Poster Session 1

Date / Time : Monday, April 22 / 15:50-18:00
Place : 2F, Room C (Grand Ballroom C)

P1_01 **Preparation of Y2O3/Al2O3 Multilayer Coating as Tritium Permeation Barrier**
Long Wang[1]*, Yongjin Feng[1], Xiaoyu Wang[1], Ke Shi[2], Jijun Yang[2], Kaiming Feng[1], Ning Liu[2], Chuanhui Liang[3], Wei Jin[3], Aart Willem Kleijn[3]
[1]Southwestern Institute of Physics, China, [2]Schuan University, China, [3]China Academic of Engineering Physics, China

P1_02 **Tritium Transport and Distribution in a High Temperature Gas-Cooled Reactor**
Sung Nam Lee, Nam-il Tak
Korea Atomic Energy Research Institute, Republic of Korea

P1_03 **Development of 2/3D and Multi-Physics Tritium Transport Model for ITER TBM System**
Ni Muyi[1]*, Nie Baojie[1], Zhao Xueli[2], Vander Laan Jaap[3]
[1]Sun Yat-Sen University, China, [2]Institute of Plasma Physics, China, [3]International Thermonuclear Experimental Reactor, France

P1_04 **Estimation on Protection Unit for Tritium**
Sung Paal Yim[1]*, Cheo Kyung Lee[2]
[1]Korea Atomic Energy Research Institute, Republic of Korea, [2]Handong Global University, Republic of Korea

P1_05 **Conceptual Design of a Combined Tritium Extraction System with an Intermediate Heat Exchanger and Its Leakage to the Environment Analysis for Nuclear Fusion Reactors.**
Marta Velarde[1], J. Fradera[2], J.M. Perlado[2]
[1]Institute of Nuclear Fusion, Spain, [2]IDOM, Spain

P1_06 **Withdraw**

P1_07 **An Experiment-Oriented Analysis of a Non-Steady-State Model for the Permeation of Multi-Component Hydrogen Isotopes through Metals**
Nicolae Bidica[1]*, Anisia Bornea[1], Ion Cristescu[2], Nicolae Sofilca[1], Ciprian Bucur[1], Marian Curuia[1]
[1]ICSI Rm. Valcea, Romania, [2]Karlsruhe Institute of Technology, Germany

P1_08 **The Tests of the Deuterium Permeation thought the Rohacell 71HF - a Candidate Material for the SIC-2 Windows for the ITER HFS Reflectometry**
Dmitrii Cherkez*, Alexander Spitsyn, Dmitrii Shelukhin, Vladimir Vershkov
National Research Center "Kurchatov Institute", Russian Federation

P1_09 **Withdraw**

P1_10 **The Study of Tritium Removal from Irradiated Nuclear Graphite Base on Hydrogen Isotope**
Ke Deng[1], Xijun Wu[2], Mingjun Zhang[1], Qin Zhang[1], Guo Yang[1], Zhaowei Ma[1], Guanghua Wang[1], Wei Liu[1]*
[1]Chinese Academy of Science, China, [2]University of South China, China

P1_11 **A Summary of the Tritium Source Term Study in the 10 MW High Temperature Gas-Cooled Reactor**
Mengqi Lou[1], Xuegang Liu[1], Liqiang Wei[1], Feng Xie[1]*, Jiejuan Tong[1], Xianbao Duan[2], Bin Shan[3], Guiqiu Zheng[4]
[1]Tsinghua University, China, [2]Wuhan Institute of Technology, China, [3]Huazhong University of Science & Technology, China, [4]Massachusetts Institute of Technology, USA

P1_12 **Tritium Distributions in LILWs of Korean Candu Reactor**
Young-Ku Choi[1], Min-Hoon Baik[2], Jae-Kwang Lee[2], Tae Hyung Kim[2], Hong Joo Ahn[2]*, Jong Kwang Lee[2]
[1]Sun Kwang T&S, Republic of Korea, [2]Korea Atomic Energy Research Institute, Republic of Korea

P1_13 **Tritium Research and Development Status at KAERI**
Jisoo Kim[1,2], Samuel Park[1,2], Hee-Seok Kang[1], Kwangjin Jung[4], Kyo-Youn Kim[1], Sung Paal Yim[1], Seon-Byeong Kim[1], Hong-Joo Ahn[1], Chan Woo Park[1], Sung Nam Lee[1], Min Ho Chang[3], Hongsuk Chung[1,2]*
[1]Korea Atomic Energy Research Institute, Republic of Korea, [2]University of Science & Technology, Republic of Korea, [3]National Fusion Research Institute, Republic of Korea, [4]Korea Institute of Energy Research, Republic of Korea

P1_14 **New Technologies for Conditioning Liquid Radioactive Wastes**
Nikolay Kazakovsky, Vladimir Korolev*, Arkadiy Yukhimchuk
The Russian Federal Nuclear Center – All-Russian Scientific Research Institute of Experimental Physics, Russian Federation

P1_15 **Detritiation of Tungsten After Tritium Gas Exposure**
N. Bobyr[1]*, A. Spitsyn[1], A. Anikin[2], B. Ivanov[2], A. Bukin[2], N. Zabirova[2], Y. Hatano[3]
[1]National Research Center "Kurchatov Institute", Russian Federation, [2]Joint Stock Company "A.A. Bochvar High-technology Research Institute of Inorganic Materials", Russian Federation, [3]University of Toyama, Japan

P1_16 **Radiological Characterisation of Solid Waste Resulting from the Refurbishing of Tritium Laboratory**
Viorel Fugaru*, Cristian Postolache, George Bubueanu, Catalin Stelian Tuta, Mihail-Razvan Ioan
Horia Hulubei National Institute of Research & Development for Physics and Nuclear Engineering, Romania

P1_17 **Tritium Emissions and Monitoring during KSTAR Device Operation**
Hee-Soo Kim*, Sangtae Kim, Kaprai Park, Si-Woo Yoon
National Fusion Research Institute, Republic of Korea

P1_18 **Synthesis and Characteristic of Biomimetic Graphene Oxide/Al_2O_3 Composite Tritium Permeation Barrier**
Hao Yang, Wei Wang, Siwei Zhang, Xiang Ji*, Chunjing Li, FDS Team
Chinese Academy of Sciences, China

P1_19 **Effect of Electron-Ion Interactions and Electronic Stopping on Irradiation Damage in β-Li_2TiO_3**
Woong-Kee Kim, Oda Takuji*
Seoul National University, Republic of Korea

P1_20 **Quality Assurance and Industrial Standardization of Eutectic Alloy Pb-15.7(2)Li**
Jose Luis Herranz, Luis A. Sedano
FUS-ALIANZ Science, Engineering & Consulting, Spain

P1_21 **Tritium Effects on Aromatic Carbon Loaded Polymers**
Brent Peters[1]*, Tim Krentz[1], Jay Gaillard[1], Steve Serkiz[1], Mark Kranj[1], Dale Hitchcock[1], Josef Velten[1], Timothy DeVol[2]
[1]Savannah River National Laboratory, USA, [2]Clemson University, USA

P1_22 **Withdraw**

P1_23 **Damage Distribution Dependence on Hydrogen Isotope Retention Behavior in Neutron - Fe^{2+} Implanted W**
Moeko Nakata[1]*, Akihiro Togari[1], Zhao Mingzhong[1], Fei Sun[1], Yuji Hatano[2], Takeshi Toyama[3], Naoaki Yoshida[4], Hideo Watanabe[4], Masashi Shimada[5], Dean Buchenauer[6], Yasuhisa Oya[1]
[1]Shizuoka University, Japan, [2]University of Toyama, Japan, [3]Tohoku University, Japan, [4]Kyushu University, Japan, [5]Idaho National Laboratory,USA, [6]Sandia National Laboratories, USA

P1_24 **Effects of Radiation Defects Induced by Ion Irradiation on Crystal Structure of Li_2TiO_3**
Donggyu Lee, Woong-Kee Kim, Takuji Oda*
Seoul National University, Republic of Korea

P1_25 **The Deuterium Permeation Behavior in Fe Ions Damaged Tungsten Studied by Gas-Driven Permeation Method**
Mingzhong Zhao[1]*, Moeko Nakata[1], Fei Sun[1], Yuji Hatano[2], Yoji Someya[3], Kenji Tobita[3], Yasuhisa Oya[1]
[1]Shizuoka University, Japan, [2]University of Toyama, Japan, [3]National Institutes for Quantum and Radiological Science and Technology, Japan

P1_26 **In-Situ Tritium Release Measurement from Lithium Aluminate Pellets during Irradiation**
Walter Luscher[1]*, David Senor[1], Matt MacDougall[1], Gary Hoggard[2]
[1]Pacific Northwest National Laboratory, USA, [2]Idaho National Laboratory, USA

P1_27 **Deuterium Retention Behavior in Tungsten: Comparison of Deuterium Gas Charging W and Plasma Irradiating W**
Xiaoqiu Ye*, Wei Wang, Changan Chen, Wenhua Luo, Deli Luo
China Academy of Engineering Physics, China

P1_28 **Tritium Aging Effects on Fracture Toughness of Stainless Steel Weldments**
Michael J. Morgan, Dale A. Hitchcock, Timothy M. Krentz, Scott L. West
Savannah River National Laboratory, USA

P1_29 **A Kinetic Study on the Mechanism of Hydrogen Evolution From Er_2O_3 Tritium Permeation Barrier**
Mingwang Ma*, Ruiyun Wan, Binghua Tang
China Academy of Engineering Physics, China

P1_30 **Predicting Tritium Uptake in Nuclear Graphite from In-Core Fluoride Salt Irradiations**
Kieran Dolan*, Guiqiu Zheng, David Carpenter, Lin-Wen Hu
Massachusetts Institute of Technology, USA

P1_31 **Time Domain Thermoreflectance (TDTR) Signatures of He Bubbles in Metals**
Eliel Villa-Aleman*
Savannah River National Laboratory, USA

P1_32 **H/He Co-Irradiation Induced Structural Change and the Evolution of Gas Bubbles in Li_4SiO_4**
Jingwen Ba, Rui Li, Quanwen Wu, Rongguang Zeng, Xiayan Yan, Tao Tang*
China Academy of Engineering Physics, China

P1_33 **Results from Tritium Capable Experiments at the New H3AT Facility**
Anthony Hollingsworth[1]*, A. De Backer[1], M.Y.Lavrentiev[1] , J.Hess[1], J. Likonen[2], K. Heinola[3], I. Jepu[4], M-F. Barthe[5,6], P. Desgardin[5,6], E. Meslin[7]
[1]United Kingdom Atomic Energy Authority, UK, [2]VTT Technical Research Centre of Finland, Finland, [3]University of Helsinki, Finland, [4]National Institute for Laser, Plasma and Radiation Physics, Romania, [5]Conditions Extrêmes et Matériaux Haute Température et Irradiation, France, [6]Centre National de La Recherche Scientifique, France, [7]Service de Recherches de Métallurgie Physique, France

P1_34 **Towards Accurate Molecular Dynamics Simulations of Helium Bubble Nucleation and Growth in Palladium Tritide**
Xiaowang Zhou, Norman C. Bartelt*, Ryan B. Sills
Sandia National Laboratories, USA

P1_35 **The Tritium Release Performance of Li_4SiO_4-Based Solid Solutions as Advanced Tritium Breeders**
Linjie Zhao, Xiaojun Chen, Chengjiang Xiao, Heyi Wang, Xingui Long, Shuming Peng*
China Academy of Engineering Physics, China

P1_36 **Research Activities on Tritium Handling Materials in Caep**
Tao Tang*, Guikai Zhang, Huaqin Kou, Xin Xiang, Quanwen Wu, Jingwen Ba, Xiaojun Deng, Renjin Xiong, Feilong Yang, Li Hu
China Academy of Engineering Physics, China

P1_37 **Hydrogen Isotope Retention and Release Properties of Beryllium Intermetallic Compounds as Advanced Neutron Multipliers for Fusion Applications**
Jae-Hwan Kim[1]*, Mitsutaka Miyamoto[2], Masaru Nakamichi[1]
[1]National Institutes for Quantum and Radiological Science and Technology, Japan, [2]Shimane University, Japan

P1_38 **Deuterium Retention in Advanced Steels for Fusion Reactor Structural Application**
Xunxiang Hu[1]*, Lizhen Tan[1], Kun Wang[1], Caleb P. Massey[2], David T. Hoelzer[1], Yutai Katoh[1]
[1]Oak Ridge National Laboratory, USA, [2]University of Tennessee, USA

P1_39 **Electron Tomography and Energy Loss Spectroscopy of Helium Nanobubbles Formed in a Palladium Tritide**
Noelle R. Catarineu*, David B. Robinson, Norman C. Bartelt, Joshua D. Sugar, Warren L. York, Suzanne Vitale
Sandia National Laboratories, USA

P1_40 **Fabrication of Li2TiO3 Pebbles Using Nano-Powder for Tritium Breeding Material**
Yi-Hyun Park*, Jongil Kim, Duck Young Ku, Mu-Young Ahn, Youngmin Lee, Seungyon Cho
National Fusion Research Institute, Republic of Korea

P1_41 **Withdraw**

P1_42 **Tritium Retention in Beryllium and Titanium Beryllide after High-Dose Neutron Irradiation**
Vladimir Chakin[1]*, Rolf Rolli[1], Ramil Gaisin[1], Michail Klimenkov[1], Pavel Vladimirov[1], Masaru Nakamichi[2]
[1]Karlsruhe Institute of Technology, Germany, [2]National Institutes for Quantum and Radiological Science and Technology, Japan

P1_43 **First-Principles Calculation of Stability and Mobility of Helium in Alpha-Uranium**
Jae Hyuk Kim[1], Jae Uk Lee[2], Hyun Goo Kang[2], Min Ho Chang[2], Takuji Oda[1]*
[1]Seoul National University, Republic of Korea, [2]National Fusion Research Institute, Republic of Korea

P1_44 **In-Situ Determination of Parameters of Hydrogen Isotopes Interaction with Materials Using Dynamic Sorption/Desorption Method**
Timur Kulsartov[1], Zhanna Zaurbekova[1]*, Yuriy Ponkratov[2], Vyacheslav Gnyrya[2]
[1]Kazakh-Britain Technical University, Kazakhstan, [2]Institute of Atomic Energy, Kazakhstan

P1_45 **Analysis of the Reactor Experiments Results on Irradiation of Pb83Li17 Lead-Lithium Eutectic**
Timur Kulsartov[1]*, Zhanna Zaurbekova[1], Yergazy Kenzhin[2], Aset Shaimerdenov[2]
[1]Institute of Atomic Energy, Kazakhstan, [2]Institute of Nuclear Physics, Kazakhstan

P1_46 **Diffusion Characterization of Hydrogen Isotopes in Hastelloy Nalloy for the Application of Fluoride-Salt-Cooled High Temperature Reactors (FHRs)**
Dongxun Zhang, Wei Liu, Wenguan Liu, Yuan Qian
Chinese Academy of Sciences, China

P1_47 **Forging Process Effects on the Fracture Toughness Properties of Types 316L, 304L, and 21-6-9 Tritium-Precharged Stainless Steels**
Michael Morgan*, Timothy Krentz
Savannah River National Laboratory, USA

P1_48 **Isothermal Desorption Rate of Helium from Metal**
Lei Wang*, Yuan Wang, Yongrong Xie
China Academy of Engineering Physics, China

P1_49 **Effect of Ferrite Content on Fracture Toughness of Tritium-Precharged-and-Aged Stainless-Steel Weldments**
Michael Morgan, Tinothy Krentz, Scott West, Joy McNamara, Andrew Duncan*, Paul Korinko
Savannah River National Laboratory, USA

P1_50 **Modelling the Processes of Hydrogen Isotopes Interaction with Solids Surface**
Yevgen Chikhray[1]*, Saulet Askerbekov[1], Yergazy Kenzhin[2], Yuriy Gordienko[3], Etsuo Ishitsuka[4]
[1]Institute of Experimental and Theoretical Physics, Kazakhstan, [2]Institute of Nuclear Physics, Kazakhstan, [3]National Nuclear Center of the Republic of Kazakhstan, Kazakhstan, [4]Japan Atomic Energy Agency, Japan

P1_51 **Tritium Permeation through Ce-ODS Steel**
Yudai Urabe[1], Kenichi Hashizume[1]*, Teppei Otuka[2], Kan Sakamoto[3]
[1]Kyushu University, Japan, [2]Kindai University, Japan, [3]Nippon Nuclear Fuel Development, Japan

P1_52 **Tritium Dissolution Behavior in Rare-Earth Oxides**
M. Khalid Hossain[1], Kenichi Hashizume[1]*, Shinnosuke Jo[1], Kaname Kawaguchi[1], Yuji Hatano[2]
[1]Kyushu University, Japan, [2]University of Toyama, Japan

P1_53 **Titanium Hydrides with Controlled H/T Ratio for AMS Facilities Calibration**
Cristian Postolache*, Viorel Fugaru, Catalin Stelian Tuta, George Bubueanu, Andrei Antohe, Mihail-Razvan Ioan
Horia Hulubei National Institute of Physics and Nuclear Engineering, Romania

P1_54 **Synthesis of Sodalite Membrane toward the Enrichment of Hydrogen Isotopes**
Bangjun Ma*, Xiaofang Wang, Chang-An Chen
China Academy of Engineering Physics, China