



Poster Session 3

Thursday, April 25 / 15:50-18:00

Room C (Grand Ballroom C, 2F)

P3_01

Modeling the Formation of Organically Bound Tritium and Deuterium in Plants

Lars Brinkmann*, David Rowan, Volodymyr Korolevych

Canadian Nuclear Laboratories, Canada

P3_02

Comparative Study of DNA Double-Strand Break Induction in Human Mesenchymal Stem Cells Exposed to Tritiated Water, Organically Bound Tritium and X-Rays

Andreyan N. Osipov*, Oleg Kochetkov, Natalia Vorobyeva, Margarita Pustovalova, Anna Grekhova, Andrey Osipov, Dmitry Kabanov, Valeriy Barchukov

Burnasyan Federal Medical Biophysical Center of Federal Medical Biological A, Russian Federation

P3_03

Quickly Analytical Determination of Tritium in Urine by a New Resin Column

Yun Xie*, Zhilin Chen, Zhongtang Wang

China Academy of Engineering Physics, China

P3_04

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

Anca Melintescu*

Horia Hulubei National Institute of Research & Development for Physics and Nuclear Engineering, Romania

P3_05

Evaluation of Tritium Transport in a Forest Environment

Brian Viner*, Wendy Kuhne, Martine Duff, Ashley Swindle

Savannah River National Laboratory, USA

P3_06

Environmental Impact Considerations of Tritium Released from Fusion Reactor

Baojie Nie*, Muyi Ni, Fengchen Li

Sun Yat-Sen University, China



P3_07

The LEGATO Project (2017-2020): Tritium Transfers from the Atmosphere to Vegetable at Hourly Time-Step - Field Experiment and Modelling Approaches

Laguionie Philippe^{1*}, Gagnaire-Renou Elodie², Le Dizes Severine¹, Boyer Cecile², Rozet Marianne¹, Vitorge Elsa², Hebert Didier¹, Cossonnet Catherine¹, Solier Luc¹, Maro Denis

¹Institut de Radioprotection et de Sûreté Nucléaire, France, ²Électricité de France, France

P3_08

Kinetics of Double Strand Breaks of Genome-Seized DNA in Low Concentration Tritiated Water Evaluated Using Single Molecule Observation Method

H. Shimoyachi^{1*}, Y. Hatano², T. Kenmotsu³, Y. Oya⁴, H. Nakamura⁵

¹University of Toyama, Japan, ²Doshisha University, Japan, ³Shizuoka University, Japan, ⁴National Institute for Fusion Science, Japan

P3_09

Measurement of Tritium Distribution in Graphite by Tritium Imaging Plate Technique

Huali Wu^{1*}, Guiqiu Zheng², David M Carpenter², Raluca O Scarlat¹

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

P3_10

High-Level Tritium Determination in Organics by Combustion

T. Whitehorne*, C. Muirhead¹, M. Byers, S. Suppiah

Canadian Nuclear Laboratories, Canada

P3_11

A Generic CODAC Prototyping for Real-Time Dynamic Tritium Mass-Balance Monitoring Demonstration

Daniel Marchante^{1*}, Pau Pais¹, Lluís Batet², E. MAs De Les Valls², L. Sedano³

¹PROCONSYSTEMS, Spain ²Polytechnic University of Catalonia, Spain ³FUS_ALIANZ Science, Engineering & Consulting, Spain

P3_12

Calorimetry and He3 Ingrowth : 2 NDA Methods for Tritium Measurement and Accountancy

Vigineix*, Andre, Mathonat

KEP Technologies, France



P3_13

Development of Fast-Response Solved-Tritium Concentration Diagnostics

Luis Sedano

FUS_ALIANZ Science, Engineering & Consulting, Spain

P3_14

Real-Time Analysis of Hydrogen Isotope Gases in Second-Scale Reactions

Yan Xiayan, Lv Junbo, Qin Cheng, Guo Shulan, Wu Quanwen, Xiong Renjin*

China Academy of Engineering Physics, China

P3_15

Non-Exchangeable Organically Bound Tritium Concentration in Tree Rings around a Chinese Nuclear Power Plant

Yuhua Ma¹, Ming He², Youshi Zeng¹, Qingzhang Zhao², Yijun Pang², Wei Liu^{1*}, Yan Li¹

¹Chinese Academy of Sciences, China ²China Institute of Atomic Energy, China

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Preliminary Evaluation of Antech Model CD285-1540 Calorimeter

Brian Price*, Chandra Marsden

Los Alamos National Laboratory, USA

P3_17

Advances in Tritium Measurement and Detection

Phillips Steve*, Werth Vincent

Premium Analyse, France

P3_18

Development of a Monitoring Technique of Permeation Behaviors of Tritium in Metals to Pure Water

Tepei Otsuka^{1*}, Takuma Shimada¹, Kenichi Hashizume², Toshiaki Hiyama²

¹Kindai University, Japan, ²Kyushu University, Japan

P3_19

Material Studies to Reduce the Tritium Memory Effect in BIXS Analytic Systems

Max Aker*, Marco Roellig

Karlsruhe Institute of Technology, Germany



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

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Optimisations Made in Tritium Analysis and Inventory Measurement

Antonio Provenzano*, Gemma Allen, Christopher Knott, Damaris Roffey, Rachel Wilson, Dario Castiglione

Atomic Weapons Establishment, UK

P3_21

Experimental Measurement of Tritium from Molten FLiBe Salt under Neutron Irradiation

Guiqiu Zheng*, David Carpenter, Kieran Dolan

Massachusetts Institute of Technology, USA

P3_22

Assessment of Tritium Exposure in the Atmosphere from the Spray Ponds Balakovo NPP

Vasilyev Aleksey^{1*}, Ekidin Aleksey¹, Vasyanovich Maxim¹, Antushevskiy Alexander², Semenov Maxim², Murashova Ekaterina²

¹Institute of Industrial Ecology, Russian Federation, ²Federal State Unitary Enterprise "Mayak Production Association", Russian Federation

P3_23

The Substitutability of Liquid Scintillation Cocktail in the Measurement of Low-Level Tritiated Water for CaF₂(Eu) Powders

Jing Wu, Heyi Wang*, Zhilin Chen

China Academy of Engineering Physics, China

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Tritium Permeation Characterization of Al₂O₃/FeAl Coating as Tritium Permeation Barrier on Type 321 Stainless Steel Container

Yangfeilong*, Zhangguikai, Xiangxin, Tangtao, Chenchangan, Wangxiaolin

China Academy of Engineering Physics, China

P3_25

Application of High Energy Tritium Ions and Particles Formed in $6\text{Li}(n, \alpha)\text{T}$ Nuclear Reaction to Excite the Luminescence of Inert Gas Mixtures

Yuriy Ponkratov^{1,3*}, Erlan Batyrbekov², Timur Kulsartov³, Mendykhan Khasenov³, Kuanysh Samarkhanov³, Zhanna Zaurbekova³, Yevgen Chikhay⁴

¹Tomsk Polytechnic University, Russian Federation, ²National Nuclear Center, Kazakhstan ³Institute of Atomic Energy, Kazakhstan, ⁴Institute of Experimental and Theoretical Physics, Kazakhstan



P3_26

Fast Quantitative Determination of He and Ar in Fuel Cycle Based on LIBS

Tao Xu¹, Chuan Ke², Ying Li², Yongliang Chen², Hong Zhang², Yong Zhao^{2*}

¹Fujian Normal University, China, ²Southwest Jiaotong University, China

P3_27

In-Situ Decontamination of Ion Chambers Using LEDs

George Larsen*, Simona E. Hunyadi Murph, Khai Nguyen, Kaitlin Lawrence

Savannah River National Laboratory, USA

P3_28

Applicability of a 100 ml Polyethylene Vial for Low Level Tritium Measurement by a Low Background Liquid Scintillation Counter

Yoshinari Oshimi¹, Mayu Ohki¹, Misato Nagano¹, Takuyo Yasumatsu^{1*}, Masanori Hara², Satoshi Akamaru², Masato Nakayama², Miki Shoji²

¹Tokyo Power Technology Ltd., Japan ²University of Toyama, Japan

P3_29

Influence of Internal Structure of Semiconductor Detector on β -ray Induced X-Ray Spectrum

S. E. Lee*, Y. Hatano, M. Hara, M. Matsuyama

University of Toyama, Japan

P3_30

The Area Measurements in the Tritium Laboratory (TritiuLab), IFIN-HH, Romania

Ioan Mihail-Razvan*, Postolache Cristian, Fugaru Viorel, Bubueanu George, Tuta Catalin Stelian

Horia Hulubei National Institute of Research & Development for Physics and Nuclear Engineering, Romania

P3_31

Design Proposal of a PEM-MEA Cell System for Tritium Enrichment of Environmental Water Samples

Carmen Varlam, Stefan Ionut Spiridon*, Ionut Faurescu, Dorin Schitea, Alin Chitu, Laurentiu Patularu, Irina Vagner, Catalin Jianu

The National Research and Development Institute for Cryogenic and isotopic Technologies - ICSI Rm. Valcea, Romania



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Design & Operation of a Monitoring System which Separates & Measures High & Low Concentration Tritium in Air

Dell Williamson*, Robert Goldstein

US Nuclear Corp, USA

P3_33

Numerical Simulation Study of the Adsorption of Water and Water Radiolysis Products in NaA Zeolite

J. Randrianandraina¹, M. Grivet^{1*}, J. E. Groetz¹, C. Ramseyer¹, B. Cardey¹, F. Torrealba Anzola¹, D. Ducret², C. Chambelland²

¹University of Burgundy Franche-County, France, ²The French Alternative Energies and Atomic Energy Commission, France

P3_34

Development of a Cost-Effective Type B Tritium Shipping Package

Paul S. Blanton, Josh P. Flach, Christopher P. Cable

Savannah River National Laboratory, USA

P3_35

Scale-Up Study for Depleted Uranium (DU) Beds via Numerical Simulation of Hydrogen Absorption Process

Masoomah Ghasemi, Jaeyoo Choi, Muhammad Faizan Chinnanai, Hyunchul Ju*

Inha University, Republic of Korea

P3_36

Analyzing Hydrating Performance in Real-Scale Depleted Uranium (DU) Beds

Seongjin Yun, Geonhui Gawk, Masoomah Ghasemi, Chinnanai Muhammad Faizan, Hyunchul Ju*

Inha University, Republic of Korea

P3_37

Measurement of Palladium Hydride and Palladium Deuteride Isotherms between 77 and 393 K

M. Sharpe^{1*}, K. Glance², W. T. Shmayda³

¹University of Rochester, USA ²Pittsford Sutherland High School, USA ³University of Rochester, USA



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Alloying Effects on Hydrogen Isotope Storage and Disproportionation of ZrCo Alloys - Experimental and Theoretical Investigation

Guanghai Zhang*, Ge Sang, Huaqin Kou

China Academy of Engineering Physics, China

P3_39

Development of ³He Bubble Microstructure in TiT₂ Films During Aging

Haifeng Wang*, Shuming Peng

China Academy of Engineering Physics, China

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Synthesis, Characterization and Hydrogen Isotopes Storage Properties of Zr_{1-x}TixCo and Zr_{1-x}HfxCo Alloys (x = 0.1, 0.2)

Bogdan Florian Monea¹, Ionete Eusebiu Ilarian^{1*}, Catalin Ducu², Stefan Ionut Spiridon¹, Sorin Moga², Xingbo Han³, Wei Liu³

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²*University of Pitesti,* ³*Chinese Academy of Sciences, China*

P3_41

3D Tritium Transport Analysis for WCCB Blanket Based on COMSOL

Xueli Zhao¹, Muye Ni², Baojie Nie², Bing Zhang¹, Lei Chen¹, Kai Huang¹, Songlin Liu^{1*}

¹*Chinese Academy of Sciences, China,* ²*Sun Yat-Sen University, China*

P3_42

Effects of Sintered Metal Filters on Hydrogen Isotope Delivery Characteristics in a Metal Hydride Bed

Jisoo Kim¹, Samuel Park¹, Kwangjin Jung¹, Min Ho Chang², Heeseok Kang³, Hongsuk Chung^{1*}

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P3_43

Preliminary Experimental Study on Application of Cu Foam as Internal Component of Metal Hydride Bed

Dong-you Chung*, Hyun-Goo Kang, Min Ho Chang, Jae-Uk Lee, Sei-Hun Yun

National Fusion Research Institute, Republic of Korea



P3_44

Hypothetical Operation Plan to Minimize Tritium Inventory of Fusion Fuel Cycle

Suh-Young Lee¹, Min Ho Chang², Jae-Uk Lee², Jin-Kuk Ha³, Sei-Hun Yun², In-Beum Lee¹, Euy Soo Lee^{3*}

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³Dongguk University, Republic of Korea

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Hydride Bed Isotopic Exchange

P. J. Foster^{1*}, Z. J. Trotter¹, S. A. Schaufler¹, J. L. Clark¹, J. E. Klein²

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Hydride Bed He-3 Recovery & Partial Regeneration

Paul Foster^{1*}, Zechariah Trotter¹, Summer Schaufler¹, Jared Clark¹, Greg Staack²

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P3_47

Optimization Tritium Breeding Ratio in the Blanket of Arc (Affordable, Robust, Compact) Fusion Reactor Using Monte Carlo Method

Andang Widi Harto, Alexander Agung

Universitas Gadjah Mada, Indonesia

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Engineering Analysis of HCCB-TBS Tritium Extraction System

Lei Yang*, Yong Yao, Ming Wen, Yongtao An, Kanghao He, Jinguang Chen, Linzi Liu

China Academy of Engineering Physics, China

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Tritium Breeding Capabilities in Magnetized Target Fusion Reactors

Taylor Glover, Haseeb Ur Rehman, Yonghee Kim

Korea Advanced Institute of Science and Technology, Republic of Korea

P3_50

Study on the Trace Hydrogen Capture from Helium by Pd/Al₂O₃

Yong Yao*, Deli Luo, Lei Yang, Jiangfeng Song

China Accademy of Engineering Physics, China



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Design, Synthesis, Calculation and Characterization of the Tritium Breeder: Li₄TiO₄ Ceramics

Juemin Yan^{1*}, Tao Gao¹, Xiaojun Chen², Chengjian Xiao²

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P3_52

Effect of MHD Velocity Profiles on Tritium Permeation in PbLi Channels

Fernando Roca Urgorri*, Carlos Moreno, Ivan Fernandez-Berceruelo, Elisabetta Carella, David Rapisarda, Angel Ibarra

Centre for Energy, Environment and Technology, Spain

P3_53

Tritium Release Behavior in Tritium Breeding Materials

Qiang Qi^{1*}, Guang-Nan Luo¹, Jing Wang¹, Qilai Zhou², Mingzhong Zhao², Maoqiao Xiang³, Moeko Nakata², Haishan Zhou¹, Yingchun Zhang³, Yasuhisa Oya²

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P3_54

Sensitivity Analysis and Dimensioning of Reactor-Scale Pd/Ag Permeators for the Tritium Extraction and Removal System of the EU-HCPB Blanket

Rodrigo Antunes^{1,2*}, Laetitia Frances^{1,2}, Marco Incelli³, Alessia Santucci³

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P3_55

Fundamental Analysis for Electrochemical Extraction and Monitoring of Impurities from Lead Lithium with Chloride Molten Salt

Hiroyuki Miyagaki, Tomohiro Okada*, Juro Yagi, Keisuke Mukai, Satoshi Konishi

Kyoto University, Japan

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Electrochemical Extraction and Monitoring of Light Element Impurities in Liquid Lithium with Chloride Molten Salt

Juro Yagi*, Tomohiro Okada, Keisuke Mukai, Satoshi Konishi

Kyoto University, Japan



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Effects of Temperature and Pressure on Purge Gas Chemical Compositions in Tritium Breeding Blanket

Michiko Ahn Furudate^{1*}, Seungyon Cho²

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On the Optimum Tritium Breeding Blanket Configuration of a Tokamak Reactor

Bong Guen Hong*

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Numerical Investigation of Purge Gas Flow through Pebble Beds Using Discrete Element Method and Computational Fluid Dynamics

Youngmin Lee^{1*}, Dongwoo Sohn², Mu-Young Ahn¹, Yi-Hyun Park¹, Seungyon Cho¹

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P3_60

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

Roberto Bonifetto^{1*}, Laura Savoldi¹, Marco Utili², Domenico Valerio¹

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P3_61

Numerical Study of Hydrogen Reformer to Increase Methane Conversion Rate

Dohwan Kim, Kyeongmin Oh, Jaeseung Lee, Hyunchul Ju*

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