

## Technical Sessions, Tuesday

### Plenary Session 01

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Date / Time : Tuesday, April 23 / 08:30-10:30

Place : 2F, Room A (Grand Ballroom A)

Session Chair : James E. Klein (SRNL, USA) / Matthew Sharpe (LLE, USA)

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#### PL1 08:30-09:10

##### The First Tritium Campaign of the Karlsruhe Tritium Neutrino Experiment (KATRIN)

Magnus Schloesser<sup>1\*</sup>, The KATRIN Collaboration<sup>2</sup>

<sup>1</sup>Karlsruhe Institute of Technology, Germany, <sup>2</sup>Karlsruhe Tritium Neutrino Experiment, Germany

#### PL2 09:10-09:50

##### Tritium Related Activities in KHNP

Kyu-Min Song

Korea Hydro & Nuclear Power Co., Republic of Korea

#### PL3 09:50-10:30

##### Tritium Activities at Chalk River, Canadian Nuclear Laboratories

S. Suppiah\*, S.Thomson

Canadian Nuclear Laboratories Ltd., Canada

## Oral Session 03

### 03A

Date / Time : Tuesday, April 23 / 11:00-12:50

Place : 2F, Room A (Grand Ballroom A)

Session Chair : Qiang Qi (CAS, China) / Taylor Glover (KAIST, Republic of Korea)

#### 03A.1 11:00-11:25 [I.O]

##### Measurements of the Effective Thermal Conductivity of a Solid Tritium Breeder Pebble Bed under Neutron Irradiation

Qin Zhan<sup>1</sup>, Hongguang Yang<sup>1\*</sup>, Shanshan Liu<sup>1</sup>, Zhibo Han<sup>1</sup>, Beibei Luo<sup>1</sup>, Yanyan Ge<sup>1</sup>, Jiyin Zhu<sup>1</sup>, Liling Yang<sup>1</sup>, Yan Tang<sup>2</sup>

<sup>1</sup>China Institute of Atomic Energy, China, <sup>2</sup>University of Chong Qin, China

#### 03A.2 11:25-11:50 [I.O]

##### Development of WCCB Test Blanket

Yoshinori Kawamura<sup>1\*</sup>, Hyoseong Gwon<sup>1</sup>, Wenhai Guan<sup>1</sup>, Hisashi Tanigawa<sup>1</sup>, Takanori Hirose<sup>1</sup>, Atsushi Wakasa<sup>1</sup>, Kentaro Hattori<sup>1</sup>, Noriaki Chiba<sup>1</sup>, Tamon Ouchi<sup>1</sup>, Seiji Yoshino<sup>1</sup>, Seiji Mori<sup>2</sup>, Hiromasa Iida<sup>2</sup>, Takumi Yamamoto<sup>2</sup>, Hiroyasu Uto<sup>1</sup>, Yoji Someya<sup>1</sup>

<sup>1</sup>National Institutes for Quantum and Radiological Science and Technology, Japan, <sup>2</sup>Nippon Advanced Technology, Japan

#### 03A.3 11:50-12:10

##### The Isotopic Effect on Tritium Permeation in Breeding Blankets

Carlos Moreno\*, Fernando R. Urgorri, David Rapisarda  
Centre for Energy, Environment and Technology, Spain

#### 03A.4 12:10-12:30

##### Progress of HCCR TBM and Its Tritium Extraction System Development

Mu-Young Ahn<sup>1\*</sup>, Seungyon Cho<sup>1</sup>, Youngmin Lee<sup>1</sup>, Soon Chang Park<sup>1</sup>, Seok-Kwon Son<sup>1</sup>, Yi-Hyun Park<sup>1</sup>, Duck Young Ku<sup>1</sup>, Chang-Shuk Kim<sup>1</sup>, Jongil Kim<sup>1</sup>, Don Won Lee<sup>2</sup>, Cheol Woo Lee<sup>2</sup>, Seong Dae Park<sup>2</sup>

<sup>1</sup>National Fusion Research Institute, Republic of Korea, <sup>2</sup>Korea Atomic Energy Research Institute, Republic of Korea

#### 03A.5 12:30-12:50

##### Conceptual Design of the EU DEMO Tritium Extraction and Removal System Based on Permeation Against Vacuum Technology

Roberto Bonifetto<sup>1\*</sup>, Laura Savoldi<sup>1</sup>, Marco Utili<sup>2</sup>, Domenico Valerio<sup>1</sup>

<sup>1</sup>The Polytechnic University of Turin, Italy, <sup>2</sup>Energy and Sustainable Economic Development, Italy

## Oral Session 03

### O3B

Date / Time : Tuesday, April 23 / 11:00-12:50

Place : 2F, Room B (Grand Ballroom B)

Session Chair : Hyun-Goo Kang (NFRI, Republic of Korea) / Jacqueline Meeker (LLNL, USA)

#### O3B.1 11:00-11:25 [I.O]

**A New Paradigm of Tritium Emission Control: Is Dose an Adequate Measure?**

Satoshi Konishi\*

*Kyoto University, Japan*

#### O3B.2 11:25-11:50 [I.O]

**Current Status of Process Design for ITER Storage and Delivery System**

Min Ho Chang<sup>1\*</sup>, Jae-Uk Lee<sup>1</sup>, Dong-You Chung<sup>1</sup>, Hyun-Goo Kang<sup>1</sup>, Sei-Hun Yun<sup>1</sup>, Hongsuk Chung<sup>2</sup>,  
Kyu-Min Song<sup>3</sup>

<sup>1</sup>National Fusion Research Institute, Republic of Korea, <sup>2</sup>Korea Atomic Energy Research Institute, Republic of Korea, <sup>3</sup>Korea Hydro & Nuclear Power Co., Republic of Korea

#### O3B.3 11:50-12:10

**Performance Restoration of a Tritium-Aged LaNi<sub>4.25</sub>Al<sub>0.75</sub> Sample**

Gregory C. Staack\*, David W. James

*Savannah River National Laboratory, USA*

#### O3B.4 12:10-12:30

**Tritium Self-Sufficiency Performance Analysis for CFETR**

Xia Xiulong\*

*China Academy of Engineering Physics, China*

#### O3B.5 12:30-12:50

**Synthesis, Characterization and Hydrogen Isotopes Storage Properties of Zr<sub>1-x</sub>TixCo and Zr<sub>1-x</sub>HfxCo Alloys (x = 0.1, 0.2)**

Bogdan Florian Monea<sup>1</sup>, Ionete Eusebiu Ilarian<sup>1\*</sup>, Catalin Ducu<sup>2</sup>, Stefan Ionut Spiridon<sup>1</sup>, Sorin Moga<sup>2</sup>,  
Xingbo Han<sup>3</sup>, Wei Liu<sup>3</sup>

<sup>1</sup>The National Research and Development Institute for Cryogenic and Isotopic Technologies - ICSI Rm. Valcea, Romania, <sup>2</sup>University of Pitesti, Romania, <sup>3</sup>Chinese Academy of Sciences, China

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## Oral Session 04

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### O4A

Date / Time : Tuesday, April 23 / 14:00-15:25

Place : 2F, Room A (Grand Ballroom A)

Session Chair : Yasuhisa Oya (Shizuoka Univ., Japan) /

Alexey Golubev (Rosatom, Russian Federation)

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#### O4A.1 14:00-14:25 [I.O]

##### **Differential DNA Damage Response of Embryonic Neural Stem Cells and Fibroblasts after Tritiated Thymidine Contamination**

Sofiane Mokrani, Christine Granotier-Beckers\*, Olivier Etienne, Christian Grisolia, Francois Boussin  
*The French Alternative Energies and Atomic Energy Commission, France*

#### O4A.2 14:25-14:45

##### **The Impact Assessment of Tritium Emissions in Agricultural Plants Using CROPTRIT Model**

Anca Melintescu\*

*Horia Hulubei National Institute for Physics and Nuclear Engineering, Romania*

#### O4A.3 14:45-15:05

##### **Tritium Releases to the Environment from the ESS Facility: Assessment of the Impact and Monitoring Strategy**

Ene Daniela<sup>1\*</sup>, Rodolfo Avila<sup>2</sup>, Sigrid Kozielski<sup>1</sup>

<sup>1</sup>*The European Social Survey, Sweden*, <sup>2</sup>*2AF Energy (Nuclear), Sweden*

#### O4A.4 15:05-15:25

##### **Measurement of Tritium Trapped in Natural Soil by Microwave Assisted Acid Dissolution Method**

Kazunari Katayama\*, Daiki Ishii, Toshiharu Takeishi, Satoshi Fukada

*Kyushu University, Japan*

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## Oral Session 04

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### 04B

Date / Time : Tuesday, April 23 / 14:00-15:30

Place : 2F, Room B (Grand Ballroom B)

Session Chair : Satoshi Konishi (Kyoto Univ., Japan) / Min Ho Chang (NFRI, Republic of Korea)

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#### 04B.1 14:00-14:25 [I.O]

##### **Status of Design and Performance Validation of Metal Hydride Bed for Fusion Fuel Cycle**

Hyun-Goo Kang\*, Dong-You Chung, Jae-Uk Lee, Min Ho Chang

*National Fusion Research Institute, Republic of Korea*

#### 04B.2 14:25-14:50 [I.O]

##### **Tritium Support for the National Ignition Facility**

Jacqueline Meeker, Jorge Sanchez

*Lawrence Livermore National Laboratory, USA*

#### 04B.3 14:50-15:10

##### **R&D Activities on ZrCo Tritium Storage Alloy in CAEP**

Huaqin Kou\*, Wenhua Luo, Tao Tang, Zhiyong Huang, Ge Sang, Guanghui Zhang, Changan Chen

*China Academy of Engineering Physics, China*

#### 04B.4 15:10-15:30

##### **All-Metal Scroll Vacuum Pumps for Tritium Processing Systems**

Nathan Nicholas, Bryce Shaffer

*Air Squared, USA*

## Poster Session 2

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

Place : 2F, Room C (Grand Ballroom C)

**P2\_01 Rigorous Tritium Wet Scrubber Column Modeling and Design**

Anthony Busigin  
*NITEK USA, Inc., USA*

**P2\_02 Zr<sub>2</sub>Fe Modification for Tritium Absorption**

Yong Yang  
*China Academy of Engineering Physics, China*

**P2\_03 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\_04 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\_05 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\_06 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\_07 Development of Technology for the Liquid Radioactive Waste Detritiation by Two-Temperature Catalytic Isotope Exchange Method in a Water-Hydrogen System**

Yu.S. Pak, A.N. Bukin\*, V.S. Moseeva, S.A. Marunich, M.B. Rosenkevich  
*Dmitry Mendeleev University of Chemical Technology of Russia, Russian Federation*

**P2\_08 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\_09 Rigorous Dynamic Simulation of Cryogenic Distillation of Hydrogen Isotopologues in the Fuel Cycle of a Thermonuclear Reactor Based on UV-Flash**

Andrey Ovcharov<sup>1\*</sup>, Richard Szczepanski<sup>2</sup>, Jacek Kosek<sup>1</sup>, Nuno Pedrosa<sup>2</sup>, Xiaofei Lu<sup>3</sup>, Lorenzo Basili<sup>4</sup>, Rosa Lo Frano<sup>4</sup>, Donato Aquaro<sup>4</sup>

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

- P2\_10 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\_11 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\_12 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\_13 Study on Preparation of Palladium Film on Porous Stainless Steel Substrate**  
 Yaqi Song<sup>1</sup>, Feilong Yang<sup>1</sup>, Guikai Zhang<sup>1</sup>, Guanghui Zhang<sup>1</sup>, Renjin Xiong<sup>1</sup>, Zhanlei Wang<sup>2</sup>, Changan Chen<sup>1\*</sup>  
<sup>1</sup>China Academy of Engineering Physics, China, <sup>2</sup>Science and Technology on Surface Physics and Chemistry Laboratory, China
- P2\_14**
- P2\_15 Thermodynamics, Kinetics and Selectivity of H<sub>2</sub> and D<sub>2</sub> on Zeolite under Low Temperature**  
 Renjin Xiong<sup>1\*</sup>, Michael Hirscher<sup>2</sup>  
<sup>1</sup>China Academy of Engineering Physics, China, <sup>2</sup>Max Planck Institute for Intelligent Systems, Germany
- P2\_16 Oxygen Regeneration of Palladium Silver Alloy Tubed Hydrogen Purifier**  
 Melissa Golyski  
*Savannah River Nuclear Solution, USA*
- P2\_17 Trace Tritium Recovery within the European DEMO Fuel Cycle**  
 Tamsin Jackson<sup>1\*</sup>, Joao Lopes<sup>1</sup>, Nadeera Jayasekera<sup>2</sup>, Barry Butler<sup>1</sup>  
<sup>1</sup>Culham Centre for Fusion Energy, UK, <sup>2</sup>Loughborough University, UK
- P2\_18 Catalytic Separation of Hydrogen Isotopes Using Nickel Modified Alumina PLOT Capillary Column**  
 Weiwei Wang\*, Xingbi Ren, Lidong Xia, Hairong Li, Weiguang Zhang, Xiaosong Zhou, Xinggui Long, Shuming Peng  
*China Academy of Engineering Physics, China*
- P2\_19 Hydrogen Adsorption and Desorption Experiments for Cryogenic Molecular Sieve Bed**  
 Soon Chang Park\*, Seok Kwon Son, Mu-Young Ahn, Seungyon Cho, Yi-Hyun Park, Youngmin Lee  
*National Fusion Research Institute, Republic of Korea*
- P2\_20 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\_21 A Study on Trace Amount of Q2 and CQ4 Treatment Process**  
Woo Chan Jung<sup>1\*</sup>, Pil Kap Jung<sup>1</sup>, Young Min Kim<sup>1</sup>, Hung Man Moon<sup>1</sup>, Min Ho Chang<sup>2</sup>, Hyeon Gon Lee<sup>2</sup>  
<sup>1</sup>Daesung Industrial Gases, Republic of Korea, <sup>2</sup>National Fusion Research Institute, Republic of Korea
- P2\_22 A Mathematical Design and Synthesis of Complex Column Model for Tritium Separation**  
Seon-Byeong Kim  
Korea Atomic Energy Research Institute, Republic of Korea
- P2\_23 The Study of a CECE Process for Low Tritiated Liquid Waste prior to Experimental Phase**  
Anisia Mihaela Bornea\*, Marius Valentin Zamfirache, George Romulus Ana, Ovidiu Ioan Balteanu, Liviu Ovidiu Stefan  
National Institute of Research and Development for Cryogenic and Isotopic Technologies, Romania
- P2\_24 Study of Preparation and Hydrogen Isotope (H<sub>2</sub> and D<sub>2</sub>) Sorption of CHA-Type Zeolite**  
Akira Taguchi<sup>1\*</sup>, Takumi Nakamori<sup>1</sup>, Yuki Yoneyama<sup>1</sup>, Takahiko Sugiyama<sup>2</sup>, Masahiro Tanaka<sup>3</sup>, Kenji Kotoh<sup>4</sup>, Yu Tachibana<sup>5</sup>, Tatsuya Suzuki<sup>5</sup>  
<sup>1</sup>University Toyama, Japan, <sup>2</sup>Nagoya University, Japan, <sup>3</sup>National Institute for Fusion Science, Japan, <sup>4</sup>Kyushu University, Japan, <sup>5</sup>Nagaoka University Technology, Japan
- P2\_25 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
- P2\_26 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\_27 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\_28 Permeator Simulations for the Exhaust Processing System of the EU-DEMO Fuel Cycle**  
Yannick Hoerstensmeyer<sup>1\*</sup>, Silvano Tosti<sup>2</sup>, Alessia Santucci<sup>2</sup>, Giacomo Bruni<sup>2</sup>  
<sup>1</sup>Karlsruhe Institute of Technology, Germany, <sup>2</sup>European Nuclear Energy Agency, Italy
- P2\_29 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\_30 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\_31 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\_32 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\_33 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\_34 The Coolant Purification System of China HCCB TBM: Preliminary Design and Testing of Principle Prototype System**  
 Zhiyong Huang\*, Jiangfeng Song, Yong Yao, Changan Chen  
*China Academy of Engineering Physics, China*
- P2\_35 Wolsong TRF Operation Status, Operation Experience**  
 Woo Jin Jeon, Dong Min Lee, Hyun Je Park, Hye Jin Kwon  
*Korea Hydro & Nuclear Power Co., Republic of Korea*
- P2\_36 The Current Status of the Heavy Water Detritiation Facility at PNPI**  
 I.A. Alekseev, S.D. Bondarenko\*, T.V. Vasyanina, O.A. Fedorchenko  
*National Research Center "Kurchatov Institute", Russian Federation*
- P2\_37 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  
*National Research Center "Kurchatov Institute", Russian Federation*
- P2\_38 Research Facilities of IAE NNC RK (Kurchatov, Kazakhstan) for Investigations of Tritium Interaction with Structural Materials of Fusion Reactors**  
 Yuriy Gordienko<sup>1\*</sup>, Yuriy Ponkratov<sup>1</sup>, Timur Kulsartov<sup>1</sup>, Zhanna Zaurbekova<sup>1</sup>, Yerbolat Koyanbayev<sup>1</sup>, Yevgen Chikhray<sup>2</sup>  
<sup>1</sup>*Institute of Atomic Energy, Kurchatov, Kazakhstan*, <sup>2</sup>*Al-Farabi Kazakh National University, Kazakhstan*
- P2\_39 Monitoring and Recovery of Tritium in Fusion Test Facility**  
 M. Tanaka<sup>1,2\*</sup>, N. Suzuki<sup>1</sup>, H. Kato<sup>1</sup>, C. Iwata<sup>1</sup>, N. Akata<sup>1</sup>, H. Hayashi<sup>1</sup>, H. Miyake<sup>1</sup>  
<sup>1</sup>*National Institute for Fusion Science, Japan* <sup>2</sup>*The Graduate University for Advanced Studies, Japan*
- P2\_40 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\_41 Concept Design of the Tritium Plant on the TRINITI Site for Ignitor Project Tasks**  
Alexander Gostev<sup>1</sup>, Mikhail Subbotin<sup>2\*</sup>, Vladimir Kochin<sup>2</sup>, Vladimir Khripunov<sup>2</sup>, Mikhail Rozenkevich<sup>3</sup>, Alexander Perevezentsev<sup>3</sup>, Galina Shrova<sup>3</sup>, Yury Pak<sup>3</sup>, Alexey Bukin<sup>3</sup>, Sergey Marunich<sup>3</sup>  
<sup>1</sup>JSC, Russian Federation, <sup>2</sup>NRC, Russian Federation, <sup>3</sup>D. Mendeleev University of Chemical Technology of Russia, Russian Federation
- P2\_42 Simulation of He-3 Collection Procedure in Tritium Storage System of Fusion Fuel Cycle**  
Jae-Uk Lee<sup>1\*</sup>, Min Ho Chang<sup>1</sup>, Hyun-Goo Kang<sup>1</sup>, Dong-You Chung<sup>1</sup>, In-Beum Lee<sup>2</sup>  
<sup>1</sup>National Fusion Research Institute, Republic of Korea, <sup>2</sup>Pohang University of Science and Technology, Republic of Korea
- P2\_43 Romania' Contribution to Manufacture and Use of Heavy Water**  
Ionita Gheorghe\*, Marius Peculea, Ioan Stefanescu  
*The National Research and Development Institute for Cryogenic and Isotopic Technologies - ICSI Rm. Valcea, Romania*
- P2\_44 Challenges of Fueling Fusion Plasmas with Deuterium-Tritium Pellets**  
Larry Baylor\*, Steve Meitner, Robert Duckworth, Trey Gebhart  
*Oak Ridge National Laboratory, USA*
- P2\_45 HYSYS/ASPEN+ Advanced Tritium Transfer Modelling Tools for ITER/DEMO Plant Systems**  
Jose M. Nougues<sup>1</sup>, Josep A. Feliu<sup>1</sup>, Oriol Millan<sup>1</sup>, Luis A. Sedano<sup>2,3\*</sup>  
<sup>1</sup>Inprocess Technology And Consulting Group, Spain <sup>2</sup>FUS\_ALIANZ Science, Engineering & Consulting, Spain, <sup>3</sup>E&C energy consulting, Spain
- P2\_46 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. Zabirowa, N.P. Bobyr, I.G. Lesina, A.A. Semenov, A.V. Lizunov, A.V. Demin  
*A.A. Bochvar High-technology Research Institute of Inorganic Materials, Russian Federation*
- P2\_47 Withdraw**
- P2\_48 Quenching Correction with Two-Dimensional Scintillation Spectrum in Tritium Measurement**  
Masanori Hara<sup>1\*</sup>, Miki Shoji<sup>1</sup>, Tsukasa Aso<sup>2</sup>, Takayoshi Furusawa<sup>3</sup>, Yuka Kato<sup>3</sup>, Takuro Masuda<sup>3</sup>  
<sup>1</sup>University of Toyama, Japan, <sup>2</sup>National Institute of Technology, Toyama College, Japan, <sup>3</sup>Hitachi, Ltd., Japan
- P2\_49 A Study on the Risk Management of Fusion Exhaust Gas Recovery Process**  
Woo-Chan Jung<sup>1\*</sup>, Pil-Kap Jung<sup>1</sup>, Young-Min Kim<sup>1</sup>, Hung-Man Moon<sup>1</sup>, Min-Ho Chang<sup>2</sup>, Hyeon-Gon Lee<sup>2</sup>  
<sup>1</sup>Daesung Industrial Gases, Republic of Korea, <sup>2</sup>National Fusion Research Institute, Republic of Korea
- P2\_50 Applicability of a 100 ml Polyethylene Vial for Low Level Tritium Measurement by a Low Background Liquid Scintillation Counter**  
Yoshinari Oshimi<sup>1</sup>, Mayu Ohki<sup>1</sup>, Misato Nagano<sup>1</sup>, Takuyo Yasumatsu<sup>1\*</sup>, Masanori Hara<sup>2</sup>, Satoshi Akamaru<sup>2</sup>, Masato Nakayama<sup>2</sup>, Miki Shoji<sup>2</sup>  
<sup>1</sup>Tokyo Power Technology Ltd., Japan <sup>2</sup>University of Toyama, Japan