

Radiation Detectors in Medicine, Industry, and National Security XVIII

Wednesday - Thursday 9 - 10 August 2017

Important Dates

[SHOW](#) | [HIDE](#)Abstract Due:
23 January 2017Author Notification:
3 April 2017Manuscript Due Date:
10 July 2017

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WEDNESDAY 9 AUGUST

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Session 1: Safeguards Applications

Wednesday 9 August 2017
8:30 AM - 10:00 AMSession Chair: [H. Bradford Barber](#), The Univ. of Arizona (United States)

Threat detection of liquid explosives and precursors from their x-ray scattering pattern using energy dispersive detector technology

Paper 10393-1

Author(s): Jan Kehres, Mark Lyksborg, Ulrik Lund Olsen, Technical Univ. of Denmark (Denmark)

Uranyl adsorption kinetics within silica gel: dependence on flow velocity and concentration

Paper 10393-2

Author(s): Brandon Dodd, Gary Tepper, Virginia Commonwealth Univ. (United States)

Small unmanned aircraft system for remote contour mapping of a nuclear radiation field (*Invited Paper*)

Paper 10393-3

Author(s): Paul P. Guss, Karen McCall, Russell Malchow, Richard Fischer, Michael Lukens, Mark Adan, Ki Park, Roy Q. Abbott, Michael E. Howard, Eric Wagner, Rusty P. Trainham, Tanushree Luke, National Security Technologies, LLC (United States); Sanjoy Mukhopadhyay, International Atomic Energy Agency (Austria); Paul Oh, Pareshkumar Brahmbhatt, Eric Henderson, Univ. of Nevada, Las Vegas (United States); Jinlu Han, Justin Huang, Casey Huang, Astro Flight, Inc. (United States); Jon Daniels, Univ. of Nevada, Las Vegas (United States)

International Radiation Monitoring and Information System (IRMIS)

Paper 10393-4

Author(s): Sanjoy Mukhopadhyay, Florian Baci, Jan Stowisek, Gurdeep Saluja, Patrick Kenny, International Atomic Energy Agency (Austria); Franck Albinet, Independent Contractor - GIS & Data Analyst Consultant (France)

Session 2: Novel Detector Concepts

Wednesday 9 August 2017

10:30 AM - 12:10 PM

Session Chair: [Gary P. Grim](#), Lawrence Livermore National Lab. (United States)

Development and deployment of the Collimated Directional Radiation Detection System *(Invited Paper)*

Paper 10393-5

Author(s): Amber L. Guckes, National Security Technologies, LLC (United States); Alexander Barzilov, Univ. of Nevada, Las Vegas (United States)

Neutron detection with plastic scintillators coupled to solid state photomultiplier detectors

Paper 10393-6

Author(s): James F. Christian, Erik B. Johnson, Daniel E. Fernandez, Samuel Vogel, Rebecca Frank, Graham Stoddard, Radiation Monitoring Devices, Inc. (United States); Christopher J. Stapels, Mathworks (United States); Jorge Pereira, Remco Zegers, National Superconducting Cyclotron Lab. (United States)

High-resolution photon spectroscopy with a microwave-multiplexed 4-pixel transition edge sensor array

Paper 10393-7

Author(s): Paul P. Guss, National Security Technologies, LLC (United States); Mike Rabin, Mark Croce, Los Alamos National Lab. (United States); Nathan Hoteling, National Security Technologies, LLC (United States); David D. Schwellenbach, Craig A. Kruschwitz, National Security Technologies (United States); Veronika Mocko, Los Alamos National Lab. (United States); Sanjoy Mukhopadhyay, International Atomic Energy Agency (Austria)

Large-area CdTe imaging sensor and its applications *(Invited Paper)*

Paper 10393-8

Author(s): Tadayuki Takahashi, Shin Watanabe, Institute of Space and Astronautical Science (Japan); Shin'ichiro Takeda, Okinawa Institute of Science and Technology Graduate Univ. (Japan)

Session 3: Novel Detector Applications

Wednesday 9 August 2017

1:30 PM - 3:30 PM

Session Chair: [Lars R. Furenlid](#), The Univ. of Arizona (United States)

X-ray backscatter radiography with lower open fraction coded masks *(Invited Paper)*

Paper 10393-9

Author(s): Andre M. A. Munoz, Anna Vella, Matthew J. F. Healy, David W. Lane, Cranfield Univ. (United Kingdom); Ian D. Jupp, David Lockley, Defence Science and Technology Lab. (United Kingdom)

Recent developments in high-speed proton radiography at LANSCE

Paper 10393-10

Author(s): Johnny Goett, Los Alamos National Lab. (United States)

New results from sub-3 MeV Compton spectrometer experiments *(Invited Paper)*

Paper 10393-11

Author(s): Amanda E. Gehring, Michelle A. Espy, Todd J. Haines, Marc L. Klasky, Los Alamos National Lab. (United States); Bernard T. Meehan, Nevada National Security Site (United States)

Modeling charge collection in x-ray imagers

Paper 10393-12

Author(s): Giovanni Pinaroli, Univ. degli Studi di Udine (Italy); Elettra-Sincrotrone Trieste S.C.p.A. (Italy); Pierpaolo Palestri, Alessandro Pilotto, Luca Selmi, Univ. degli Studi di Udine (Italy)

A multi-purpose readout electronics for CdTe and CZT detectors for x-ray imaging applications

Paper 10393-13

Author(s): Xiaobing Yue, Zhi Deng, Yuxiang Xing, Yinong Liu, Tsinghua Univ. (China)

Session 4: Simulations and Data Acquisition

Wednesday 9 August 2017

4:00 PM - 5:30 PM

Session Chair: [Xin Li](#), College of Optical Sciences, The Univ. of Arizona (United States)

3D-printed coded apertures for x-ray backscatter radiography *(Invited Paper)*

Paper 10393-14

Author(s): Andre M. A. Munoz, Anna Vella, Matthew J. F. Healy, David W. Lane, Cranfield Univ. (United Kingdom); Ian D. Jupp, David Lockley, Defence Science and Technology Lab. (United Kingdom)

Leveraging multi-channel x-ray detector technology to improve quality metrics for industrial and security applications

Paper 10393-15

Author(s): Edward S. Jimenez, Kyle R. Thompson, Adriana Stohn, Ryan N. Goodner, Sandia National Labs. (United States)

Spectral correction algorithm for multispectral CdTe x-ray detectors

Paper 10393-16

Author(s): Erik D. Christensen, Niels Bohr Institute (Denmark); Jan Kehres, Yun Gu, Technical Univ. of Denmark (Denmark); Robert Feidenhans'l, European XFEL GmbH (Germany); Ulrik L. Olsen, Technical Univ. of Denmark (Denmark)

Optimization of input parameters to improve big-data computed tomography reconstruction performance (Conference Presentation)

Paper 10393-17

Author(s): Celia J. Flicker, Edward S. Jimenez, Sandia National Labs. (United States)

Session PWed: Posters-Wednesday

Wednesday 9 August 2017

5:30 PM - 7:30 PM

Conference attendees are invited to view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines at <http://spie.org/QPPosterGuidelines>.

The dual-channel ultraviolet/low light CMOS camera using image fusion technique

Paper 10393-32

Author(s): Yunsheng Qian, Xiaoyu Zhou, Xiangyu Kong, Yujing Wu, Xiaodong Tang, Yijun Zhang, Nanjing Univ. of Science and Technology (China)

THURSDAY 10 AUGUST

[Show All Abstracts](#)

Session 5: Digital Radiography and CT

Thursday 10 August 2017

8:30 AM - 10:10 AM

Session Chair: [Gary P. Grim](#), Lawrence Livermore National Lab. (United States)

Measurement of x-ray spectra using a recent YAP(Ce)-MPPC detector

Paper 10393-18

Author(s): Eiichi Sato, Yasuyuki Oda, Sohei Yoshida, Satoshi Yamaguchi, Yuichi Sato, Iwate Medical Univ. (Japan); Tomotaka Ishii, Osahiko Hagiwara, Hiroshi Matsukiyo, Toshiyuki Enomoto, Manabu Watanabe, Shinya Kusachi, Toho Univ. (Japan)

Analysis of the effect of dielectric interlayer on modulation transfer function of granular x-ray scintillator detector

Paper 10393-19

Author(s): Hyeon Bo Shim, Jookwon Song, Jae W. Hahn, Yonsei Univ. (Korea, Republic of)

Silicon strip photon-counting detectors for breast CT (Invited Paper)

Paper 10393-20

Author(s): William C. Barber, DxRay, Inc. (United States), Interon AS (Norway); H. Ding, L. Singh, K. Habashi, Univ. of California, Irvine (United States); Nail Malakhov, Gregor Wawrzyniak, Interon AS (Norway); Neal E. Hartsough, DxRay, Inc. (United States); Eirik Næss-Ulseth, Interon AS (Norway); Jan Christopher Wessel, Interon AS (Norway), DxRay, Inc. (United States); Jan S. Iwanczyk, DxRay, Inc. (United States); Sabee Molloy, Univ. of California, Irvine (United States)

Scintillator performance considerations for dedicated breast computed tomography (Invited Paper)

Paper 10393-21

Author(s): Srinivasan Vedantham, The Univ. of Arizona (United States); Linxi Shi, Georgia Institute of Technology (United States); Andrew Karellas, The Univ. of Arizona (United States)

Session 6: Radioisotope Imaging

Thursday 10 August 2017

10:40 AM - 12:10 PM

Session Chair: [Edward S. Jimenez](#), Sandia National Labs. (United States)

Optimized modeling of powder-based x-ray scintillator screen for improved total efficiency by double-layer scintillator design (Conference Presentation)

Paper 10393-22

Author(s): Jookwon Song, Hyeon Bo Shim, Jae W. Hahn, Yonsei Univ. (Korea, Republic of)

3D position-sensitive scintillation detectors for a high-resolution loco-regional PET imaging system (Conference Presentation) (Invited Paper)

Paper 10393-23

Author(s): David Hsu, David Freese, Derek Innes, Craig S. Levin, Molecular Imaging Instrumentation Lab., Stanford School of Medicine (United States)

Applications of iQID cameras

Paper 10393-24

Author(s): Ling Han, Brian W. Miller, Harrison H. Barrett, H. Bradford Barber, Lars R. Furenlid, The Univ. of Arizona (United States)

Pulse timing in edge-readout PET detectors

Paper 10393-25

Author(s): Xin Li, Maria D. Ruiz-Gonzalez, Lars R. Furenlid, Ctr. for Gamma-Ray Imaging, The Univ. of Arizona (United States)

Session 7: Novel Detector Applications

Thursday 10 August 2017

1:30 PM - 3:00 PM

Session Chair: Ling Han, The Univ. of Arizona (United States)

A framework for optimizing micro-CT in dual-modality micro-CT/XFCT small-animal imaging system

Paper 10393-26

Author(s): Srinivasan Vedantham, Suman Shrestha, Univ. of Massachusetts Medical School (United States); Andrew Karellas, The Univ. of Arizona (United States); Sang Hyun Cho, The Univ. of Texas M.D. Anderson Cancer Ctr. (United States)

A compact energy-independent CZT-based gamma camera *(Invited Paper)*

Paper 10393-27

Author(s): Youngho Seo, Univ. of California, San Francisco (United States); Yonggang Cui, Paul O'Connor, Brookhaven National Lab. (United States); Qiu Huang, Shanghai Jiao Tong Univ. (China); Ralph B. James, Savannah River National Lab. (United States); Debasis Mitra, Hui Pan, Florida Institute of Technology (United States)

Simulation modeling of a TlBr double-sided strip detector**(Canceled)**

Paper 10393-28

Author(s):

Investigation of a high-sensitivity near-infrared-ray computed tomography scanner

Paper 10393-29

Author(s): Eiichi Sato, Yasuyuki Oda, Sohei Yoshida, Satoshi Yamaguchi, Yuichi Sato, Iwate Medical Univ. (Japan); Osahiko Hagiwara, Iwate Medical Univ. (Japan), Toho Univ. (Japan); Tomotaka Ishii, Hiroshi Matsukiyo, Toshiyuki Enomoto, Manabu Watanabe, Shinya Kusachi, Toho Univ. (Japan)

Session 8: Other Applications

Thursday 10 August 2017

3:30 PM - 4:20 PM

Session Chair: H. Bradford Barber, The Univ. of Arizona (United States)**An integrated circuit readout for TOF-PET detectors for PET/MRI (Conference Presentation)** *(Invited Paper)*

Paper 10393-30

Author(s): Ilaria Sacco, Chen-Ming Chang, Craig Levin, Stanford University (United States)

Hardware strategies for adaptive molecular imaging

Paper 10393-31

Author(s): Lars R. Furenlid, Ctr. for Gamma-Ray Imaging, The Univ. of Arizona (United States)