



Poster Session 2

Tuesday, April 23 / 15:50-18:00

Room C (Grand Ballroom C, 2F)

P2_01

Rigorous Tritium Wet Scrubber Column Modeling and Design

Anthony Busigin

NITEK USA, Inc., USA

P2_02

Zr₂Fe modification for Tritium Absorption

Yong Yang

China Academy of Engineering Physics, China

P2_03

Application of Pt Loaded Honeycomb Catalyst in Air Detritiation

Quanwen Wu*, Zhenhua Zheng, Jinchun Bao, Zhiyong Huang

China Academy of Engineering Physics, China

P2_04

Preparation and Characterization of Super-Hydrophobic Pt-Based Catalysts for H/D Isotope Separation between Hydrogen and Water

Jiamao Li*, Chao Chen, Xiulong Xia, Yu Gong, Heyi Wang, Shuming Peng

China Academy of Engineering Physics, China

P2_05

Mass Transfer Performance Test of Structured Packings for Tritiated Water Distillation Detritiation

Chao Chen*, Jingwei Hou, Heyi Wang, Team of DT Fuel Cycle

China Academy of Engineering Physics, China

P2_06

Effect of Ultraviolet Light on Hydrogen Exchange Reaction between Hydrogen Gas and Tritiated Water

JiEun Yang, TaeJun Kim, Minsik Kim, Jei-Won Yeon

Korea Atomic Energy Research Institute, Republic of Korea



P2_07

Experimental Results and Experience with LPCE Process

O.A. Fedorchenko*, I.A. Alekseev, S.D. Bondarenko, T.V. Vasyanina

National Research Center "Kurchatov Institute", Russian Federation

P2_08

Development of Technology for the Liquid Radioactive Waste Detritiation by Two-Temperature Catalytic Isotope Exchange Method in a Water-Hydrogen System

Pak Yu.S., Bukin A.N.*, Moseeva V.S., Marunich S.A., Rosenkevich M.B.

Dmitry Mendeleev University of Chemical Technology of Russia, Russian Federation

P2_09

Hydrogen Isotope Abstraction by Protonic Metal Oxides with Various Crystal Structures

Chan Woo Park*, Kune-Woo Lee, In-Ho Yoon, Hee-Man Yang, Ilgook Kim

Korea Atomic Energy Research Institute, Republic of Korea

P2_10

Rigorous Dynamic Simulation of Cryogenic Distillation of Hydrogen Isotopologues in the Fuel Cycle of a Thermonuclear Reactor Based on UV-Flash

Andrey Ovcharov^{1*}, Richard Szczepanski², Jacek Kosek¹, Nuno Pedrosa², Xiaofei Lu³, Lorenzo Basili⁴, Rosa Lo Frano⁴, Donato Aquaro⁴

¹International Thermonuclear Experimental Reactor, France, ²KBC Advanced Technologies Ltd, UK, ³Institute of Plasma Physics, China, ⁴University of Pisa, Italy

P2_11

Commissioning of the LPCE and Purification Systems as Front-End of the Experimental Pilot Plant for D-T Separation

Gheorghe Popescu, George Ana, Anisia Bornea, Ciprian Bucur, Ovidiu Balteanu, Iulia Stefan, Marius Zamfirache

National Institute of Research and Development for Cryogenic and Isotopic Technologies, Romania

P2_12

Hydrogen Generator Modification in View of Tritium Compatibility

George Ana*, Anisia Bornea, Marius Zamfirache, Alina Niculescu, Mihai Vijulie, Ciprian Bucur

National Institute of Research and Development for Cryogenic and Isotopic Technologies, Romania



P2_13

Purity of Hydrogen Isotopes from the Thermal Cycling Absorption Process

Benton Randall, Henry T. Sessions, Lucas Angelette, Xin Xiao*

Savannah River National Laboratory, USA

P2_14

Pd Dense Membrane with Microchannel Structure for Hydrogen Isotope Purification under Different Pressures

Lei Yue*, Yu Gong, Jingwei Hou, Jiamao Li, Chao Chen, Chengjian Xiao, Heyi Wang

Institute of Nuclear Physics and Chemistry, China

P2_15

Study on Preparation of Palladium Film on Porous Stainless Steel Substrate

Yaqi Song¹, Feilong Yang¹, Guikai Zhang¹, Guanghui Zhang¹, Renjin Xiong¹, Zhanlei Wang², Changan Chen^{1*}

¹China Academy of Engineering Physics, China, ²Science and Technology on Surface Physics and Chemistry Laboratory, China

P2_16

TCAP Parameter Optimization Using Fractional Factorial Experimental Design

Xin Xiao*, Henry T. Sessions

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P2_17

Thermodynamics, Kinetics and Selectivity of H₂ and D₂ on Zeolite under Low Temperature

Renjin Xiong^{1*}, Michael Hirscher²

¹China Academy of Engineering Physics, China, ²Max Planck Institute for Intelligent Systems, Germany

P2_18

Hydrogen Isotopes Separation Using Frontal Displacement Chromatography: the Influences of Column Temperature and Gas Flow Rate

Xiaojun Deng^{1*}, Deli Luo², Cheng Qin¹, Daqiao Meng², Tao Tang¹, Guikai Zhang¹, Wenhua Luo²

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P2_19

Oxygen Regeneration of Palladium Silver Alloy Tubed Hydrogen Purifier

Melissa Golyski

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P2_20

Trace Tritium Recovery within the European DEMO Fuel Cycle

Tamsin Jackson^{1*}, Joao Lopes¹, Nadeera Jayasekera², Barry Butler

¹Culham Centre for Fusion Energy, UK, ²Loughborough University, UK

P2_21

Design of Tritium Adsorption Systems in Molten Salt Reactors for Mitigation of Radioactive Release

Stephen Lam^{1*}, Francesco Ambrogi², Raluca Scarlat², Ronald Ballinger¹, Charles Forsberg¹

¹Massachusetts Institute of Technology, USA, ²University of Wisconsin-Madison, USA

P2_22

Large-Scale Hydrogen Isotopes Separation by Chromatography

Chengjian Xiao*, Xiaolong Fu, Heyi Wang

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P2_23

Catalytic Separation of Hydrogen Isotopes Using Nickel Modified Alumina PLOT Capillary Column

Weiwei Wang*, Xingbi Ren, Lidong Xia, Hairong Li, Weiguang Zhang, Xiaosong Zhou, Xingguo Long, Shuming Peng

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P2_24

Hydrogen Adsorption and Desorption Experiments for Cryogenic Molecular Sieve Bed

Yi-Hyun Park, Seungyon Cho, Mu-Young Ahn, Seok Kwon Son, Soon Chang Park*, Youngmin Lee

National Fusion Research Institute, Republic of Korea

P2_25

Design and Manufacturing Issues Related to a High Efficiency Microreactor in View of Tritiated Streams Conversion to Water

Mirela Draghia*, Gheorghe Pasca, Alin Fuciu

IS TECH SRL, Romania



P2_26

A Model to Relate Exhaust Processing Requirements to the Tokamak Operational Scenarios

Deepti Dubey^{1*}, Anil K. Tyagi¹, Ranjana Gangradey², P. N. Maya³, Shishir Deshpande¹

¹International Thermonuclear Experimental Reactor-India, India, ²Institute for Plasma Research, India, ³University of Greifswald, Germany

P2_27

A Study on Trace Amount of Q2 and CQ4 Treatment Process

Woo Chan Jung^{1*}, Pil Kap Jung¹, Young Min Kim¹, Hung Man Moon¹, Min Ho Chang², Hyeon Gon Lee²

¹Daesung Industrial Gases, Republic of Korea, ²National Fusion Research Institute, Republic of Korea

P2_28

A Mathematical Design and Synthesis of Complex Column Model for Tritium Separation

Seon-Byeong Kim

Korea Atomic Energy Research Institute, Republic of Korea

P2_29

The Study of a CECE Process for Low Tritiated Liquid Waste prior to Experimental Phase

Anisia Mihaela Bornea^{1*}, Marius Valentin Zamfirache¹, George Romulus Ana¹, Ovidiu Ioan Balteanu¹, Liviu Ovidiu Stefan¹

National Institute of Research and Development for Cryogenic and Isotopic Technologies, Romania

P2_30

Study of Preparation and Hydrogen Isotope (H₂ and D₂) Sorption of CHA-Type Zeolite

Akira Taguchi^{1*}, Takumi Nakamori¹, Yuki Yoneyama¹, Takahiko Sugiyama², Masahiro Tanaka³, Kenji Kotoh⁴, Yu Tachibana⁵, Tatsuya Suzuki⁵

¹University Toyama, Japan, ²Nagoya University, Japan, ³National Institute for Fusion Science, Japan, ⁴Kyushu University, Japan, ⁵Nagaoka University Technology, Japan

P2_31

A Theoretical Study On Tritium Calorimetry In Hydride Bed

S.-H. Yun*, M. Chang, H.-G. Kang, D. Chung, J.W. Lee, K.J. Jung

National Fusion Research Institute, Republic of Korea



April 22–26, 2019, Haeundae Grand Hotel Busan, Korea

P2_32

The Diffusion Permeation Behavior of Deuterium through the Niobium and its Composite Membrane with Different Grain Sizes

Guo Yakun, Zhou Xin, Ma Bangjun, Ye Xiaoqiu, Chen Changan*

Science and Technology on Surface Physics and Chemistry Laboratory, China

P2_33

Experimental Results of a Medium-Scale Pd-Ag Permeator for the Tritium Extraction and Removal System of DEMO-HCPB Blanket

Marco Incelli*, Alessia Santucci, Silvano Tosti

European Nuclear Energy Agency, Italy

P2_34

Permeator Simulations for the Exhaust Processing System of the EU-DEMO Fuel Cycle

Yannick Hoerstensmeyer^{1*}, Silvano Tosti², Alessia Santucci², Giacomo Bruni²

¹Karlsruhe Institute of Technology, Germany, ²European Nuclear Energy Agency, Italy

P2_35

Technology Development for Isotope Rebalancing and Protium Removal in the EU-DEMO Fuel Cycle

Cyra Neugebauer*, Yannick Hoerstensmeyer, Christian Day

Karlsruhe Institute of Technology, Germany

P2_36

Use of SAES Getter ST 909 for the Complete Cracking of Methane Contained in Small-Volume Tritiated Dihydrogen Batches with High Concentrations of Impurities

Haudebourg*, Gauvin, Milleton, Macaud

The French Alternative Energies and Atomic Energy Commission, France

P2_37

Non-Evaporable Getters for Tritium Recovery in the Helium Coolant Purification System of DEMO

Alessia Santucci*, Antonio Frattolillo, Marco Incelli, Silvano Tosti

European Nuclear Energy Agency, Italy

P2_38

Evaluating All-Metal Diaphragm Valves for Use in a Tritium Environment

Paul R. Beaumont, Levi R. Houk, Lucas M. Angelette, Andrew N. Payton, James E. Klein, Anita S. Poore

Savannah River National Laboratory, USA



P2_39

Tritium Transport Characteristics Analysis of TMSR-SF under Accident Conditions

Hao Qin, Chenglong Wang*, Wenxi Tian, Suizheng Qiu, G.H. Su

Xi'an Jiaotong University, China

P2_40

Process Design of the Water Detritiation System for China Fusion Engineering Test Reactor

Peilong Li, Wenhua Luo*, Zhi Zhang, Xiaojing Qian, Yan Shi, Jiangfeng Song, Deli Luo

China Academy of Engineering Physics, China

P2_41

The Coolant Purification System of China HCCB TBM: Preliminary Design and Testing of Principle Prototype System

Huang Zhiyong*, Song Jiangfeng, Yao Yong, Chen Changan

China Academy Of Engineering Physics, China

P2_42

The WWR-K Reactor Experimental Base for Studies of the Tritium Release out of Materials under Irradiation

Shaimerdenov Asset*, Gizatulin Shamil, Dyussambayev Daulet, Askerbekov Saulet, Kenzhina Inesh

Institute of Nuclear Physics, Kazakhstan

P2_43

Cryogenic Tritium Delivery and Recovery System

C.R. Shmayda¹*, W.T. Shmayda², N. Roberts³

¹Torion Plasma, Canada, ²University of Rochester, USA, ³SHINE Medical, USA

P2_44

Wolsong TRF Operation Status, Operation Experience

Jeon Woo Jin, Lee Dong Min, Park Hyun Je, Kwon Hye Jin

Korea Hydro & Nuclear Power, Republic of Korea

P2_45

The Current Status of the Heavy Water Detritiation Facility at PNPI

Alekseev I.A., Bondarenko S.D.*, Vasyanina T.V., Fedorchenko O.A.

National Research Center "Kurchatov Institute", Russian Federation



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P2_46

Simulation of Gas Flows in DT-Fueling Systems of DEMO-FNS Hybrid Facility Accounting for Integrated Modeling of Core and Divertor Plasmas

Sergey Ananyev*, Andrei Kukushkin, Alexei Dnestrovskij, Alexander Spitsyn, Boris Kuteev

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P2_47

Research Facilities of IAE NNC RK (Kurchatov, Kazakhstan) for Investigations of Tritium Interaction with Structural Materials of Fusion Reactors

Yuriy Gordienko^{1*}, Yuriy Ponkratov¹, Timur Kulsartov¹, Zhanna Zaurbekova¹, Yerbolat Koyanbayev¹, Yevgen Chikhray²

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P2_48

Monitoring and Recovery of Tritium in Fusion Test Facility

M. Tanaka^{1,2*}, N. Suzuki³, H. Kato³, C. Iwata³, N. Akata³, H. Hayashi³, H. Miyake³

¹National Institute for Fusion Science, Japan ²The Graduate University for Advanced Studies, Japan

P2_49

Analysis of the Transient Regimes of a Detritiation Facility Operation

Marius Valentin Zamfirache*, Anisia Mihaela Bornea, Liviu Ovidiu Stefan, Ovidiu Ioan Balteanu, George Ana

National R&D Institute for Cryogenics and Isotopic Technologies, Romania

P2_50

Concept Design of the Tritium Plant on the TRINITI Site for Ignitor Project Tasks

Alexander Gostev¹, Mikhail Subbotin^{2*}, Vladimir Kochin², Vladimir Khripunov², Mikhail Rozenkevich³, Alexander Perevezentsev³, Galina Shrova³, Yury Pak³, Alexey Bukin³, Sergey Marunich³

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P2_51

Simulation of He-3 Collection Procedure in Tritium Storage System of Fusion Fuel Cycle

Jae-Uk Lee^{1*}, Min Ho Chang¹, Hyun-goo Kang¹, Dong-you Chung¹, In-Beum Lee²

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P2_52

Romania' Contribution to Manufacture and Use of Heavy Water

Ionita Gheorghe*, Marius Peculea, Ioan Stefanescu

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P2_53

Challenges of Fueling Fusion Plasmas with Deuterium-Tritium Pellets

Larry Baylor*, Steve Meitner, Robert Duckworth, Trey Gebhart

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P2_54

HYSYS/ASPEN+ Advanced Tritium Transfer Modelling Tools for ITER/DEMO Plant Systems

Jose M. Nougues¹, Josep A. Feliu¹, Oriol Millan¹, Luis A. Sedano^{2,3*}

¹Inprocess Technology And Consulting Group, Spain ²FUS_ALIANZ Science, Engineering & Consulting, Spain, ³E&C energy consulting, Spain

P2_55

Optimization of the Manufacturing of Beta Radiation Sources Based on Tritium for Betavoltaic Power Sources

A.S. Anikin*, M.I. Belyakov, A.N. Bukin, N.E. Zabirova, N.P. Bobyr, I.G. Lesina, A.A. Semenov, A.V. Lizunov, A.V. Demin

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P2_56

A Bibliometrics Analysis on Tritium Technology in the Field of Fusion Energy

Hansoo Chang^{1*}, Jung-Suk Hong²

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P2_57

Quenching Correction with Two-Dimensional Scintillation Spectrum in Tritium Measurement

Masanori Hara^{1*}, Miki Shoji¹, Tsukasa Aso², Takayoshi Furusawa³, Yuka Kato³, Takuro Masuda³

¹University of Toyama, Japan, ²National Institute of Technology, Toyama College, Japan, ³Hitachi, Ltd., Japan