Japan, Japan), NIFS Neutron Calibration Staff (NIFS, Japan)

**P1-153 Study on Comb-line Antenna for Fast Wave Current Drive in Lower Hybrid Resonance**

### **Range on Versatile Experiment Spherical Torus**

Hyunwoo Lee (Kwangwoon University, Korea), Sunho Kim, Seungho Jung (KAERI, Korea), Jonggab Jo, Hyunyoung Lee, Yongseok Hwang (Seoul National University, Korea), Byungje Lee (Kwangwoon University, Korea)

### **P1-154 A new system for in situ testing of gamma ray induced optical absorption**

Marta Malo, Isabel García-Cortés, Patricia Muñoz, Alejandro Morono, Eric Hodgson (CIEMAT, Spain),

### **P1-155 The ITER tokamak neutronics reference model C-Model**

Dieter Leichte (F4E, Spain), Bethany Colling (UKAEA, UK), Marco Fabbri (F4E, Spain), Rafael Juarez (UNED, Spain), Michael Loughlin (ITER Organization, France), Raul Pampin (F4E, Spain), Eduard Polunovskiy (ITER Organization, France), Arkady Serikov (KIT, Germany), Andrew Turner (UKAEA, UK)

### **P1-156 Heat Storage for Stable Electricity Generation: A Quantitative Scenario Analysis with Dynamic Fusion Power Plant Model**

Shutaro Takeda, Shigeki Sakurai, Ryuta Kasada, Satoshi Konishi (Kyoto University, Japan),

### **P1-157 Some possibilities of the IGNITOR location within the TRINITI Site**

Vladimir Khripunov, Mikhail Subbotin (Kurchatov Institute, Russia)

### **P1-158 ELM simulation experiments by high energy pulse laser in DiPS-2**

Min-Keun Bae, In Je Kang, Hye Taek Oh, In Sun Park, Seong-Hwa Lee, Seo Jin Jeong, Kyu-Sun Chung (Hanyang University, Korea)

### **P1-159 Simulation of Electromagnetic VDE Plasma Effects on Divertor Structures of DEMO**

Valter Cocilovo, Giuseppe Ramogida (ENEA, Italy)

### **P1-160 Investigation of Factors Causing Defects at Mechanical Lap joint Fabricated of High-temperature Superconducting Tapes**

Weixi Chen, Satoshi Ito, Noritaka Yusa, Hidetoshi Hashizume (Tohoku University, Japan)

### **P1-161 Structural Analysis of Fusion Magnets: Engineering Zooming on the Superconductor Strength**

Anatoly Panin, Wolfgang Biel, Philippe Mertens (Forschungszentrum Juelich GmbH, Germany), Francois Nunio, Louis Zani (CEA, France)

### **P1-162 The Magnet System of Wendelstein 7-X Stellarator in Operation**

Konrad Risse, Thomas Rummel, Hans-Stephan Bosch, André Carls, Frank Füllenbach, Thomas Mönnich, Michael Nagel, Matthias Schneider, W7-X Team (Max-Planck-Institute for Plasma Physics, Germany)

### **P1-163 Reliability of ITER Diagnostic Pressure Gauges: Experimental Validation of Thermo-Mechanical Simulations**

Alexey Arkhipov, Felix Mackel, Günter Haas, Jürgen Koll, Andrea Scarabosio, Hans Meister (Max-Planck-Institut für Plasmaphysik, Germany), Fabien Seyvet, Santiago Terron (F4E, Spain), Philip Andrew (ITER Organization, France)

### **P1-164 EU DEMO EC System Preliminary Conceptual Design**

Saul Garavaglia (IFP-CNR, Italy), Gaetano Aiello (KIT, Germany), Stefano Alberti (SPC-EPFL, Switzerland), Konstantinos Avramidis (KIT, Germany), Alex Bruschi (IFP-CNR, Italy), Ioannis Chelis (NTUA, Greece), Joachim Franck, Gerd Gantenbein (KIT, Germany), Gustavo Granucci (IFP-CNR, Italy), Giovanni Grossetti (KIT, Germany), Kyriakos Hizanidis (NTUA, Greece), Stefan Illy, John Jelonnek, Parth Kalaria (KIT, Germany), George Latsas (NKUA, Greece), Alessandro Moro (IFP-CNR, Italy), Ioannis Pagonakis (KIT, Germany), Dimitrios Peponis (NKUA, Greece), Emanuele Poli (IPP, Germany), Natale Rispoli (IFP-CNR, Italy), Sebastian Ruess, Tomasz Rzesnicki, Theo Scherer, Dirk Strauss (KIT, Germany), Ioannis Tigelis, Christos Tsironis (NKUA, Greece), Chuanren Wu (KIT, Germany), Thomas Franke (IPP, Germany), Minh Quang Tran (EPFL, Switzerland)

### **P1-165 Ignition Studies of D-<sup>3</sup>He Spherical Tokamak Reactor**

Osamu Mitarai (Institute for Advanced Fusion and Physics Education, Japan), Hideaki Matsuura, Noriyuki Ohmori (Kyushu University, Japan), Toshiki Takahashi, Shintarou Koike (Gunma University, Japan), Kazuo Nakamura (Kyushu University, Japan)

### **P1-166 Application of Merging Core Fueling Technique to Advanced Fusion Fueled Spherical Tokamak Reactor**

Shintaro Koike, Toshiki Takahashi (Gunma University, Japan), Naoki Mizuguchi (NIFS, Japan), Osamu Mitarai (Institute for Advanced Fusion and Physics Education, Japan)

### **P1-167 Plasma Equilibrium Based on RF-Driven Current Profile with Toroidal Flow on QUEST**

Kazuo Nakamura, Md. Mahub Alam (Kyushu University, Japan), YanZheng Jiang (Tsinghua University, China), Osamu Mitarai (Institute for Advanced Fusion and Physics Education, Japan), Kenichi Kurihara, Manabu Takechi (QST, Japan), Makoto Hasegawa, Kazutoshi Tokunaga, Kuniaki Araki, Hideki Zushi, Kazuaki Hanada, Akihide Fujisawa, Hiroshi Idei, Yoshihiko Nagashima, Shoji Kawasaki, Aki Higashijima, Takahiro Nagata (Kyushu University, Japan), Atsushi Fukuyama (Kyoto University, Japan)

### **P1-168 Application of GEM Based Detector Measurements for Plasma Impurity Radiation Monitoring: Detector Performance Tests**

Maryna Chernyshova, Karol Malinowski, Tomasz Czarski, Ewa Kowalska-Strzeciwiłk (IPPLM, Poland), Andrzej Wojenski, Pawel Linczuk, Rafal Krawczyk (Warsaw University of Technology, Poland)

### **P1-169 First Results from the Soft X-ray Pulse Height Analysis System at Wendelstein 7-X Stellarator**

Monika Kubkowska, Agata Czarnecka, Tomasz Forna, Marta Gruca, Natalia Krawczyk, Sławomir Jabłoński (IPPLM, Poland), Leszek Ryć (IPPLM, Poland), Henning Thomsen (IPP Greifswald, Germany), Kieran McCarthy (CIEMAT, Spain), Christoph Biedermann, Birger Buttenschön (IPP Greifswald, Germany), Arturo Alonso (CIEMAT, Spain), Rainer

Burhenn (IPP Greifswald, Germany), The W7-X Team

### **P1-170 Electron Temperature estimation using the Pulse Height Analysis System at Wendelstein 7-X Stellarator**

Natalia Krawczyk (Institute of Plasma Physics and Laser Microfusion, Poland), Agata Czarnecka, Tomasz Fornal, Marta Gruca, Monika Kubkowska, Sławomir Jabłonski, Leszek Ryc (IPPLM, Poland), Henning Thomsen, Matthias Hirsch, Golo Fuchert, The W7-X Team (Max-Planck-Institut für Plasmaphysik, Germany)

### **P1-171 Study of impurities behaviour in PHA spectra for first magnetic configuration changes in W7-X plasmas**

Agata Czarnecka, Tomasz Fornal, Marta Gruca, Natalia Krawczyk, Monika Kubkowska, Sławomir Jabłonski, Leszek Ryc (IPPLM, Poland), Arturo Alonso, Rainer Burhenn, Birger Buttenschönb, Andreas Dinklage, Marcin Jakubowski, Maciej Krychowiak, Ralph König (Max-Planck-Institut für Plasmaphysik, Germany), Novimir Pablant (PPPL, USA), Henning Thomsen, Daihong Zhang (Max-Planck-Institut für Plasmaphysik, Germany), The W7-X Team

### **P1-172 Completion of manufacturing of 1MV power supply system for the ITER NBTF**

Mieko Kashiwagi, Hiroyuki Tobar, Kazuhiro Watanabe, Tetsuya Maejima, Yasuo Yamashita, Naoki Shibata, Masayuki Dairaku, Yuki Oda, Atsushi Kojima, Haruhiko Yamanaka, Naotaka Umeda, Junichi Hiratsuka, Masahiro Ichikawa, Shunichi Sasaki, Takashi Suzuki, Tokumichi Oga, Kazuhiko Mogaki (QST, Japan)

### **P1-173 Experimental Investigation of Direct Beam Energy Recovery System for High Energy Beam Applications**

Doo Chang, Bong Jung, Tae Kim, Kwang Lee (KAERI, Korea)

### **P1-174 Design Features and Commissioning of the Pulse Arc Ion Source Based on Marx Generator for the VEST NBI System**

Bong-Ki Jung, Sung-Ryul Huh, Min Park, Tae-Seong Kim, Sun-Ho Kim, Doo-Hee Chang, Seung-Ho Jeong, Kwang-Won Lee, Sang-Ryul In (KAERI, Korea)

### **P1-175 Development of Gamma Ray Diagnostics for DEMO control**

Luca Giacomelli (CNR, Italy), Davide Rigamonti, Massimo Nocente (Università degli Studi di Milano-Bicocca, Italy), Marco Tardocchi (CNR, Italy), Wolfgang Biel (Forschungszentrum Jülich GmbH, Germany), Marco Ceconello (Uppsala University, Sweden), Thomas Franke (EUROfusion, Germany)

### **P1-176 Initial Layout of Demo Buildings and Configuration of The Main Plant Systems**

Curt Gliss (EUROfusion, Germany)

### **P1-177 Optical Damage, Light Species Dynamics in nano-W and EOS of Hydrogen in IFE pulsed environments**

J. Manuel Perlado, Ovidio Peña, Raquel González-Arrabal, Antonio Rivera (Universidad Politecnica Madrid, Spain), Cesar Gonzalez (CEA, France & Universidad Granada, Spain), Carlo Guerrero, Gonzalo Valles, Alejandro Prada, Miguel Panizo-

Laiz, Pablo Diaz-Nuñez, Angel Rodriguez-Páramo (Universidad Politecnica Madrid, Spain)

**P1-178 Kinematics analysis of a novel hybrid manipulator in SG-III**

Xiaoyong Wu, Zhijiang Xie, Mao Bingyan (Chongqing University, China), Fan Naiji (CAEP, China), Liu Fei (Chongqing University, China)

**P1-179 EM Zooming Procedure in ANSYS Maxwell 3D**

Dalila Giorla (DICI-University of Pisa, Italy), Riccardo Roccella (ITER Organization, France), Rosa Lo Frano (University of Pisa, Italy), Giulio Sannazzaro (ITER Organization, France)

**P1-180 Simulation on implosion and ignition of the cylindrical targets driven by Z-pinches**

Yanyun Chu, Zhenghong Li, Zhen Wang, Fuyuan Wu (CAEP, China)

## Poster Session 2 (16:00-18:00 Tuesday 26<sup>th</sup>, September)

### **P2-001 Mechanical attachment system of Enhanced Heat Flux First Wall Panel**

Maxim Sviridenko, Andrey Leshukov, Alexey Razmerov, Sergey Tomilov, Sergey Kirillov, Yuri Strebkov (JSC NIKIET, Russia), Michael Khokholov, Alexander Gervash, Igor Mazul (JSC NII-EFA, Russia), Valery Safronov (Institution "Project Center ITER", Russia), Rene Raffray, Russell Eaton, Stefan Gicquel, Barbara Calcagno (ITER Organisation, France)

### **P2-002 FEM and Thermal Fatigue Testing comparison of ITER-Like Divertor PFUs Mock-Ups for DEMO**

Fabio Crescenzi, Emanuele Cacciotti, Valerio Cerri (ENEA, Italy), Henri Greuner (Max-Planck-Institut für Plasmaphysik, Germany), Selanna Roccella, Eliseo Visca (ENEA, Italy), JeongHa You (Max-Planck-Institut für Plasmaphysik, Germany)

### **P2-003 Manufacturing and Testing of ITER-Like Divertor Plasma Facing Mock-Ups for DEMO**

Eliseo Visca (ENEA, Italy), B. Böswirth (Max-Planck-Institut für Plasmaphysik, Germany), Emanuele Cacciotti, Valerio Cerri, Fabio Crescenzi (ENEA, Italy), Franklin Gallay (CEA, France), Henri Greuner (Max-Planck-Institut für Plasmaphysik, Germany), Andrea Reale (ENEA, Italy), Marianne Richou (CEA, France), Selanna Roccella (ENEA, Italy), Jeong-Ha You (Max-Planck-Institut für Plasmaphysik, Germany)

### **P2-004 Fluid stirring by multi-layered trenches for liquid metal divertor**

Makoto Kawamoto, Kenta Muraoka, Satoshi Ito, Hidetoshi Hashizume (Tohoku University, Japan)

### **P2-005 Heat Transfer Performance of an Energy-saving Heat Removal Device with Uni-directional Porous Copper for Divertor Cooling**

Kio Takai, Kohei Yuki, Kazuhisa Yuki, Risako Kibushi, Noriyuki Unno (Tokyo University of Science-Yamaguchi, Japan)

### **P2-006 Thermofluid Characteristics of a Flow Channel with Finger-stacked Structure for the first wall Cooling of Flibe Blanket(2) Evaluation of Pressure Drop and Heat transfer Characteristics**

Masaki Oishi, Shohei Yasunaga, Shinji Ebara, Hidetoshi Hashizume (Tohoku University, Japan), Akio Sagara (NIFS, Japan)

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Fabio Maviglia (University of Tuscia, Italy), Selanna Roccella, Eliseo Visca (ENEA, Italy), Maurizio Carlini (University of Tuscia, Italy)

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Marianne Richou, Franklin Gallay, Nicolas Vignal, Marc Missirlian, Gregoire Jourdain De Muizon (CEA, IRFM, France)

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Seung Hwa Lee, In Je Kang, Min-Keun Bae, Hye Teak Oh, In Sun Park, Seo Jin Jeong, Kyu-Sun Chung (Hanyang University,

Korea)

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InSun Park, InJe Kang, Min-Keun Bae, HyeTeak Oh, SeungHwa Lee, SeoJin Seo, Kyu-Sun Chung (Hanyang University, Korea)

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Christine Klein, Frederik Arbeiter, Sebastian Ruck, Florian Schwab (KIT, Germany)

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Robin Kamenický, Phani Kumar Domalapally, Xavier Arnoult (Research Centre Rez, Czech Republic)

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A.A. Gervash, R.N. Giniyatulin, T.M. Guryeva, D.A. Glazunov, V.Ye. Kuznetsov, I.V. Mazul\*, P.Yu. Piskarev (Efremov Institute, Russia), O.N. Sevryukova (MEPHI, Russia), A.Yu. Ogursky, Yu.V. Ushakov (Efremov Institute, Russia)

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Pinghuai Wang, Jiming Chen, Fanya Jin, Jihong Wu, Qian Li, Bo Yang, Xiaobo Zhu (SWIP, China), Kaihui He, Kun Wang (CINFEPEC, China), SWIP BSM Team

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Suk-Kwon Kim, Dong Jun Kim, Seong Dae Park, Hyung Gon Jin, Eo Hwak Lee, Jae-Sung Yoon, Dong Won Lee (KAERI, Korea)

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Hye Taek Oh, In Je Kang, Min -Keun Bae, In Sun Park, Seung Hwa Lee, Seo Jin Jeong, Kyu-Sun Chung (Hanyang University, Korea)

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Yuming Chen, Frederik Arbeiter, Christine Klein, Georg Schlindwein, Florian Schwab (KIT, Germany)

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Marek Rubel (KTH, Sweden), Anna Widdowson (CCFE, UK), Justyna Grzonka (ITME, Poland), Elzbieta Fortuna-Zalesna



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Chuan Ke, Ying Li (Southwest Jiaotong University, China), Xiang Liu (SWIP, China), Fujun Gou (Sichuan University, China), Xuru Duan (SWIP, China), Yong Zhao (Southwest Jiaotong University, China)

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Ying Li, Chuan Ke (Southwest Jiaotong University, China), Xiang Liu (SWIP, China), Fujun Gou (Sichuan University, China), Xuru Duan (SWIP, China), Yong Zhao (Southwest Jiaotong University, China)

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Soohyun Son, S. H Hong, Eunnam Bang (NFRI, Korea)

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Ad Verlaan, Peter Giesen, Pascal Grol, Maurice Limpens, Jeroen Heijmans, Huib Visser, Rob Vink, Matthew Maniscalco, Peter Verhoeff (TNO, Netherlands), Ray O'Neill (GA, USA), Mark Smith, Brentley Stratton (PPPL, USA), Anthony Gattuso, Matthew Smiley (GA, USA), Charles Lasnier (LLNL, USA), Russel Feder (PPPL, USA)

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Qingxi Yang, Yongsheng Wang Yuntao Song, Yanping Zhao, Zhaoxi Chen (ASIPP, China), Patrick Mollard, Fabien Ferlay, Jean-Claude Hatchressian, Julien Hillairet, Jean-Michelbernard, Walid Helou, Jean-Marc Verger, Tuong Hoang (CEA IRFM, France), Dapeng Yin, Xinlian Wu (KEYE workshop, China), Karl Vulliez (CEA, France)

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Laurent Gargiulo (CEA-IRFM, France), Gael Archambeau, Laurent Blanc (SETIS Company, France), Cyril Brun, Jerome Bucalossi, Louis Doceul, Fabien Ferlay, Pierre Guedon, Dominique Guilhem, Jean-Claude Hatchressian (CEA-IRFM, France), Zhihong Liu (ASIPP, China), Marc Missirlian (CEA IRFM, France), Xuebing Peng (ASIPP, China), Alain Saille, Frank Samaille, Bertrand Zago (CEA-IRFM, France)

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Raúl Muñoz, Francisco Calvo, Sergio Sádaba, Ana María Gil (IDOM Consulting, Engineering & Architecture, S.A.U., Spain), Joelle Vallory, Milan Zmitko, Yves Poitevin (F4E, Spain)

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Jae Sung Yoon, Suk-Kwon Kim, Eo Hwak Lee, Hyung Gon Jin, Seong Dae Park, Dong Jun Kim, Dong Won Lee (KAERI, Korea), Seungyon Cho (NFRI, Korea)

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Guangming Zhou, Francisco Hernández, Christian Zeile, Ivan Maione (KIT, Germany)

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Kazunari Katayama, Haruaki Sakagawa (Kyushu University, Japan), Tsuyoshi Hoshino (QST, Japan), Satoshi Fukada (Kyushu University, Japan)

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Sergey Khomiakov, Mikhail Alishin (JSC "NIKIET", Russia), Philippe Chappuis (ITER Organization, France), Anastasia Cheburova (JSC "NIKIET", Russia), Konstantin Egorov (ITER Organization, France), Igor Danilov, Vladimir Yolkin, Georgy Kalinin, Sergey Kirillov, Vladimir Kolganov, Dmitrii Mitin, Pavel Mogilevskii, Ivan Poddubnyi, Rene Raffray (ITER Organization, France), Aleksey Shershov, Yuri Strebkov, Anna Suvorova, Dmitry, Vlasov, Alexander Zhmakin (JSC "NIKIET", Russia), Anton Putrik ("Project Center ITER", Russia)

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Ivan Poddubnyi, Maksim Sviridenko, Vladimir Kolganov, Sergey Khomiakov, Andrey Leshukov, Aleksey Razmerov, Dmitriy Mitin, Igor Danilov, Yury Strebkov, Evgeniy Parshutin (JSC "NIKIET", Russia), Valeriy Safronov, Anton Putrik ("Project Center ITER", Russia), Konstantin Egorov, Russel Eaton, Stefan Gicquel, Philippe Chappuis, Barbara Calcagno, Rene Raffray (ITER Organization, France), Ivan Poddubnyi (JSC "NIKIET", Russia)

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Songlin Liu, Xuebin Ma, Xiaoman Cheng, Kecheng Jiang, Xiaokang Zhang, Lei Chen, Hui Bao, Kai Huang, Qingjun Zhu,

MingZhun Lei (ASIPP, China), Changhong Peng, Zhi Chen, Yun Guo (University of Science and Technology of China, China)

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Alessandro Venturini (University of Pisa, Italy), Marco Utili, Andrea Malavasi (ENEA, Italy), Daniele Martelli (University of Pisa, Italy), Italo Ricapito (F4E, Italy)

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Fabio Moro, Alessandro Del Nevo, Davide Flammini (ENEA, Italy), Emanuela Martelli (Sapienza University of Rome, Italy), Rocco Mozzillo (University of Naples Federico II, Italy), Rosaria Villari (ENEA, Italy)

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Pierluigi Chiovaro, Pietro Arena, Gaetano Bongiovi, Pietro Di Maio (Università degli Studi di Palermo, Italy), Alessandro Del Nevo (ENEA, Italy), Ruggero Forte (Università degli Studi di Palermo, Italy)

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Jean-charles Jaboulay, Julien Aubert, Giacomo Aiello, Remi Boullon, François-Xavier Hugot, Cédric Jouanne, Fadhel Malouch, Alexandro Morin (CEA Saclay, France)

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Gaetano Bongiovi (Università degli Studi di Palermo, Italy), Giacomo Aiello, Julien Aubert (CEA Saclay, France), Pietro Di Maio (Università degli Studi di Palermo, Italy)

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Ivan Fernandez-Berqueruelo, Maria Gonzalez, Iole Palermo, Fernando Urgorri, David Rapisarda (CIEMAT, Spain)

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Xinghua Wu, Hongbin Liao, Bing Zhou, Xiaoyu Wang, Qixiang Cao, Baoping Gong, Zhiqiang Hu, Kaiming Feng (SWIP, China)

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Shuai Wang, Hongli Chen (University of Science and Technology of China, China)

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Hiroki Shishido (Tohoku University, Japan), Toshiyuki Onodera (Tohoku Institute of Technology, Japan), Keitaro Hitomi, Noritaka Yusa, Hidetoshi Hashizume (Tohoku University, Japan)

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Shoki Nakamura, Tomoaki Kunugi, Takehiko Yokomine, Zensaku Kawara, Koji Kusumi (Kyoto University, Japan), Akio Sagara, Juro Yagi, Teruya Tanaka (NIFS, Japan)

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Tomoaki Kunugi, Shoki Nakamura, Takehiko Yokomine, Zensaku Kawara, Koji Kusumi (Kyoto University, Japan), Akio Sagara, Juro Yagi, Teruya Tanaka (NIFS, Japan)

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Shailja Tiwari, Arvind Kumar, Deepak Sharma, Vilas Chaudhar, Atik Mistry, H. Swami, C. Danani, E. Kumar (Institute for Plasma Research, India)

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Iole Palermo, David Rapisarda, Iván Fernández-Berceruelo, Angel Ibarra (CIEMAT, Spain)

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Vrushank Mehta, Ankush Deoghar, Mritunjay Kumar, Dusmanta Mohanta, Srinivas Rao, Brijesh Yadav, Rajendra Bhattacharyay, Rajendrakumar Ellappan (Institute for Plasma Research, India)

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Fumito Okino, Ryuta Kasada, Satoshi Konishi (Kyoto University, Japan)

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Teresa Hernandez, Maria Carmona Gazquez, Fernando Sanchez, Patricia Muñoz, Marta Malo (CIEMAT, Spain), Erik Platacis (University of Latvia, Latvia)

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Tsubasa Ando, Takehiko Yokomine, Zensaku Kawara, Tomoaki Kunugi (Kyoto University, Japan)

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Zhiqiang Zhu, Wangli Huang, Lujun Sun, Zunqi Xiao (INEST CAS, China)

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Vladimir Chakin, Rolf Rolli, Pavel Vladimirov (KIT, Germany), Milan Zmitko (F4E, Spain)

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Petr Kurinskiy, Harald Leiste, Anton Moeslang (KIT, Germany), Aniceto Goraieb (KBHF GmbH, Germany), Rolf Rolli (KIT, Germany), Soeren Mueller (Technical University Berlin, Germany), Joerg Reimann (KIT, Germany)

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Baoping Gong, Yongjin Feng, Hongbin Liao, Xiaoyu Wang, Kaiming Feng (SWIP, China)

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Maulik Panchal, Abhishek Saraswat, Shrikant Verma, Mayank Makwana, Paritosh Chaudhuri, Rajendrakumar Ellapan (Institute for Plasma Research, India)

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Hongyan Wang, Xidong Zhang, Hongji Liu (Nanjing Institute of Technology, China)

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Dmitry Bachurin, Pavel Vladimirov (KIT, Germany)

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Oliver Leys, Antonella Pucci, Keisuke Mukai, Matthias Kolb, Regina Knitter (KIT, Germany)

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Hisashi Tanigawa, Hyoseong Gwon, Takanori Hirose, Yoshinori Kawamura (QST, Japan), Mitsuru Ejiri, Kazuhito Watanabe, Shiro Asano (Toshiba, Japan), Takayuki Kokami, Yasushi Oda (MHI, Japan)

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Michiko Ahn Furudate (Chungnam National University, Korea), Denis Hagebaum-Reignier (Aix-Marseille University, France), Seungyon Cho (NFRI, Korea)

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Ming Wen, Kanghao He, Yong Yao, Li Deng, Lei Yang, Jiangfeng Song, Guoqiang Huang, Huaming Chen, Yongtao An, Deli Luo (CAEP, China)

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Yang Xiang, Xudong Yu, Pinghui Zhao, Wanli Yang, Yuanjie Li (University of Science and Technology of China, China)

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Daniel Marchante, Pau Pais (PROCONSYSTEMS, Spain), Lluís Batet, Elisabet Mas de les Valls (Technical University of Catalonia, Spain), Jordi Abellà (Universitat Ramon Llull, Spain), Luis Sedano (FUS ALIANZ S/E&C, Spain)

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Lei Yang, Kanghao He, Li Deng, Ming Wen, Yong Yao, Jiangfeng Song, Guoqiang Huang, Huaming Chen, Yongtao An, Deli Luo (CAEP, China)

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Yuri Igitkhanov, Stylianos Varoutis, Christian Day (KIT, Germany), Ronald Wenninger (EUROfusion-PMU & IPP, Germany)

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Benedikt Peters (KIT, Germany)

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Minoru Goto, Keisuke Okumura, Shigeaki Nakagawa, Yoshitomo Inaba (JAEA, Japan), Hideaki Matsuura, Hiroyuki Nakaya, Kazunari Katayama (Kyushu University, Japan)

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Marco Incelli, Giacomo Bruni, Maurizio Carlini (University of Tuscia, Italy), Fabrizio Marini, Mirko Sansovini, Alessia Santucci, Silvano Tosti (ENEA, Italy)

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Linjie Zhao, Xiaojun Chen, Chengjian Xiao, Yu Gong, Heyi Wang, Xingguo Long, Shunming Peng (CAEP, China)

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Nagesh Ghuge, D Mandal (BARC, India)

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Takashi Watanabe, Akio Sagara, Juro Yagi, Sadatsugu Takayama (NIFS, Japan), Gaku Yamazaki (SOKENDAI, Japan), Teruya Tanaka (NIFS, Japan), Guido Link, John Jelonnek (KIT, Germany)

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Bogdan Monea, Eusebiu Ionete, Stefan Spiridon (INC-DTCI ICSI Rm. Valcea, Romania), Kris Dylst (SCK-CEN, Belgium), Stanica Enache (INC-DTCI ICSI Rm.Valcea, Romania), Wouter Broeckx (SCK-CEN, Belgium), Catalin Ducu (University of Pitesti, Romania)

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### **using high temperature gas-cooled reactor**

Yuma Ida, Hideaki Matsuura, Satoru Nagasumi, Ryo Okamoto, Yuki Koga, Kazunari Katayama (Kyushu University, Japan), Teppei Otsuka (Kindai University, Japan), Minoru Goto, Shigeaki Nakagawa, Etsuo Ishitsuka, Yosuke Shimazaki (JAEA, Japan)

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Wei Mao, Wei Mao (The University of Tokyo, Japan), Takumi Chikada (Shizuoka University, Japan), Shohei Ogura, Markus Wilde, Katsuyuki Fukutani, Takayuki Terai, Hiroyuki Matsuzaki (The University of Tokyo, Japan)

### **P2-077 Isotopic effect on the non-isothermal dehydrogenation kinetics of lithium alanates**

Sanjay Kumar, Vivekanand Kain (BARC, India)

### **P2-078 The Tritium resistance-efficiency of Tritium permeation barrier prepared by atomic layer deposition**

Li Deng, Jiangfeng Song, Zhi Zhang, Ming Wen, Lei Yang, Fei Jiang, Min Chen, Bin Yu, Junhong Luo, Deli Luo (CAEP, China)

### **P2-079 R&D Progress of D-T Fuel Cycling System for CFETR**

Heyi Wang, Shuming Peng, Xiaolin Wang (CAEP, China)

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Christian Day (KIT, Germany), Fabio Cisondi (EUROfusion-PMU, Germany)

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Laetitia Frances, Ester Diaz-Alvarez, Alejandro Muñoz, Andrés Bükki-Deme, David Demange (KIT, Germany)

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Alessia Santucci (ENEA, Italy), Marco Incelli, Giacomo Bruni (University of Tuscia, Italy), Silvano Tosti (ENEA, Italy)

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Karine Liger, Christian Grisolia (CEA, France), Ion Cristescu (KIT, Germany), Carlos Moreno (CIEMAT, Spain), Veronique Malard (CEA, France), Dave Coombs (UKAEA, UK), Sabina Markelj (JSI, Slovenia)

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Yuji Nobuta (Hokkaido University, Japan), Yuji Hatano (University of Toyama, Japan), Yuji Torikai (Ibaraki University, Japan), Masato Nakayama (University of Toyama, Japan)

### **P2-085 Estimation of the tritium retention in ITER Tungsten divertor target using macroscopic rate equation simulations**

E.A. Hodille (Aix Marseille University, France), E. Bernard (CEA IRFM, France), S. Markelj (Jozef Stefan Institute, France),



J. Mougenot (University Paris 13, France), C.S. Becquart (University Lille 1, France), R. Bisson (Aix marseille University, France), Christian Grisolia (CEA IRFM, France)

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Zhenhou Wang, Chaofeng Sang, Shengguang Liu, Mingyu Chang, Jizhong Sun, Dezhen Wang (Dalian University of Technology, China)

**P2-087 Investigation of Beryllium Pebbles Produced by Powder Metallurgy for HCPB Breeding Blanket**

Igor Kupriyanov, G. Nikolaev, S. Zavjalov, L. Kurbatova, N. Zabiroya (JSC "VNIINM", Russia), V. Chakin (KIT, Germany),

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Hirotsu Kishimoto, Yuuki Asakura, Naofumi Nakazato (Muroran Institute of Technology, Japan), Masakatsu Fukumoto (QST, Japan)

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Thomas Emmerich, Dandan Qu (KIT, Germany), Robert Vaßen (Forschungszentrum Jülich GmbH, Germany), Jarir Aktaa (KIT, Germany)

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Jarir Aktaa (KIT, Germany), Yann Carin, Joelle Vallory (F4E, Spain)

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Motoki Nakajima, Taichiro Kato, Hideo Sakasegawa, Masami Ando, Takashi Nozawa, Takanori Hirose, Hiroyasu Tanigawa (QST, Japan)

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Shuhei Nogami (Tohoku University, Japan), Hiroyuki Noto (NIFS, Japan), Michitoshi Toyota, Kohei Otomo, Akira Hasegawa (Tohoku University, Japan)

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Zhenchao Sun, Pengyuan Li, Haihong Wei, Linyu Sun, Binglin Hou (SWIP, China)

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Moises Weber, Purificacion Mendez, David Regidor, Cristina de la Morena, Igor Kirpichev, Ricardo de Paz, Angela Garcia, Joaquin Molla, Angel Ibarra (CIEMAT, Spain), Jose Maria Forteza, Fernando Delgado (Indra Sistemas, Spain), Juan Lluch, Francisco Sierra (BTESA, Spain), Miguel Mendez (Seven Solutions, Spain), Sunao Maebara, Keitaro Kondo, Takahiro Shinya,

Toshihiko Kitano, Atsushi Kasugai (QST, Japan), Alvaro Marqueta (CIEMAT, Spain), Ivan Moya, Antti Jokkinen (F4E, Germany)

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Sergej Gordeev, Frederik Arbeiter, Florian Schwab (KIT, Germany)

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Takafumi Okita, Shotaro Matsuda, Nobuo Yamaoka, Eiji Hoashi (Osaka University, Japan)

### **P2-097 Corrosion Behavior of CLAM Steel in Flowing Liquid PbLi at 480 oC with Magnetic Field**

Zunqi Xiao, Shaojian Yan, Zhizhong Jiang, Wangli Huang, Zhiqiang Zhu (INEST CAS, China)

### **P2-098 Pre-Conceptual Design of DEMO Upper Port Duct Bellows**

Oriol Costa Garrido, Boštjan Končar (Jozef Stefan Institute, Slovenia), Richard Brown, Christian Bachmann (EUROfusion, Germany)

### **P2-099 Status of the Final Design of the Structural System for the ITER EC H&CD Upper Launcher**

Peter Spaeh, Gaetano Aiello (KIT, Germany), René Chavan (Swiss Plasma Centre, Switzerland), Mario Gagliardi (F4E, Spain), Giovanni Grossetti (KIT, Germany), Cock Heemskerk (Heemskerk Innovative Technology, Netherlands), Jean-Daniel Landis (Swiss Plasma Centre, Switzerland), Andreas Meier (KIT, Germany), José Pacheco (F4E, Spain), Dennis Ronden (DIFFER, Netherlands), Theo Scherer, Sabine Schreck, Dirk Strauss, Alessandro Vaccaro, Bastian Weinhorst (KIT, Germany)

### **P2-100 Flow Test at Factory for ITER Thermal Shield**

Kwanwoo Nam, Dongkwon Kang, Woocho Chung (NFRI, Korea), Kisuk Lim, Youngkil Kang (SFA Engineering, Korea)

### **P2-101 Design, manufacturing and installation of the JT-60SA vacuum vessel gravity support**

Shiro Asano, Mitsuru Ejiri, Toshihisa Okuyama, Shoichi Mizumaki, Masahiro Yamada, Takahisa Ogawa, Tsutomu Mochida, Nobuji Takahashi, Yutaka Yanagi, Koichi Esaki, Junji Oomori, Atsuro Hayakawa (Toshiba Corporation, Japan), Yusuke Shibama, Kei Masaki, Akira Sakasai (QST, Japan)

### **P2-102 Development of the Remote Handling Connectors for ITER Divertor Diagnostics**

Timo Määttä (VTT Technical Research Centre of Finland Ltd, Finland), Miguel Pérez Lasala (F4E, Spain), Jukka-Pekka Uusitalo (Insinooritoimisto Comatec Inc, Finland), Janne Lyytinen, Petri Tikka, Seppo Rantala, Pekka Kilpeläinen, Hannu Martikainen, Jarmo Alanen, Hannu Saarinen (VTT Technical Research Centre of Finland Ltd, Finland)

### **P2-103 Simplified Models of the ITER Vacuum Vessel for Global Seismic Analyses**

Fabrizio Di Martino (University of Pisa, Italy), Jordi Ayneto Pou (F4E, Spain), Tyge Schioler (ITER Organization, France),

Rosa Lo Frano, Donato Aquaro (University of Pisa, Italy)

#### **P2-104 Detail Procedure of Pressure and Baking Test for ITER Vacuum Vessel Lower Port Stub Extension**

Hokyu Moon, Chulkyu Park, Gwang-Ho Kim, Hyun-Soo Kim, Yu-Gyeong Kim, Kwen-Hee Hong (NFRI, Korea), Jihoen Lee (Hyundai Heavy Industry, Korea), Hak-Kun Kim, Jeong-Woo Sa (ITER Organization, France), Woo-Ho Chung (NFRI, Korea)

#### **P2-105 Manufacturing Design Finalization of the ITER Vacuum Vessel - Neutral Beam Port**

Hyun Soo Kim, Yu-Gyeong Kim, Chul-Kyu Park, Gwang-Ho Kim, Hokyu Moon, Kwen-Hee Hong, Woo-Ho Chung (NFRI, Korea), Yungjin Jung (Hyundai Heavy Industry, Korea), Jeong-Woo Sa, Yuri Utin, Alex Martin (ITER Organization, France)

#### **P2-106 Structural design of vacuum interfaces between vacuum vessel and cryostat in JT-60SA superconducting tokamak**

Shigetoshi Nakamura, Yusuke Shibama, Kei Masaki, Shinji Sakurai, Yasushi Kobori, Fuminori Okano, Junichi Yagyu, Shigeharu Kokusen, Tadayuki Sasajima, Masaya Hanada, Akira Sakasai (QST, Japan)

#### **P2-107 Detailed Design of the RFX-mod2 Machine Load Assembly**

Simone Peruzzo (Consorzio RFX, Italy)

#### **P2-108 Preliminary Design of EU DEMO Helium-Cooled Breeding Blanket Primary Heat Transfer System**

Ivo Moscato (University of Palermo, Italy), Luciana Barucca (Ansaldo Nucleare, Italy), Sergio Ciattaglia (EUROfusion Consortium, Germany), Pietro Alessandro Di Maio (University of Palermo, Italy), Gianfranco Federici (EUROfusion Consortium, Germany)

#### **P2-109 First Pre-conceptual Design, Integration, and Remote Maintenance Assessment of a Double Null Configuration for the European DEMO Tokamak**

Daniel Iglesias, Victor Agudo, Roger Bastow (UKAEA, UK), Christian Bachmann (EUROfusion Consortium, Germany), Lorenzo Boccaccini (KIT, Germany), Matti Coleman, Fabio Cisondi (EUROfusion Consortium, Germany), David Cooper, Vladimir Demerzhiev (UKAEA, UK), Gianfranco Federici (EUROfusion Consortium, Germany), Francisco Hernandez (KIT, Germany), Jonathan Keep, Keelan Keogh, Antony Loving, Ruben Otin, Neal Sutton, Alberto Tallarigo, Zsolt Vizvary (UKAEA, UK)

#### **P2-110 Concept down-selection and structured decision making in European DEMO development activities**

Richard Brown, Gianfranco Federici (EUROfusion-PMU, Germany)

#### **P2-111 Tokamak systems analyses using a fast 1D transport solver: models and assessments**

Jose Carlos Rivas (CCFE, UK), Emiliano Fable (Max-Planck-Institut für Plasmaphysik, Germany), Richard Kembleton, Hanni Lux (CCFE, UK), Ronald Wenninger (Max-Planck-Institut für Plasmaphysik, Germany)

### **P2-112 Recent Updates in the ITER Electron Cyclotron Heating & Current Drive System**

Toshimichi Omori (ITER Organization, France), Ferran Albajar, Tullio Bonicelli (F4E, Spain), Natalia Casal (ITER Organization, France), Mario Cavinato (F4E, Spain), Caroline Darbos (ITER Organization, France), Grigory Denisov (IAP RAS, Russia), Franco Gandini, Thibault Gassmann (ITER Organization, France), Gregory Hanson (ORNL, USA), Mark Henderson (ITER Organization, France), Yasuhisa Oda (QST, Japan), Alexander Oustinov (IPA RAS, Russia), Darshankumar Parmar (Institute for Plasma Research, India), David Rasmussen (ORNL, USA), Vipal Rathod (Institute for Plasma Research, India), Gabriella Saibene (F4E, Spain), Narinder Pal Singh (Institute for Plasma Research, India), Koji Takahashi (QST, Japan)

### **P2-113 Conceptual Design of HCCR-TBM Diagnostics**

Chang Shuk Kim, Duck Young Ku, Mu-Young Ahn, Youngmin Lee (NFRI, Korea), Seong Pyo Hong, Bo Sun Kang (Konyang University, Korea), Seunyon Cho (NFRI, Korea)

### **P2-114 IFMIF-DONES gas flow modelling**

Volker Hauer, Christian Day (KIT, Germany)

### **P2-115 Optimization of the Piping and Cabling Plugs of DONES to reduce the Doses in the Access Cell**

Fernando Mota, Joaquín Molla (CIEMAT, Spain), Yuefeng Qiu (KIT, Germany), German Barrera, Begoña Ahedo (CIEMAT, Spain), Frederik Arbeiter, Kuo Tian (KIT, Germany), Angel Ibarra (CIEMAT, Spain)

### **P2-116 Investigation of Different Analysis Methods for the Nuclear Heating of the Electron Cyclotron Heating Upper Launcher Blanket Shield Module**

Bastian Weinhorst, Ulrich Fischer, Peter Spaeh, Dirk Strauss, Alessandro Vaccaro (KIT, Germany)

### **P2-117 Development and Qualification of the ITER Port Plug Handling Process**

Fabien Josseume, Jean-Jacques Cordier (ITER Organization, France), Bernard Cuquel (Airbus Safran Launcher, France), Julio Guirao (ITER Organization, France), Blaise Hovine (Airbus Safran Launcher, France), Yannick Le Tonqueze, Bruno Levesy, Jean-Pierre Martins (ITER Organization, France)

### **P2-118 Thermal Mechanical Analyses of the mm-wave Miter Bend for the ITER Electron Cyclotron Upper Launcher First Confinement System**

Phillip Silva (EPFL, Switzerland), Rene Chavan (EPFL-SPC, Switzerland), Mario Gagliardi (F4E, Spain), Timothy Goodman, Jean Landis, Florian Ramseyer, Avelino Sanchez, Matteo Vagnoni (EPFL-SPC, Switzerland)

### **P2-119 Maximum Allowable Fluid Velocity and Concern on Piping Stability of ITER Tokamak Cooling Water System**

Seokho Kim (ORNL, USA)

### **P2-120 Development of Engineering Simulator for Primary Heat Transfer System of ITER**

Walter Van Hove, Seokho Kim (ORNL, USA), Shen Zhang (nHance Technologies, Inc., USA)

### **P2-121 Solutions to fix the shine-through at the hypervaportrons of SPIDER beam dump**

Matteo Zaupa (Università degli Studi di Padova, Italy), Mauro Dalla Palma (Consorzio RFX, Italy), Julien Chareyre (ITER Organization, France), Samuele Dal Bello (Consorzio RFX, Italy), Andrea Garbuglia (F4E, Spain), Roberto Pasqualotto (Consorzio RFX, Spain), Hitesh Patel, Chandramouli Rotti (ITER-India, India), Emanuele Sartori (Consorzio RFX, Italy), Beatrix Schunke (ITER Organization, France), Pierluigi Zaccaria (Consorzio RFX, Italy)

### **P2-122 ASTEC code validation versus ICE P1-P8 experiments: comparison of two different experiences**

Fabio Tieri (ENEA, Italy), Bruno Gonfiotti (Pisa University, Italy), François Viot (IRSN, France), Sandro Paci (Pisa University, Italy), F. Cousin, L. Chailan (IRSN, France), Maria Teresa Porfiri (ENEA, Italy)

### **P2-123 Measurement of HETP of Gauze Structured Packing in Water Distillation Column for H<sub>2</sub>O-H<sub>2</sub>O Isotope Separation**

Chao Chen, Jinwei Hou, Chengjian Xiao, Xiulong Xia, Lei Yue, Jiamao Li, Linjie Zhao, Yu Gong, Xiaojun Chen, Heyi Wang (CAEP, China)

### **P2-124 Effects of shot-peening on tritium retention and permeation behaviors of pure iron**

Teppeï Otsuka (Kindai University, Japan), Kengo Goto (Kyushu University, Japan), Akihiro Yamamoto (Kindai University, Japan), Kenichi Hashizume (Kyushu University, Japan)

### **P2-125 Modelling an In-Vessel Loss of Coolant Accident in the EU DEMO WCLL Breeding Blanket with the GETTHEM Code**

Antonio Froio, Andrea Bertinetti (Politecnico di Torino, Italy), Sergio Ciattaglia, Fabio Cismondi (EUROfusion Consortium, Germany), Laura Savoldi, Roberto Zanino (Politecnico di Torino, Italy)

### **P2-126 Post Test Analysis of the ICE P1-P8 Tests Using the ECART Code**

Sandro Paci (Pisa University, Italy), Maria Teresa Porfiri (ENEA, Italy)

### **P2-127 Method of optimization for study of safety and reliability of fusion power plant**

Mikhail Subbotin (National Research Centre "Kurchatov Institute", Russia), Alexander Perevezentsev, Mikhail Rozenkevich (D. Mendeleev University of Chemical Technology of Russia, Russia)

### **P2-128 Safety Analysis of Helium Cooled Ceramic Breeder Test Blanket System**

Jiangtao Jia, Zi Meng, Muye Ni, Xing Hu, Neda Sahebi, Zhibin Chen, FDS Team (INEST CAS, China)

### **P2-129 Development of the safety code AINA for the European DEMO designs**

Eduard Baeza, Alfredo de Blas, Albert Riego, Marco Fabbri, Álvaro Cubí (Universitat Politècnica de Catalunya, Spain)

### **P2-130 Integration of the safety analyses for the TBM Program in ITER**

Jaap van der Laan (ITER Organization, France), Mu-Young Ahn (NFRI, Korea), Vilas Chaudhari (Institute for Plasma Research, India), David Demange, Greg De Temmerman, Luciano Giancarli (ITER Organization, France), Takanori Hirose (QST, Japan), Byoung-Yoon Kim, Yannick Le Tonqueze (ITER Organization, France), Brad Merrill (INL, USA), Robert Michling, Jean-Christophe Nevière, Romain Pascal (ITER Organization, France), Yves Poitevin, Italo Ricapito (F4E, Spain), Louis Sexton (ITER Organization, France), Joëlle Vallory (F4E, Spain), Alice Ying (UCLA, USA), Long Zhang (SWIP, China)

### **P2-131 Estimation of Neutron Yields Produced from SS316L, CuCrZr and Graphite target for MeV-energy Electrons in Tokamak Fusion device**

Atsuhiko Sukegawa (QST, Japan), Koichi Okuno, Seiichiro Tanaka (Hazama-Ando Technical Research Institute, Japan)

### **P2-132 Active sputtering products in the helium coolant loops of the European HCLL DEMO blanket concept**

Tim Eade, Alex Burns (CCFE, UK)

### **P2-133 Activity inventories and decay heat generation of the Test Cell facility of IFMIF-DONES**

Gediminas Stankunas, Andrius Tidikas (Lithuanian Energy Institute, Lithuania), Ulrich Fischer (KIT, Germany)

### **P2-134 Characterization of the emission of a portable D-T Neutron Generator**

Gian Marco Contessa, Nadia Cherubini, Salvatore Fiore, (ENEA, Italy), Giada Gandolfo, Luigi Lepore (Sapienza University, Italy), Stefano Loreti, Mario Pillon, Sandro Sandri (ENEA, Italy)

### **P2-135 Modelling of the Neutron Production in the Mixed Beam DT neutron generator**

Aljaz Cufar (Jozef Stefan Institute, Slovenia), Paola Batistoni (ENEA, Italy), Zamir Ghani (CCFE, UK), Luca Giacomelli (IFP CNR, Italy), Igor Lengar (Institute Jozef Stefan, Slovenia), Alberto Milocco (Università degli Studi di Milano-Bicocca, Italy), Sergey Popovichev (CCFE, UK), Mario Pillon (ENEA, Italy), Davide Rigamonti, Marica Rebai, Marco Tarcocchi (IFP CNR, Italy), Luka Snoj (Jozef Stefan Institute, Slovenia), JET Contributors

### **P2-136 ENDF/B-VIIIb4.0 Benchmark Test with Iron and Concrete Shielding Experiments Using 40 and 65 MeV Neutrons at QST/TIARA**

Saerom Kwon, Masayuki Ohta, Kentaro Ochiai (QST, Japan)

### **P2-137 Overview of the ECE measurements on EAST**

Yong Liu, Hailin Zhao, Tianfu Zhou, Xiang Liu, Ang Ti, Zeying Zhu, Bili Ling (ASIPP, China), C. Domier, N. Luhmann, Jr. (UC Davis, USA), Stefan Schmuck, John Fessey, Paul Trimble (Euratom/CCFE, UK), Erzhong Li, Liqun Hu (ASIPP, China) W. L. Rowan, He Huang, P.E. Phillips (The University of Texas at Austin, USA)

### **P2-138 Choice of the macroscopic plasma features and their evolution for the disruption simulations in DEMO**

Giuseppe Ramogida, Giuseppe Calabrò, Valter Cocilovo (ENEA, Italy), Fabio Villone (Università di Cassino, Italy), Tim

Hender, Christian Bachmann, Francesco Maviglia, Ronald Wenninger (EUROfusion, Germany)

### **P2-139 Development and Test of Nuclear Detectors for ITER-TBM**

Maurizio Angelone (ENEA, Italy), Riccardo Pilotti (Università degli Studi "Tor Vergata" Roma, Italy), Francesco Stacchi (Università degli Studi "La Sapienza" Roma, Italy), Mario Pillon (ENEA, Italy), Axel Klix, Prasoon Raj (KIT, Germany), Stefano Loreti, Guglielmo Pagano (ENEA, Italy)

### **P2-140 Comparison of Three Dimensional Theoretical and Measured DD Shutdown Gamma Spectrum at JET using FISPACT-II**

Jonathan Naish (CCFE, UK), Paola Batistoni (ENEA, Italy), Steven Bradnam, Zamir Steven, Bethany Colling (CCFE, UK), Rosaria Villari (ENEA, Italy), Michael Fleming, Lee Packer, Tim Eade, Andrew Turner, Sergey Popovichev (CCFE, UK)

### **P2-141 Study of the mechanism of gas injection induced detachment on EAST using SOLPS**

Daoyuan Liu, Dezhen Wang, Daoyuan Liu, Chaofeng Sang (Dalian University of Technology, China)

### **P2-142 Predictive Modelling of HL-2M divertor operation by SOLPS-ITER**

Chengzhi Cao, Yudong Pan, Laizhong Cai, Jiaxian Li, Lijun Cai (SWIP, China)

### **P2-143 Fuel retention in the upper tungsten divertor on EAST from attached to detached divertor plasma**

Chaofeng Sang, Zhenhou Wang, Jizhong Sun, Liang Wang, Shengguang Liu, Hailong Du, Dezhen Wang (Dalian University of Technology, China)

### **P2-144 3D SURO modelling of rough tungsten surface evolution under helium bombardment**

Quan Shi, Shuyu Dai (Dalian university of Technology, China), A. Kirschner, Dezhen Wang (Forschungszentrum Jülich, Germany)

### **P2-145 Effects of rough surface morphology on the angular distribution of eroded impurity**

Quan Shi, Shuyu Dai (Dalian university of Technology, China), A. Kirschner, Dezhen Wang (Forschungszentrum Jülich, Germany)

### **P2-146 The study for new plasma diagnostics at diverter region in nuclear fusion reactor**

Kwang-Mook Park, Bo-hyun Chung (KAPRA, Korea)

### **P2-147 Development status of flexible sub control system to supplement the MPS of LIPAc**

Koichi Nishiyama, Juan Knaster, Alvaro Maqueta (IFMIF/EVEDA Project Team, Japan), Atsushi Kasugai, Keitaro Kondo, Yosuke Hirata (QST, Japan)

### **P2-148 Nuclear analysis and design of the Accelerator Systems of the IFMIF-DONES Neutron Source**

Francisco Ogando, Peter Gosdzinsky, Mauricio García (UNED, Spain), Concepción Oliver (CIEMAT, Spain), Juan Catalán,



Patrick Sauvan (UNED, Spain), Iván Podadera, Mario Pérez (CIEMAT, Spain), Javier Sanz (UNED, Spain)

### **P2-149 Lead shutter for the IFMIF LIPAc accelerator**

Oriol Nomen (IREC, Spain), Beatriz Brañas, Fernando Arranz (CIEMAT, Spain), Francisco Ogando (ETSII-UNED, Spain), Jesús Castellanos, Joaquín Mollá (CIEMAT, Spain)

### **P2-150 The necessity of active cooling and thermal reflector in a metal hydride bed**

Kwangjin Jung (University of Science and Technology, Korea), Wang-Kee In, Hee-Seok Kang (KAERI, Korea), Sei-Hun Yun (NFRI, Korea), Hongsuk Chung (KAERI, Korea)

### **P2-151 Equivalent Circuit Model Based Impedance Matching Circuit Design for a Rectangular RF Ion Source**

Sung-Ryul Huh, Min Park, Bong-Ki Jung, Doo-Hee Chang, Tae-Seong Kim, Sun-Ho Kim, Seung-Ho Jeong (KAERI, Korea)

### **P2-152 Latest achievements of the negative ion beam test facility ELISE**

Bernd Heinemann, Ursel Fantz, Werner Kraus, Dirk Wunderlich, Federica Bonomo, Isabella Mario, Alessandro Mimo, Riccardo Nocentini, Rudolf Riedl, Christian Wimmer (Max-Planck-Institut für Plasmaphysik, Germany)

### **P2-153 Comparison of Shear Strength and Failure Mechanisms of Lap Joint between REBCO Tapes Bonded by Different Joining Techniques**

Luis Aparicio, Satoshi Ito, Hidetoshi Hashizume (Tohoku University, Japan)

### **P2-154 Thermal Mixing Enhancement of Liquid Metal MHD Free-surface Flow by Optimizing Vortex Generator Arrays**

Koji Kusumi, Tomoaki Kunugi, Takehiko Yokomine, Zensaku Kawara (Kyoto University, Japan)

### **P2-155 SuperMC Validation based on Fusion Neutronics Shielding Benchmark Problems from SINBAD**

Lijuan Hao, Yongpo Lin, Qi Yang, Jing Song (INEST CAS, China),

### **P2-156 Generation of a Plasma Neutron Source for Monte Carlo Neutron Transport Calculations in the Tokamak JET**

Žiga Štancar (Jožef Stefan Institute, Slovenia), Marina Gorelenkova (PPPL, USA), Sean Conroy, Jacob Eriksson (Uppsala University, Sweden), James Buchanan (CCFE, UK), Luka Snoj (Jožef Stefan Institute, Slovenia), JET Contributors

### **P2-157 Validation Methodology applied to SIMMER code for Fusion Applications**

Marica Eboli, Nicola Forgiione (University of Pisa, Italy), Alessandro Del Nevo (ENEA, Italy)

### **P2-158 Variance Reduction and Graphic Features of TRIPOLI-4 Monte Carlo Code for ITER Related Neutronics Calculations**

Yi-Kang Lee (CEA, France)

**P2-159 Customized Manufacture of Graphite Tiles According to the As-Built-Situation of Wendelstein 7-X Interior**

Torsten Braeuer, Christian Senft (Max-Planck-Institut für Plasmaphysik, Germany)

**P2-160 Inspection of Delamination Defect in Small Cooling Pipes with a Flexible Film EMAT**

Cuixiang Pei, Tianhao Liu, Siqi Zhao, Zhenmao Chen (Xi'an Jiaotong University, China)

**P2-161 Exploiting information of fusion component tests for failure rate estimation: Divertor Inner Vertical Target component study case**

Danilo Dongiovanni (ENEA, Italy), Tomas Iesmantas (LEI, Lithuania), Pierre Gavila (F4E, Spain), Tonio Pinna (ENEA, Italy)

**P2-162 Availability improvement of ITER blanket remote handling system**

Takahito Maruyama (QST, Japan), Hidenori Mikami (Toshiba Corporation, Japan), Yuto Noguchi, Nobukazu Takeda (QST, Japan)

**P2-163 Laser Cutting and Welding Tools for use In-bore on EU DEMO Service Pipes**

Keelan Keogh, Simon Kirk (UKAEA, UK), Wojciech Suder (Cranfield University, UK), Tristan Tremethick, Iain Farquhar, Samuel Ha, Antony Loving (UKAEA, UK)

**P2-164 Virtual Reality based Monitoring and Control System for Articulated In-Vessel Inspection Arm**

Naveen Rastogi, Prमित Dutta, Krishan Kumar Gotewal (Institute for Plasma Research, India)

**P2-165 Dependability Assessment of Iter Cask & Plug Remote Handling System during Nuclear Maintenance Operations**

Didier Van Houtte, Didier Elbeze (CEA, France), Jean-Pierre Friconneau (ITER Organization, France), Christophe Lacroix, Jeremy Le Gouill, Cindy Le Loirec, Michel Soldaini (CEA, France)

**P2-166 Kinematic calibration for a hybrid redundant robot based on Artificial Bee Colony algorithm**

Bingyan Mao (Lappeenranta University of Technology, Finland), Zhijiang Xie (Chongqing University, China), Yongbo Wang, Heikki Handroos, Huapeng Wu (Lappeenranta University of Technology, Finland)

**P2-167 MASCOT 6: Achieving High Dexterity Tele-manipulation for Fusion Remote Maintenance with a Modernised Architectural Design**

Robert Skilton, Ed Clark, Robert Crowe, Nathan Hamilton, Rob Howell, Cameron Kennedy, Chris Lamb, Tom Owen, Jorge Rodriguez (UKAEA, UK)

**P2-168 Deformation Modeling Method of Manipulators for DEMO Using Artificial Neural Network under Bayesian Model Selection**

Ming Li, Huapeng Wu, Heikki Handroos (Lappeenranta University of Technology, Finland), Robert Skilton, Jonathan Keep, Antony Loving (UKAEA, UK)

**P2-169 Hybrid Estimator for EAST Articulated Maintenance Arm Position Disturbance Compensation**

Jing Wu, Huapeng Wu (Lappeenranta University of Technology, Finland), Yuntao Song, Yong Cheng, Yongjun Sun (ASIPP, China), Wenlong Zhao (Lappeenranta University of Technology, Finland)

**P2-170 Energetic particle driven geodesic acoustic mode in a toroidally rotating tokamak plasma**

Haijun Ren (University of Science and Technology of China, China)

**P2-171 Analysis on the Optimum Impurity Mix for the DEMO scenario**

Irena Ivanova-Stanik, Michal Poradziński (IPPLM, Poland), Ronald Wenninger (EUROfusion Consortium, Germany), Roman Zagórski (IPPLM, Poland)

**P2-172 Status and Future Developments of R&D on Fiber Optics Current Sensor for ITER**

Andrei Goussarov, Willem Leysen (SCK-CEN, Belgium), Marc Wuilpart, Patrice Mégret (University of Mons, Belgium)

**P2-173 Investigation of plasma disruptions in DEMO reactor**

Tonio Pinna, Danilo Dongiovanni, Giuseppe Ramogida (ENEA, Italy), Sergio Ciattaglia (EUROfusion Consortium, Germany)

**P2-174 Quantum Mechanical Effects of ExB Drift in the Presence of Weak Sinusoidal Electric Field**

Wataru Kosaka, Shun-ichi Oikawa (Hokkaido University, Japan)

**P2-175 Setting up of the Electron Cyclotron Test Facility FALCON for Launcher Components**

Giuseppe Carannante, Mario Cavinato (F4E, Spain), Franco Gandini (ITER Organization, France), Filippo Sartori (F4E, Spain)

**P2-176 Detail Design of In-Vessel Components of ITER Neutron Flux Monitor Equipped with Microfission Chambers**

Masao Ishikawa, Kiyoshi Itami (QST, Japan), Vitaly Klasilnikov, Luciano, Bertalot (ITER Organization, France)

**P2-177 Consideration of Signal to Noise Ratio for an Imaging Bolometer for ITER**

Byron Peterson (NIFS, Japan), Roger Reichle, Santosh Pandya (ITER Organization, France), Kiyofumi Mukai (NIFS, Japan)

**P2-178 Studies of the Plasma Vertical Instability and its Control Concepts in JA and EU Broader Approach, DEMO Design Activity**

Hiroyasu Utoh, Shinsuke Tokunaga, Nobuyuki Asakura, Yoshiteru Sakamoto, Yoji Someya, Ryoji Hiwatari, Kenji Tobita (QST, Japan), Gianfranco Federici, Ronald Wenninger, Francesco Maviglia (EUROfusion-PMU, Germany)

**P2-179 Characterization of Discharge and Beam Extraction for High Power RF Ion Source**

Doo-Hee Chang, Min Park, Bong-Ki Jung, Sung-Ryul Huh, Sun-Ho Kim, Tae-Seong Kim, Seung Ho Jeong (KAERI, Korea)

**P2-180 Development of equilibrium fitting code using finite element method in versatile spherical torus experiment**

Jeongwon Lee, Sung-Cheol Kim, Young-Gi Kim, Jong-Yoon Park, Min-Gu Yoo, Jung-hun Yang, Kyoung-Jae Chung, Y.S. Hwang, Yong-Su Na (Seoul National University, Korea)

**P2-181 Characterisation of Neutron Generators and Monitoring Detectors for the in-Vessel Calibration of JET**

Zamir Ghani, S. Popovichev (UKAEA, UK), P. Batistoni (ENEA, Italy), S. Lilley, L. Packer (UKAEA, UK), A. Milocco (Istituto di Fisica del Plasma CNR, Italy), A. Cufar (Jozef Stefan Institute, Slovenia), D. Thomas, N. Roberts (National Physical Laboratory, UK), L. Snoj (Jozef Stefan Institute, Slovenia), S. Jednorog, E. Laszynska (IPPLM, Poland), A. Peacock (UKAEA, UK)

## Poster Session 3 (16:00-18:00 Thursday 28<sup>th</sup>, September)

### **P3-001 Plasma Exhaust and Divertor Studies in JA and EU Broader Approach, DEMO Design Activity**

Nobuyuki Asakura, Kazuo Hoshino, Hiroyasu Utoh, Yoji Someya, Satoshi Suzuki (QST, Japan), Christian Bachmann (EUROfusion, Germany), Holger Reimerdes (EPFL, Switzerland), Hironobu Kudo, Shinsuke Tokunaga, Yuki Homma, Yoshiteru Sakamoto, Ryoji Hiwatari (QST, Japan), Ronald Wenninger (EUROfusion, Germany), Kenji Tobita (QST, Japan), Gianfranco Federici (EUROfusion, Germany), Koichiro Ezato, Yohji Seki (QST, Japan), Noriyasu Ohno (Nagoya University), Yoshio Ueda (Osaka University)

### **P3-002 Pre-conceptual design progress of DEMO Divertor Cassette Body-to-Vacuum Vessel fixation system**

Domenico Marzullo, Domenico Coccoresse, Giuseppe Di Gironimo (CREATE Consortium & University of Naples Federico II, Italy), Pietro Di Maio (University of Palermo, Italy), Paolo Frosi, Giuseppe Mazzone (ENEA, Italy), Jeong-Ha You (Max-Planck-Institut für Plasmaphysik, Germany)

### **P3-003 DEMO Divertor Cassette Design and Integration of Main Sub-Components**

Giuseppe Mazzone, Giuseppe Mazzone (ENEA, Italy), Christian Bachmann (EUROfusion, Germany), Valerio Cerri, Domenico Coccoresse (CREATE Consortium & University of Naples Federico II, Italy), Pietro Di Maio (University of Palermo, , Italy), Davide Flammini, Paolo Frosi (ENEA, Italy), Silvia Garitta (University of Palermo, Italy), Giuseppe Di Gironimo, Domenico Marzullo (CREATE Consortium & University of Naples Federico II, Italy), Eugenio Vallone (University of Palermo, Italy), Rosaria Villari (ENEA, Italy), Jeong-Ha You (Max-Planck-Institut für Plasmaphysik, Germany)

### **P3-004 Evaluation of Boiling Heat Transfer Characteristic of a Self-Formed Swirling Flow downstream of Multi-Elbow Piping under One-Sided Heating Condition**

Hiroshi Kawakami, Munehito Hattori, Shinji Ebara, Hidetoshi Hashizume (Tohoku university, Japan)

### **P3-005 Numerical Study and CFD based Shape Optimization on Monoblock Divertor Channel Cross-section for Improving Heat Transfer Characteristics**

Do Kyun Lim, Eung Soo Kim (Seoul National University, Korea)

### **P3-006 Thermal-Structural Analysis of Test Divertor Unit Scraper Element for Wendelstein 7-X**

Arnold Lumsdaine, Jeremy Lore, Dean McGinnis (ORNL, USA), Joris Fellingner (Max-Planck-Institut für Plasmaphysik, Germany), Douglas Loesser, Peter Titus (PPPL, USA)

### **P3-007 A SOLPS Simulation Study on the Effect of Divertor Closure for CFETR with Extended Divertor Leg**

Chuanjia Zhang, Shifeng Mao (University of Science and Technology of China, China), Xuebing Peng, Zhengping Luo, Yong Guo (ASIPP, China), Minyou Ye (University of Science and Technology of China, China)

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Paolo Frosi (ENEA, Italy), Pietro Di Maio (University of Palermo, Italy), Domenico Marzullo (CREATE Consortium & University of Naples Federico II, Italy), Giuseppe Mazzone (ENEA, Italy), Jeong-Ha You (Max-Planck-Institut für Plasmaphysik, Germany)

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YiFu Zhou, S.F. Mao, C.J. Zhang, C. Xu, B. Chen (University of Science and Technology of China, China), Z.P. Luo, X.B. Peng, MinYou Ye (ASIPP, China)

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Toshikio Takimoto, Ryuta Endo, Akira Tonegawa (Tokai University, Japan), Kohnosuke Sato (Chubu Electric Power Co. Inc., Japan), Kazutaka Kawamura (Tokai University, Japan)

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Youngjae Park, Hyungdae Kim (Kyung Hee University, Korea)

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Takehiko Yokomine, Zeyu Zhang, Tomoaki Kunugi (Kyoto University, Japan)

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Vladimir Barabash (ITER Organization, France), Rik-Wouter Bosch, Steven Van Dyck (SCK-CEN, Belgium), Russell Eaton (ITER Organization, France), Andrei Goussarov (SCK-CEN, Belgium), Raphael Mitteau (ITER Organization, France), Samuli Heikkinen (F4E, Spain), Torsten Pfalz, Christoph Pohl (TÜV Rheinland Industrie Service GmbH, Germany), Francesco Zacchia (F4E, Spain)

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Alessandro Vaccaro, Gaetano Aiello, Giovanni Grossetti, Theo Scherer, Sabine Schreck, Peter Späh, Dirk Strauß, Bastian Weinhorst (KIT, Germany), Mario Gagliardi, Gabriella Saibene (F4E, Spain)

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Kohei Hamaguchi, Yu Teramoto, Eiji Hoashi, Takafumi Okita, Kenzo Ibano, Yoshio Ueda (Osaka University, Japan)

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Seong Dae Park, Dong Jun Kim, Suk-Kwon Kim, Jae Sung Yoon, Hyung Gon Jin, Eo Hwak Lee, Dong Won Lee (KAERI, Korea)

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Jia Xiao, Zenghui Wang, Ni Mingjiu (University of Chinese Academy of Sciences, China)

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Shouhei Yasunaga, Shinji Ebara, Hidetoshi Hashizume (Tohoku University, Japan), Akio Sagara (NIFS, Japan)

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Huaxin Li, Zhihong Zhong, Yucheng Wu (Hefei University of Technology, China)

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Hong min Park, Sang Pill Lee, Jin Kyung Lee (Dong-Eui University, Korea), Moon Hee Lee, Jong Ho Lee (Dong-Eui Institute of Technology, Korea), Dong Su Bae (Dong-Eui University, Korea)

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Leon Begrambekov, Andrey Grunin, Yaroslav Sadovsky (National Research Nuclear University, Russia), Vyacheslav Budaev, Oleg Buzhinsky, Sergey Grashin, Gennady Notkin (NRC "Kurchatov Institute", Russia), Rodion Geniatulin, Igor Masul (Efremov Institute, Russia)

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Kwangmo Park, Sang-Pill Lee, Jin-Kyung Lee, In-Soo Son (Dong-Eui University, Korea), Moon-Hee Lee (Dong-Eui Institute of Technology, Korea), Dong-Su Bae (Dong-Eui University, Korea)

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Petra Jenus, Aljaz Ivekovic, Matej Kocen, Andreja Sestan, Janez Zavasnik, Sasa Novak (Jožef Stefan Institute, Slovenia)

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Karsten Schlueter, Martin Balden, Stefan Elgeti, Rudolf Neu (Max-Planck-Institut für Plasmaphysik, Germany), Aida Calvo, Nerea Ordas, Carmen Garcia-Rosales (University of Navarra, Spain)

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Suk-Ho Hong, Kyung-Min Kim, Hong-Tack Kim, Eun-Nam Bang, Hee-Kyung Choi, Hyung-Chan Kim (NFRI, Korea), Richard Pitts (ITER Organization, France)

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Matthieu Toussaint, Stefano Coda, Basil Duval, Alexander Karpushov, Yves Martin, Roberto Maurizio, Holger Reimerdes,



The TCV Team (EPFL, Switzerland)

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Andrey Ushakov, Ad Verlaan, Rob Ebeling, André Rijfers (TNO, Netherlands), Ray O'Neill (GA, USA), Mark Smith, Brentley Stratton (PPPL, USA), Norbert Koster, Jos van der List (TNO, Netherlands), Anthony Gattuso (GA, USA), Charles Lasnier (LLNL, USA), Russel Feder (PPPL, USA), Matthew P. Maniscalco, Peter Verhoeff (TNO, Netherlands)

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Yuanjie Li, Yang Xiang, Sheng Zhang, Pinghui Zhao (University of Science and Technology of China, China)

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Sergey Tomilov, Maxim Sviridenko, Andrey Leshukov, Alexey Razmerov, Yuri Strebkov (JSC "NIKIET", Russia), Mikhail KhoKhlov, Alexander Gervash, Igor Mazul, Elena Okuneva (JSC "NIIIEFA", Russia), Valery Safronov (Institution "Project Center ITER", Russia), Rene Raffray, Russell Eaton, Stefan Gicquel, Barbara Calcagno (ITER Organization, France)

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Ladislav Vala, Michal Kordac, Tomas Melichar (Centrum vyzkum Rez, Czech Republic)

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Luigi Candido, Raffaella Testoni (Polytechnic University of Turin, Italy), Marco Utili (ENEA, Italy), Massimo Zucchetti (Polytechnic University of Turin, Italy)

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Wei Li, Qin Zeng, Wei Shi, Hongli Chen (University of Science and Technology of China, China)

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Phani Kumar Domalapally (Centrum výzkumu Řež, Czech), Julien Aubert (CEA Saclay, France), Mathieu Reungoat, Ladislav Vala (Centrum výzkumu Řež, Czech)

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Marco Utili (ENEA, Italy), Lorenzo Boccaccini, Leo Buehler (KIT, Germany), Fabio Cismondi (EUROfusion Consortium, Germany), Alessandro Del Nevo (ENEA, Italy), Marica Eboli (University of Pisa, Italy), Teresa Hernandez (CIEMAT, Spain), Jürgen Konys (KIT, Germany), Michal Kordac (Centrum výzkumu Řež, Czech), Daniele Martelli (University of Pisa, Italy), Elisabet Mas De les Valls, Thomas Melichar (Centrum výzkumu Řež, Czech), Chiara Mistrangelo (KIT, Germany), Mathieu Reungoat (Centrum výzkumu Řež, Czech), Mariano Tarantino, Amelia Tincani (ENEA, Italy)

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Ivan Alessio Maione (KIT, Germany), Flavio Lucca, Anna Marin, Claudio Bertolini, Massimo Roccella (LT Calcoli SaS, Italy),

Fabio Villone (Università di Cassino e del Lazio Meridionale, Italy), Alessandro Del Nevo (ENEA, Italy)

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Christian Zeile, Francisco Hernandez, Ivan Maione, Guangming Zhou (KIT, Germany), Christian Bachmann (EUROfusion-PMU, Germany)

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Hyoseong Gwon, Hisashi Tanigawa, Takanori Hirose, Yoshinori Kawamura (QST, Japan)

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Aditya Verma, Brijesh Yadav, Ankit Gandhi, Rajendra Ellappan (Institute For Plasma Research, India), Shailesh Thorve, R.S. Soni (BARC, India)

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Kiyoto Shin-mura, Yu Otani, Shunsuke Honda (Tokai University, Japan), Tsuyoshi Hoshino (QST, Japan), Kazuya Sasaki (Hirosaki University, Japan)

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Tsuyoshi Hoshino, Keita Kobayashi (QST, Japan)

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Keita Kobayashi, Tsuyoshi Hoshino (QST, Japan)

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Raghuram Karthik Desu (Indian Institute of Technology Madras, India), Paritosh Chaudhuri (Institute for Plasma Research, India), Ratna Kumar Annabattula (Indian Institute of Technology Madras, India)

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Qian Sun (Tsinghua University, China), Tianji Peng (CAS, China), Zhiwei Zhou (Tsinghua University, China)

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Zi Meng, Mui Ni, Shichao Zhang, Jiangtao Jia, Zhibin Chen, FDS Team (INEST CAS, China)

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Jie Mao, Kai Xiang, Hao Wang (Hangzhou Dianzi University, China), Xiujie Zhang (SWIP, China), Liang Yu (Macquarie University, Australia)

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Leo Bühler (KIT, Germany), Giacomo Aiello, Stephane Bendotti (CEA, France), Christina Koehly, Chiara Mistrangelo (KIT, Germany)

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Chiara Mistrangelo, Leo Bühler (KIT, Germany)

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Zhi-Hong Liu, Ming-Jiu Ni, Nian-Mei Zhang (University of Chinese Academy of Sciences, China)

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Shiju Sam (Institute for Plasma Research, India), Sujay Bhattacharya (BARC, India), Atik Mistry, Narender Singh (Institute for Plasma Research, India), Surinder Kumar, Santosh Kumar, G Dey (BARC, India), Ellappan Rajendra Kumar (Institute for Plasma Research, India)

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Sumei Liu, Fei Wei (Anhui Agricultural University, China), Mingxuan Lu, Mingzhun Lei (ASIPP, China)

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Daniele Martelli, Gianluca Barone, Nicola Forgione (University of Pisa, Italy), Marco Utili (ENEA, Italy)

**P3-052 Pulsed Discharge Characteristics of the Miniature Ion Source for Sealed-tube Neutron Generator under Low Pressure of Mixed Deuterium and Tritium**

Zhizhen Liu, Qin Zhan, Peixu Zhang, Hongguang Yang (China Institute of Atomic Energy, China)

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Hunchea Jung, Sawoong Kim, Wooho Chung (NFRI, Korea)

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Paritosh Chaudhuri (Institute for Plasma Research, India)

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Rafael Juarez, Antonio Lopez-Revelles, Patrick Sauvan, Gabriel Pedroche, Aljaz Kolsek (Universidad Nacional de Educación a Distancia, Spain), Daniele Ugolini, Joelle Vallory, Italo Ricapito, Yves Poitevin (F4E, Spain), Francisco Calvo (IDOM, Spain), Javier Sanz (Universidad Nacional de Educación a Distancia, Spain)

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Youngmin Lee, Duck Young Ku, Mu-Young Ahn, Yi-Hyun Park, Seungyon Cho (NFRI, Korea)

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Ion Cristescu (KIT, Germany), Andreas Bender (Kraftanlage Heidelberg, Germany), Mirela Draghia (B&C Tech Solution, Romania), Sabrina Gil Pascual (Kraftanlage Heidelberg, Germany)

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Juro Yagi, Akio Sagara, Teruya Tanaka, Takuya Goto, Sadatsugu Takayama, Takuya Nagasaka, Takeo Muroga (NIFS, Japan)

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Kohki Kumagai (The Graduate University for Advanced Studies, Japan), Teruya Tanaka, Juro Yagi (NIFS, Japan), Takashi Watanabe (The Graduate University for Advanced Studies, Japan), Fuminobu Sato, Shingo Tamaki, Isao Murata (Osaka University, Japan), Akio Sagara (NIFS, Japan)

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Gaku Yamazaki (SOKENDAI, Japan), Juro Yagi, Teruya Tanaka, Takashi Watanabe, Akio Sagara (SOKENDAI & NIFS, Japan)

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Aurelien Chassery, Pierre Bayle, Karine Liger, Michele Troulay, Jeremy Mascarade (CEA, France)

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Soon Chang Park, Mu-Young Ahn, Seungyon Cho, Yi-Hyun Park, Youngmin Lee, Duck Young Ku (NFRI, Korea)

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Jingchuan Wang, Junhong Luo, Peilong Li, Weizhi Yao, Jiangfeng Song, Deli Luo (CAEP, China)

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Yannick Hörstensmeyer (KIT, Germany), Barry Butler (EUROfusion Consortium, UK), Christian Day, Fabrizio Franza (KIT, Germany)

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Suh-Young Lee (POSTECH, Korea), Min Ho Chang, Sei-Hun Yun (NFRI, Korea), Jin-Kuk Ha (Dongguk University, Korea), In-Beum Lee (POSTECH, Korea), Euy Soo Lee (Dongguk University, Korea)

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Sergey Ananyev, Alexander Spitsyn, Boris Kuteev (NRC "Kurchatov Institute", Russia)

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Naoko Ashikawa (NIFS, Japan), Yuji Torikai (Ibaraki University, Japan), Kazunori Katayama (Kyushu University, Japan), Yukinori Hamaji (NIFS, Japan), Kenzo Imano (Osaka University, Japan), Akira Taguchi, Masao Matsuyama (University of Toyama, Japan), Kiyohiko Nishimura (NIFS, Japan), Yoshio Ueda (Osaka University, Japan)

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George Ana (Institute for Cryogenic and Isotopic Technologies, Romania), Mirela Draghia (ISTECH, Romania), Anisia Bornea, Alina Niculescu, Marius Zamfirache (Institute for Cryogenic and Isotopic Technologies, Romania)

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Kenichi Hashizume, Atsushi Ito, Yugo Ueda (Kyushu University, Japan)

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Peilong Li, Jiangfeng Song, Renjin Xiong, Zhi Zhang, Lei Yang, Ming Wen, Deli Luo (CAEP, China)

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Keiji Miyamoto, Yuki Matsuyama, Hodaka Osawa, Yasushi Yamamoto, Masami Ohnishi (Kansai University, Japan)

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Zhen xing Liu, Hong guang Yang, Bin bin Liang, Li ling Yang (CIAE, China)

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George Ana, Sorin Soare (Institute for Cryogenic and Isotopic Technologies, Romania), Gheorghe Pasca (ISTECH, Romania)

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Robin Größle, Beate Bornschein, Bennet Krasch, Alexander Kraus, Sebastian Mirz, Simon Niemes, Andreas Off, Florian Priester, Magnus Schlösser, Michael Sturm, Stefan Welte (KIT, Germany)

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Gianluca Barone, Daniele Martelli, Nicola Forgone (University of Pisa, Italy), Marco Utili, Amelia Tincani (ENEA, Italy), Luigi Candido, Massimo Zucchetti (Politecnico di Torino, Italy)

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Yuki Edao, Katsumi Sato, Hiroo Asahara, Hiroshi Inomiya, Yasunori Iwai (QST, Japan)

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Jumpei Mochizuki, Seira Horikoshi, Hikari Fujita, Moeki Matsunaga (Shizuoka University, Japan), Yoshimitsu Hishinuma (NIFS, Japan), Yasuhisa Oya, Takumi Chikada (Shizuoka University, Japan)

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Belit Garcinuño, David Rapisarda (CIEMAT, Spain), Rodrigo Antunes, Laëtitia Frances (KIT, Germany), Iván Fernández-Berceruelo (CIEMAT, Spain), Javier Sanz (UNED, Spain), Ángel Ibarra (CIEMAT, Spain)

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Xingchen Guo, Zhizhen Liu, Peixu Zhang, Qin Zhan (CIAE, China)

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Pei-xu Zhang, Zhi-zhen Liu, Ming Chang, Xing-chen Guo, Qin Zhan (CIAE, China)

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Hui He, Wenhua Luo, Shuaipeng Wang, Haibo Li, Tao Tang, Guanghui Zhang, Huaqin Kou (CAEP, China)

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Richard Pearson (The Open University, UK), Armando Antoniazzi (Kinectrics Inc., Canada), William Nuttall (The Open University, UK)

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Huaqin Kou, Wenhua Luo, Tao Tang, Zhiyong Huang, Ge Sang, Guanghui Zhang, Daqiao Meng, Deli Luo, Changan Chen, Hui He (CAEP, China)

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Huaqin Kou, Wenhua Luo, Tao Tang, Zhiyong Huang, Ge Sang, Guanghui Zhang, Daqiao Meng, Deli Luo, Changan Chen, Hui He (CAEP, China)

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Jesus Toribio, Javier Ayaso (University of Salamanca, Spain)

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Isabel Garcia-Cortes, Marta Malo, Alejandro Moroño, Patricia Muñoz, Pedro Valdivieso, Eric Hodgson (CIEMAT, Spain)

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Paolo Rossi, Antonio Cucchiaro, Gian Mario Polli (ENEA, Italy), Mariantonietta Gabriele, Massimiliano Tacconelli (Walter Tosto, Italy), Enrico Di Pietro, Valerio Tomarchio, Sam Davis (F4E, JT-60SA European Home Team, Germany)

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Keitaro Kondo, Hiroki Takahashi, Yosuke Hirata, Atsushi Kasugai, Keishi Sakamoto, Shigeru O'hira, Masayoshi Sugimoto (QST, Japan), Dominique Gex (F4E, Germany), Juan Knaster (IFMIF/EVEDA Project Team, Japan)

### **P3-089 Hot Cross Rolling and Characterization of ODS Ferritic Steel for Fusion Applications**

Sanghoon Noh, Ga Eon Kim, Suk Hoon Kang, Tae Kyu Kim (KAERI, Korea)

### **P3-090 Fabrication of Oxide-Dispersion-Strengthened FeCrAl Alloy and its Application to Fusion Energy**

Dong Jun Park, Hyun Gil Kim, Yang Il Jung, Jung Hwan Park, Byoung Kwon Choi, Jae Ho Yang (KAERI, Korea)

### **P3-091 Microstructure stability and high-temperature mechanical properties of RAFM steel with addition of Ta and Ti.**

HanKyu Kim, Jiwon Lee (Changwon National University, Korea), Joonoh Moon, Changhoon Lee (KIMS, Korea), Hyunuk Hong (Changwon National University, Korea)

### **P3-092 Effect of Sintering Additives on Liquid Phase Sintered SiC/SiC composites**

Jaehwan Gwak (Dong-Eui University, Korea), Moonhee Lee, Sungwon Kim (Dong-Eui Institute of Technology, Korea), Jinkyung Lee, Sangpill Lee (Dong-Eui University, Korea)

### **P3-093 Validation of Miniature Test Specimens for Post-Irradiation Thermal Diffusivity Measurement**

Masafumi Akiyoshi (Osaka Prefecture University, Japan), Ryuta Kasada (Kyoto University, Japan), Yuko Ishibashi (Netsch K.K., Japan), Lauren Garrison, Josina Geringer, Wallace Porter, Yutai Katoh (ORNL, USA)

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Mercedes Medrano, Isabel Garcia-Cortes (CIEMAT, Spain), Jose Luis Fernandez-Cuñado (UAM, Spain), Alejandro Morono, Patricia Muñoz, Fernando Jose Sanchez (CIEMAT, Spain)

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Xiankun Liu, Jian Zheng, Qijie Feng, Xiao Liu (CAEP, China)

### **P3-096 Tritium loading and soaking facility for measuring tritium retention in and outgassing from JET first wall materials**

Zoltan Kollo (UKAEA, UK), Alessia Santucci (ENEA, Italy), Anthony Hollingsworth (CCFE, UK), Marco Incelli (University of Tuscia & ENEA, Italy), Xavier Lefebvre, Andree De Backer, JET Contributors (CCFE, UK)



**P3-097 Thermal conductivity of Tungsten Coating on F82H and copper Formed by Underwater Explosive Welding**

Ryuta Kasada, Satoshi Konishi, Kosuke Aoki, Ryosuke Ochiai, Hyoseong Gwon (Kyoto University, Japan), Yasuhiro Morizono, Kazuyuki Hokamoto (Kumamoto University, Japan)

**P3-098 Unstructured Tetrahedral Element Based R2S Method with Deterministic Transport Code AETIUS in Shutdown Dose Rate Analysis**

Jong Woon Kim, Cheol Woo LEE, Young-Ouk LEE (KAERI, Korea)

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Stanislao Grazioso (University of Naples Federico II-DII, Italy), Mateusz Gospodarczyk (University of Rome Tor Vergata, Italy), Giuseppe Di Gironimo (University of Naples Federico II-DII, Italy)

**P3-100 Unsteady Coupling Simulation of RELAP5 and CFD on Stratified Flow during Plasma Pulse in the ITER TCWS PRZ Surge Line**

Jie Zheng (Ghent University, France), Eugenio Coscarelli, Giovanni Dell'Orco, Andrea Ciampichetti, Donato Kioce (ITER Organization, France), Jean-Marie Noterdaeme (Ghent University, France), Oliveier Le Métayer (Aix-Marseille University)

**P3-101 Study of EU DEMO WCLL Breeding Blanket and Primary Heat Transfer System Integration**

Emanuela Martelli (Sapienza University of Rome, Italy), Alessandro Del Nevo (ENEA, Italy), Fabio Giannetti, Gianfranco Caruso (Sapienza University of Rome, Italy), Luciana Barucca (Ansaldo Nucleare, Italy)

**P3-102 Preliminary Design and Structural Analyses of DEMO Bioshield Roof**

Lukasz Ciupinski, Piotr Marek (Warsaw University of Technology, Poland), Christian Bachmann (EUROfusion-PMU, Germany)

**P3-103 An Action Plan of Japan toward Development of DEMO Reactor**

Kunihiko Okano (Keio University, Japan), Ryuta Kasada (Kyoto University, Japan), Yasushi Ikebe (National Museum of Emerging Science and Innovation, Japan), Yasutomo Ishii (QST, Japan), Kyoko Oba (JAEA, Japan), Mieko Kashiwagi (QST, Japan), Ryuichi Sakamoto (NIFS, Japan), Naoki Sawa (Mitsubishi Heavy Industries Ltd., Japan), Hidenobu Takenaga (QST, Japan), Arata Nishimura (NIFS, Japan), Masaru Fukuie (Toshiba Corporation, Japan), Shinsuke Fujioka, Yoshio Ueda (Osaka University, Japan), Tsuyoshi Akiyama (NIFS, Japan)

**P3-104 Design and analysis of the new configuration of the secondary circuit of the DEMO fusion power plant using GateCycle**

Leszek Malinowski, Monika Lewandowska (West Pomeranian University of Technology, Poland), Fabio Giannetti (Sapienza University of Rome, Italy)

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Roberto Piovan (Consorzio RFX, Italy)

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P0216	P2-040	267
P0217	P2-038	268
P0218	P2-139	269
P0219	P1-082	271

Old #	New #	Abst. #
P0220	P2-138	272
P0221	P2-085	273
P0222	P2-132	275
P0223	P2-082	276
P0224	P2-173	277
P0225	P2-111	278
P0226	P1-108	279
P0227	P3-091	280
P0228	P2-074	281
P0229	P2-116	282
P0230	P1-054	283
P0231	P1-063	284
P0232	P2-136	285
P0233	P2-039	286
P0234	P1-077	287
P0235	P1-027	288
P0236	P3-160	290
P0237	P1-094	291
P0238	P2-065	292
P0239	P2-141	294
P0240	P2-144	295
P0241	P2-143	296
P0242	P2-058	297
P0243	P2-084	298
P0244	P3-161	300
P0245	P2-174	301
P0247	P2-105	304
P0248	P1-021	305
P0249	P1-095	306
P0250	P2-059	307
P0251	P2-037	308
P0252	P1-111	309
P0253	P2-126	310
P0254	P1-084	312
P0255	P1-071	313
P0256	P1-022	314
P0257	P2-172	315
P0258	P1-092	316
P0259	P2-086	317
P0260	P1-088	318
P0261	P2-047	319
P0262	P1-064	320
P0263	P2-054	321
P0264	P1-068	322
P0265	P2-044	323
P0266	P1-015	324
P0267	P2-181	325
P0268	P2-007	326
P0269	P2-022	327
P0270	P2-067	328
P0271	P2-103	329
P0272	P2-083	330
P0273	P2-081	331
P0274	P2-149	332

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Old #	New #	Abst. #
P0275	P2-098	333
P0276	P2-158	336
P0277	P2-080	337
P0278	P2-035	338
P0279	P2-042	339
P0280	P3-089	340
P0281	P2-004	342
P0282	P2-015	343
P0283	P2-088	344
P0284	P2-135	345
P0285	P2-036	346
P0286	P2-057	347
P0287	P2-075	348
P0288	P1-179	349
P0289	P2-153	350
P0290	P3-166	351
P0291	P2-068	352
P0292	P2-134	353
P0293	P2-026	354
P0294	P3-162	355
P0295	P1-112	356
P0296	P2-028	357
P0297	P3-056	358
P0298	P3-163	359
P0299	P2-050	360
P0300	P1-076	361
P0301	P2-150	362
P0302	P3-098	364
P0303	P2-154	365
P0304	P2-077	366
P0305	P2-056	368
P0306	P3-177	369
P0307	P2-096	371
P0308	P2-093	372
P0309	P2-045	373
P0310	P2-030	374
P0311	P2-018	375
P0312	P3-064	376
P0313	P3-076	377
P0314	P2-012	378
P0315	P3-113	379
P0316	P2-107	380
P0317	P2-055	381
P0318	P3-165	382
P0319	P3-074	383
P0320	P2-062	384
P0321	P2-157	385
P0322	P2-176	386
P0323	P3-110	387
P0324	P2-033	388
P0325	P2-089	389
P0326	P2-159	390
P0327	P2-090	391
P0328	P2-025	392

Old #	New #	Abst. #
P0329	P1-157	393
P0330	P2-152	399
P0331	P3-172	400
P0332	P3-119	401
P0333	P3-069	402
P0334	P2-092	403
P0335	P2-032	404
P0336	P3-109	406
P0337	P2-146	407
P0338	P2-094	408
P0339	P1-096	409
P0340	P3-103	410
P0341	P3-080	411
P0342	P1-097	412
P0343	P3-062	413
P0344	P2-052	414
P0345	P2-005	416
P0346	P1-018	417
P0347	P2-147	418
P0348	P3-077	419
P0349	P1-010	420
P0350	P2-029	421
P0351	P2-001	422
P0352	P2-177	423
P0353	P2-145	424
P0354	P2-011	425
P0355	P2-091	426
P0356	P2-049	427
P0357	P3-078	428
P0358	P2-016	429
P0359	P2-034	430
P0360	P2-020	431
P0361	P1-156	432
P0362	P3-055	433
P0363	P2-140	434
P0364	P2-014	435
P0365	P2-021	436
P0366	P3-168	437
P0367	P3-035	438
P0368	P2-008	439
P0369	P3-090	440
P0370	P3-054	441
P0371	P3-038	442
P0372	P2-151	443
P0373	P3-097	444
P0374	P1-019	445
P0375	P2-006	446
P0376	P1-158	447
P0377	P1-141	448
P0378	P3-037	449
P0379	P2-010	450
P0380	P3-126	451
P0381	P3-036	452
P0382	P3-112	453

Old #	New #	Abst. #
P0383	P2-017	454
P0384	P2-009	456
P0385	P3-121	457
P0386	P3-122	458
P0387	P2-046	460
P0388	P3-101	461
P0389	P3-050	462
P0390	P2-024	464
P0391	P3-105	465
P0392	P2-179	466
P0393	P3-033	467
P0394	P1-173	468
P0395	P3-174	470
P0396	P2-023	471
P0397	P2-013	472
P0398	P1-107	473
P0399	P1-056	475
P0400	P3-086	476
P0401	P3-152	477
P0402	P3-034	478
P0403	P3-116	479
P0404	P2-069	480
P0405	P3-115	481
P0406	P1-005	482
P0407	P3-088	483
P0408	P3-015	484
P0409	P3-114	486
P0410	P3-153	487
P0411	P3-156	488
P0412	P3-029	489
P0413	P3-157	490
P0414	P3-099	492
P0415	P3-012	493
P0416	P3-052	494
P0417	P3-096	495
P0418	P3-125	497
P0419	P1-180	498
P0420	P3-148	499
P0421	P3-158	500
P0422	P3-027	501
P0423	P3-010	502
P0424	P3-001	503
P0425	P3-127	504
P0426	P3-138	505
P0427	P3-066	506
P0428	P3-134	507
P0429	P3-145	508
P0430	P3-040	512
P0431	P3-082	513
P0432	P3-107	514
P0433	P3-041	515
P0434	P2-106	516
P0435	P3-059	518
P0436	P3-164	519

Old #	New #	Abst. #
P0437	P3-173	520
P0438	P3-141	521
P0439	P3-032	522
P0440	P2-076	523
P0441	P3-133	524
P0442	P2-073	525
P0443	P3-106	526
P0444	P3-150	527
P0445	P3-020	528
P0446	P1-036	529
P0447	P1-025	530
P0448	P3-022	531
P0449	P3-118	533
P0450	P3-016	534
P0451	P3-092	535
P0452	P3-117	536
P0453	P2-180	537
P0454	P3-004	538
P0455	P3-039	542
P0456	P3-048	543
P0457	P3-019	544
P0458	P1-174	545
P0459	P3-065	547
P0460	P3-093	550
P0461	P2-104	551
P0462	P3-068	552
P0463	P3-073	553
P0464	P3-030	554
P0465	P3-095	555
P0466	P3-136	556
P0467	P3-005	557
P0468	P3-049	558
P0469	P3-140	561
P0470	P1-052	562
P0471	P3-028	563
P0472	P3-026	564
P0473	P2-175	565
P0474	P3-013	567
P0475	P3-102	568
P0476	P3-169	569
P0478	P3-002	571
P0479	P3-023	572
P0480	P3-155	573
P0481	P3-120	574
P0482	P3-149	575
P0483	P3-111	576
P0484	P2-087	577
P0485	P3-003	578
P0486	P2-061	579
P0487	P3-124	580
P0488	P3-144	582
P0489	P3-042	583
P0490	P3-053	584
P0491	P3-123	585

Old #	New #	Abst. #
P0492	P3-075	586
P0493	P3-087	587
P0494	P3-006	588
P0495	P3-031	590
P0496	P3-051	591
P0497	P3-146	592
P0498	P3-135	593
P0499	P3-060	594
P0500	P3-057	595
P0501	P2-178	596
P0502	P3-129	597
P0503	P3-045	598
P0504	P2-101	599
P0505	P1-098	600
P0506	P3-058	601
P0507	P3-009	604
P0508	P3-007	605
P0509	P3-130	606
P0510	P3-132	607
P0511	P3-147	610
P0512	P3-143	611
P0513	P3-139	612
P0514	P3-018	613
P0515	P3-128	616
P0516	P3-061	617
P0517	P3-142	618
P0518	P1-026	619
P0519	P1-032	620
P0520	P3-067	621
P0521	P3-008	622
P0522	P2-102	623
P0523	P3-159	624
P0524	P3-017	625
P0525	P1-083	627
P0526	P3-021	629
P0527	P3-025	630
P0528	P3-083	631
P0529	P3-084	632
P0530	P3-151	633
P0531	P3-154	635
P0532	P3-043	637
P0533	P3-071	638
P0534	P3-081	640
P0535	P2-100	642
P0536	P3-011	643
P0537	P3-085	644
P0538	P1-033	645
P0539	P1-175	646
P0540	P3-108	647
P0541	P2-137	648
P0542	P3-094	649
P0543	P1-034	650

**Abst. # means Abstract  
Submission number AS-xxx**