PROCEEDINGS OF SPIE

SPIDigitalLibrary.org/conference-proceedings-of-spie

Front Matter: Volume 10948

, "Front Matter: Volume 10948," Proc. SPIE 10948, Medical Imaging 2019: Physics of Medical Imaging, 1094801 (25 June 2019); doi: 10.1117/12.2524513

Event: SPIE Medical Imaging, 2019, San Diego, California, United States

Medical Imaging 2019

Physics of Medical Imaging

Taly Gilat Schmidt
Guang-Hong Chen
Hilde Bosmans
Editors

17–20 February 2019
San Diego, California, United States

Sponsored by
SPIE

Cooperating Organizations
AAPM—American Association of Physicists in Medicine (United States)
IFCARS—International Foundation for Computer Assisted Radiology and Surgery (Germany)
MIPS—Medical Image Perception Society (United States)
SIIM—Society for Imaging Informatics in Medicine (United States)
WMIS—World Molecular Imaging Society

Published by
SPIE

Volume 10948

Proceedings of SPIE, 1605-7422, V. 10948

SPIE is an international society advancing an interdisciplinary approach to the science and application of light.

Medical Imaging 2019: Physics of Medical Imaging, edited by Taly Gilat Schmidt, Guang-Hong Chen, Hilde Bosmans,
Proc. of SPIE Vol. 10948, 1094801 · © 2019 SPIE · CCC code: 1605-7422/19/\$18 · doi: 10.1117/12.2524513

Proc. of SPIE Vol. 10948 1094801-1

The papers in this volume were part of the technical conference cited on the cover and title page. Papers were selected and subject to review by the editors and conference program committee. Some conference presentations may not be available for publication. Additional papers and presentation recordings may be available online in the SPIE Digital Library at SPIDigitalLibrary.org.

The papers reflect the work and thoughts of the authors and are published herein as submitted. The publisher is not responsible for the validity of the information or for any outcomes resulting from reliance thereon.

Please use the following format to cite material from these proceedings:

Author(s), "Title of Paper," in *Medical Imaging 2019: Physics of Medical Imaging*, edited by Taly Gilat Schmidt, Guang-Hong Chen, Hilde Bosmans, Proceedings of SPIE Vol. 10948 (SPIE, Bellingham, WA, 2019) Seven-digit Article CID Number.

ISSN: 1605-7422

ISSN: 2410-9045 (electronic)

ISBN: 9781510625433

ISBN: 9781510625440 (electronic)

Published by

SPIE

P.O. Box 10, Bellingham, Washington 98227-0010 USA

Telephone +1 360 676 3290 (Pacific Time) · Fax +1 360 647 1445

SPIE.org

Copyright © 2019, Society of Photo-Optical Instrumentation Engineers.

Copying of material in this book for internal or personal use, or for the internal or personal use of specific clients, beyond the fair use provisions granted by the U.S. Copyright Law is authorized by SPIE subject to payment of copying fees. The Transactional Reporting Service base fee for this volume is \$18.00 per article (or portion thereof), which should be paid directly to the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923. Payment may also be made electronically through CCC Online at copyright.com. Other copying for republication, resale, advertising or promotion, or any form of systematic or multiple reproduction of any material in this book is prohibited except with permission in writing from the publisher. The CCC fee code is 1605-7422/19/\$18.00.

Printed in the United States of America by Curran Associates, Inc., under license from SPIE.

Publication of record for individual papers is online in the SPIE Digital Library.

**SPIE. DIGITAL
LIBRARY**

SPIDigitalLibrary.org

Paper Numbering: *Proceedings of SPIE* follow an e-First publication model. A unique citation identifier (CID) number is assigned to each article at the time of publication. Utilization of CIDs allows articles to be fully citable as soon as they are published online, and connects the same identifier to all online and print versions of the publication. SPIE uses a seven-digit CID article numbering system structured as follows:

- The first five digits correspond to the SPIE volume number.
- The last two digits indicate publication order within the volume using a Base 36 numbering system employing both numerals and letters. These two-number sets start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B ... 0Z, followed by 10-1Z, 20-2Z, etc. The CID Number appears on each page of the manuscript.

Contents

xv	<i>Authors</i>
xxi	<i>Conference Committee</i>
xxv	<i>2018 Medical Imaging Award Recipients</i>

Part One

SESSION 1	X-RAY IMAGING
10948 03	Model of malignant breast biopsies and predictions of their WAXS energy integrated signals [10948-2]
10948 04	Deep learning framework for digital breast tomosynthesis reconstruction [10948-220]
10948 05	Initial study of the radiomics of intracranial aneurysms using Angiographic Parametric Imaging (API) to evaluate contrast flow changes [10948-4]
SESSION 2	TOMOSYNTHESIS IMAGING
10948 07	Generating synthetic mammograms for stationary 3D mammography [10948-6]
10948 08	Adaptively-weighted total-variation (AwTV) in a prototype 4D digital tomosynthesis system for fast and low-dose target localization [10948-7]
10948 09	Metal artifact correction based on combination of 2D and 3D region growing for x-ray tomosynthesis [10948-8]
10948 0A	Verification of the accuracy of a partial breast imaging simulation framework for virtual clinical trial applications [10948-9]
10948 0B	Personalization of x-ray tube motion in digital breast tomosynthesis using virtual Defrise phantoms [10948-10]
10948 0C	Noise measurements from reconstructed digital breast tomosynthesis [10948-11]
SESSION 3	DETECTOR PHYSICS I
10948 0D	A simple Monte Carlo model for the statistics of photon counting detectors [10948-12]

- 10948 OE **Quantitative comparison of Hi-Def and FPD zoom modes in an innovative detector using Relative Object Detectability (ROD) metrics** [10948-13]
- 10948 OG **First results developing time-of-flight proton radiography for proton therapy applications** [10948-15]
- 10948 OH **An experimental method to correct drift-induced error in zero-frequency DQE measurement** [10948-16]

SESSION 4 QUANTITATIVE IMAGE QUALITY ASSESSMENT

- 10948 OJ **A case study on the impact of a reduction in MTF on test object detectability score in mammography** [10948-18]
- 10948 OK **Evaluating the imaging performance of a next-generation digital breast tomosynthesis prototype** [10948-19]
- 10948 OL **Generalized prediction framework for reconstructed image properties using neural networks** [10948-20]
- 10948 OM **Simulation and experimental validation of high-resolution test objects for evaluating a next-generation digital breast tomosynthesis prototype** [10948-21]
- 10948 ON **Multiple-reader, multiple-case ROC analysis for determining the limit of calcification detection in tomosynthesis** [10948-22]

SESSION 5 MACHINE LEARNING I

- 10948 OO **Virtual clinical trial for task-based evaluation of a deep learning synthetic mammography algorithm** [10948-23]
- 10948 OP **Forward and cross-scatter estimation in dual source CT using the deep scatter estimation (DSE)** [10948-24]
- 10948 OQ **Focal spot deconvolution using convolutional neural networks** [10948-25]
- 10948 OR **Low-dose CT count-domain denoising via convolutional neural network with filter loss** [10948-26]
- 10948 OS **Image reconstruction from fully-truncated and sparsely-sampled line integrals using iCT-Net** [10948-27]

SESSION 6 IMAGING PHYSICS: PUSHING THE BOUNDARY

- 10948 OU **Multi-x-ray source array for stationary tomosynthesis or multi-cone angle cone beam CT** [10948-29]

- 10948 0V **Dose-independent near-ideal DQE of a 75 μm pixel GaAs photon-counting spectral detector for breast imaging** [10948-30]
- 10948 0W **Novel hybrid organic-inorganic perovskite detector designs based on multilayered device architectures: simulation and design** [10948-31]
- 10948 0X **Human-compatible multi-contrast mammographic prototype system** [10948-32]

SESSION 7 IMAGE RECONSTRUCTION

- 10948 0Y **Quantitative cone-beam CT of bone mineral density using model-based reconstruction** [10948-33]
- 10948 0Z **CT-guided PET parametric image reconstruction using deep neural network without prior training data** [10948-34]
- 10948 10 **Radon inversion via deep learning** [10948-35]
- 10948 11 **Accelerating coordinate descent in iterative reconstruction** [10948-36]
- 10948 13 **Patient evaluation of breast shape-corrected tomosynthesis reconstruction** [10948-38]
- 10948 14 **Cone-beam CT statistical reconstruction with a model for fluence modulation and electronic readout noise** [10948-39]

SESSION 8 DETECTOR PHYSICS II

- 10948 15 **Dual energy imaging with a dual-layer flat panel detector** [10948-40]
- 10948 16 **Performance evaluation of a Se/CMOS prototype x-ray detector with the Apodized Aperture Pixel (AAP) design** [10948-41]
- 10948 17 **Towards large-area photon-counting detectors for spectral x-ray imaging** [10948-42]
- 10948 18 **Novel direct conversion imaging detector without selenium or semiconductor conversion layer** [10948-43]
- 10948 19 **Theoretical count rate capabilities of polycrystalline silicon photon counting imagers for CBCT applications** [10948-44]

SESSION 9 SPECTRAL IMAGING

- 10948 1A **Physical modeling and performance of spatial-spectral filters for CT material decomposition** [10948-45]

- 10948 1B **Multi-energy CT with triple x-ray beams and photon-counting-detector CT for simultaneous imaging of two contrast agents: an experimental comparison** [10948-46]
- 10948 1C **Spectrum optimization in photon counting detector based iodine K-edge CT imaging** [10948-47]
- 10948 1D **Theoretical feasibility of dual-energy functional x-ray imaging of respiratory disease** [10948-48]
- 10948 1E **Comparison study of dual-energy techniques in chest radiography** [10948-49]
- 10948 1F **Spectral data completion for dual-source x-ray CT** [10948-50]

SESSION 10 BREAST IMAGING

- 10948 1G **The feasibility study for classification of breast microcalcifications based on photon counting spectral mammography** [10948-51]
- 10948 1H **Cascaded-systems analysis of signal and noise in contrast-enhanced spectral mammography using amorphous selenium photon-counting field-shaping multi-well avalanche detectors (SWADs)** [10948-52]
- 10948 1I **Ultra-short, high-dose rate digital x-ray tube based on carbon nanotube emitters for advanced cone-beam breast computed tomography** [10948-53]
- 10948 1J **Evaluation of silver sulfide nanoparticles as a contrast agent for spectral photon-counting digital mammography: a phantom study** [10948-54]
- 10948 1K **Validation of a method to simulate the acquisition of mammographic images with different techniques** [10948-55]

SESSION 11 CONE BEAM CT

- 10948 1L **A robotic x-ray cone-beam CT system: trajectory optimization for 3D imaging of the weight-bearing spine** [10948-56]
- 10948 1M **Misalignment compensation for ultra-high-resolution and fast CBCT acquisitions** [10948-57]
- 10948 1N **CBCT auto-calibration by contour registration** [10948-58]
- 10948 1O **Image-based deformable motion compensation for interventional cone-beam CT** [10948-59]

SESSION 12 X-RAY PHASE CONTRAST IMAGING

- 10948 1P **Joint-reconstruction-enabled partial-dithering strategy for edge-illumination x-ray phase-contrast tomography** [10948-60]

- 10948 1Q **Impact of the sensitivity factor on the signal-to-noise ratio in grating-based phase contrast imaging** [10948-61]
- 10948 1R **Laboratory-based x-ray phase contrast CT technology for clinical intra-operative specimen imaging** [10948-62]
- 10948 1S **3D histopathology speckle phase contrast imaging: from synchrotron to conventional sources** [10948-63]
- 10948 1T **Low dose imaging with simultaneous scatter, attenuation and mesh-based phase contrast** [10948-64]

SESSION 13 PHOTON COUNTING IMAGING

- 10948 1U **Indirect photon-counting x-ray imaging using CMOS Photon Detector (CPD)** [10948-65]
- 10948 1V **Simulation model for evaluating energy-resolving photon-counting CT detectors based on generalized linear-systems framework** [10948-66]
- 10948 1W **Increased count-rate performance and dose efficiency for silicon photon-counting detectors for full-field CT using an ASIC with adjustable shaping time** [10948-67]
- 10948 1Y **Experimental study of neural network material decomposition to account for pulse-pileup effects in photon-counting spectral CT** [10948-69]
- 10948 1Z **Impacts of photon counting detector to cerebral CT angiography maximum intensity projection (MIP) images** [10948-70]

SESSION 14 ALGORITHM

- 10948 20 **Exploring the space between smoothed and non-smooth total variation for 3D iterative CT reconstruction** [10948-71]
- 10948 21 **Image-domain insertion of spatially correlated, locally varying noise in CT images** [10948-72]
- 10948 22 **Utilizing deformable image registration to create new living human heart models for imaging simulation** [10948-73]
- 10948 23 **Volume-of-interest imaging using multiple aperture devices** [10948-74]
- 10948 24 **Optimized intensity modulation for a dynamic beam attenuator in x-ray computed tomography** [10948-75]

SESSION 15 MACHINE LEARNING II

- 10948 26 **Harnessing the power of deep learning for volumetric CT imaging with single or limited number of projections** [10948-77]
- 10948 27 **Image quality improvement in cone-beam CT using deep learning** [10948-78]
- 10948 28 **Artifacts reduction method for phase-resolved Cone-Beam CT (CBCT) images via a prior-guided CNN** [10948-79]
- 10948 29 **Multi-organ segmentation in clinical-computed tomography for patient-specific image quality and dose metrology** [10948-80]
- 10948 2A **Convolutional regularization methods for 4D, x-ray CT reconstruction** [10948-81]

POSTER SESSION

- 10948 2B **Improved wedge scatter correction for multi-slice CT system** [10948-82]
- 10948 2C **A directional TV based ring artifact reduction method** [10948-83]
- 10948 2D **Simulation pipeline for virtual clinical trials of dermatology images** [10948-84]
- 10948 2E **Validation of modelling tools for simulating wide-angle DBT systems** [10948-85]
- 10948 2F **A method to modify mammography images to appear as if acquired using different radiographic factors** [10948-86]
- 10948 2G **Consideration of cerebrospinal fluid intensity variation in diffusion weighted MRI** [10948-87]
- 10948 2H **Development of a real-time scattered radiation display for staff dose reduction during fluoroscopic interventional procedures** [10948-88]
- 10948 2I **Incorporating biomechanical modeling and deep learning into a deformation-driven liver CBCT reconstruction technique** [10948-89]
- 10948 2J **Self-geometric calibration of circular cone beam CT based on epipolar geometry consistency** [10948-90]
- 10948 2K **Using one test bolus to monitor bolus arriving at two locations in CT angiography runoff scans: a feasibility simulation study** [10948-91]
- 10948 2L **Refined locally linear transform based spectral-domain gradient sparsity and its applications in spectral CT reconstruction** [10948-92]
- 10948 2M **An automatic dynamic optimal phase reconstruction for coronary CT** [10948-93]

- 10948 2O **Sinogram interpolation for sparse-view micro-CT with deep learning neural network** [10948-95]
- 10948 2P **Revisit FBP: analyze the tensor data after view-by-view backprojection** [10948-96]
- 10948 2Q **Optimization-based reconstruction for correcting non-linear partial volume artifacts in CT** [10948-97]
- 10948 2R **Trade-off between spatial details and motion artifact in multi-detector CT: A virtual clinical trial with 4D textured human models** [10948-98]

Part Two

- 10948 2S **Material decomposition in photon-counting-detector CT: threshold or bin images?** [10948-99]
- 10948 2U **Image-based noise reduction for material decomposition in dual or multi energy computed tomography** [10948-101]
- 10948 2V **A comprehensive GPU-based framework for scatter estimation in single source, dual source, and photon-counting CT** [10948-102]
- 10948 2W **Demonstration of phase-assisted material decomposition with a Talbot-Lau interferometer using a single x-ray tube potential** [10948-103]
- 10948 2X **Sparse-sampling computed tomography for pulmonary imaging** [10948-104]
- 10948 2Y **Simulation of CT images reconstructed with different kernels using a convolutional neural network and its implications for efficient CT workflow** [10948-105]
- 10948 30 **Quantitative low-dose CT: potential value of low signal correction methods** [10948-107]
- 10948 32 **A practical analysis of scatter-to-primary ratio after beam hardening correction for x-ray CT** [10948-109]
- 10948 34 **Quantifying truth-based change in radiomics features between CT imaging conditions** [10948-111]
- 10948 35 **Iterative closest-point based 3D stitching in dental computed tomography for a larger view of facial anatomy** [10948-112]
- 10948 36 **Wasserstein generative adversarial networks for motion artifact removal in dental CT imaging** [10948-113]
- 10948 37 **Multidimensional noise reduction in C-arm cone-beam CT via 2D-based Landweber iteration and 3D-based deep neural networks** [10948-114]
- 10948 38 **Evaluation of the reliability of a new low dose CBCT acquisition protocol in diagnosing impacted canines: an ex-vivo imaging study** [10948-115]

- 10948 39 **Assessment of measurement deviations: length-extended x-ray imaging for orthopedic applications** [10948-116]
- 10948 3A **Investigation of calibration-based projection domain dual energy decomposition CBCT technique for brain radiotherapy applications** [10948-117]
- 10948 3B **SWAD: The effect of pixel geometry on the spatial uniformity of avalanche gain** [10948-118]
- 10948 3E **Investigation of spatial-frequency-dependent noise in columnar CsI:TI using depth-localized single x-ray imaging** [10948-121]
- 10948 3F **Flat panel design and performance of a new a-Si mammography imaging system** [10948-122]
- 10948 3I **Dynamic chest radiography for pulmonary function diagnosis: A validation study using 4D extended cardiac-torso (XCAT) phantom** [10948-125]
- 10948 3K **Dental and maxillofacial cone beam computed tomography absorbed dose distribution calculation by GEANT4** [10948-128]
- 10948 3L **Comparisons of 6 fps volume-rendered x-ray digital tomosynthesis TumoTrak-guided to 2D-MRI-guided radiotherapy of lung cancer** [10948-129]
- 10948 3M **Integrating quantitative imaging and computational modeling to predict the spatiotemporal distribution of ^{186}Re nanoliposomes for recurrent glioblastoma treatment** [10948-130]
- 10948 3N **Evaluation of skin-dose contribution from a new high-definition image receptor mode during neuro-interventional procedures using the Dose Tracking System** [10948-131]
- 10948 3P **Transrectal ultrasound imaging using plane-wave, fan-beam and wide-beam ultrasound: Phantom results** [10948-133]
- 10948 3Q **Automated lung cancer detection based on multimodal features extracting strategy using machine learning techniques** [10948-134]
- 10948 3S **Multiband terahertz imaging simulation of skin using freezing to enhance penetration depth** [10948-137]
- 10948 3V **Feasibility study of silicon photomultiplier based frequency domain diffuse optical tomography** [10948-140]
- 10948 3X **Artifact reduction in simultaneous tomosynthesis and mechanical imaging of the breast** [10948-142]
- 10948 3Y **A new test method to assess the representation of spiculated mass like targets in digital mammography and breast tomosynthesis** [10948-143]
- 10948 3Z **A framework for flexible comparison and optimization of x-ray digital tomosynthesis** [10948-144]
- 10948 40 **Effects of angular range on lesion margin assessment in contrast-enhanced digital breast tomosynthesis** [10948-146]

- 10948 41 **Influence of background trends on noise power spectrum at zero frequency in radiography imaging** [10948-147]
- 10948 42 **System detective quantum efficiency (DQESYS) as an index of performance for chest radiography system (bucky and bedside) at four patient equivalent thicknesses** [10948-148]
- 10948 43 **MRI-based pseudo CT generation using classification and regression random forest** [10948-149]
- 10948 44 **Deep learning based guidewire segmentation in x-ray images** [10948-150]
- 10948 45 **Estimation of attenuator mask from region of interest (ROI) dose-reduced images for brightness equalization using convolutional neural networks** [10948-151]
- 10948 46 **Combined low-dose simulation and deep learning for CT denoising: application of ultra-low-dose cardiac CTA** [10948-152]
- 10948 47 **Learning from our neighbours: a novel approach on sinogram completion using bin-sharing and deep learning to reconstruct high quality 4DCBCT** [10948-153]
- 10948 48 **Investigation on slice direction dependent denoising performance of convolutional neural network in cone-beam CT images** [10948-154]
- 10948 49 **Performance comparison of convolutional neural network based denoising in low dose CT images for various loss functions** [10948-155]
- 10948 4A **Comparison of deep learning approaches to low dose CT using low intensity and sparse view data** [10948-156]
- 10948 4C **Deep learning-based artifact detection for diagnostic CT images** [10948-158]
- 10948 4D **Multi-modal MRI segmentation of sarcoma tumors using convolutional neural networks** [10948-159]
- 10948 4E **A machine learning algorithm for detecting abnormal respiratory cycles in thoracic dynamic MR image acquisitions** [10948-160]
- 10948 4F **A framework for realistic virtual clinical trials in photon counting computed tomography** [10948-161]
- 10948 4G **CZT modeling for photon counting computer tomography** [10948-162]
- 10948 4H **Photon-counting detector simulation: Monte-Carlo energy deposition, physics-based charge transport and current induction, and SPICE electronics** [10948-163]
- 10948 4I **Optimal acquisition setting for dual-contrast imaging with gadolinium and iodine on a research whole-body photon-counting-detector (PCD) CT** [10948-164]
- 10948 4J **Accuracy and variability of radiomics in photon-counting CT: texture features and lung lesion morphology** [10948-165]

10948 4K	Performance comparison of water phantom based flat field correction methods for photon-counting spectral CT images: experimental results [10948-166]
10948 4L	Multi-contrast imaging on dual-source photon-counting-detector (PCD) CT [10948-167]
10948 4M	Image quality in photon-counting CT images as a function of energy threshold [10948-168]
10948 4N	Impact of energy threshold on material quantification of contrast agents in photon-counting CT [10948-169]
10948 4O	An improved physics model for multi-material identification in photon counting CT [10948-170]
10948 4Q	Simulation of scattered radiation with various anti-scatter grid designs in a photon counting CT [10948-172]
10948 4S	Novel learning-based Moiré artifacts reduction method in x-ray Talbot-Lau differential phase contrast imaging [10948-174]
10948 4U	Mesh-based and polycapillary optics-based x-ray phase imaging [10948-176]
10948 4V	Visibility guided phase contrast denoising [10948-177]
10948 4W	Development of a compact inkjet-printed patient-specific phantom for optimization of fluoroscopic image quality in neonates [10948-178]
10948 4Y	Controlling the position-dependent contrast of 3D printed physical phantoms with a single material [10948-180]
10948 51	Filtered back-projection for digital breast tomosynthesis with 2D filtering [10948-183]
10948 52	Prototyping optimization problems for digital breast tomosynthesis image reconstruction with a primal-dual algorithm [10948-184]
10948 53	EMnet: an unrolled deep neural network for PET image reconstruction [10948-185]
10948 54	Backproject-filter (BPF) CT image reconstruction using convolutional neural network [10948-186]
10948 55	Bayesian reconstruction of ultralow-dose CT images with texture prior from existing diagnostic full-dose CT database [10948-187]
10948 56	Towards deep iterative-reconstruction algorithms for computed tomography (CT) applications [10948-188]
10948 57	Automatic regularization parameter tuning based on CT Image statistics [10948-189]
10948 58	A direct filtered back-projection reconstruction method for inverse geometry CT without gridding: a simulation study [10948-190]

- 10948 5C **Bayesian reconstruction for digital breast tomosynthesis using a non-local Gaussian Markov random field a priori model** [10948-194]
- 10948 5D **Preliminary study on optimization of the stationary inverse-geometry digital tomosynthesis: x-ray source array** [10948-195]
- 10948 5E **Investigation on lesion detectability in step-and-shoot mode and continuous mode digital tomosynthesis systems with anatomical background** [10948-196]
- 10948 5F **Tomosynthesis imaging of the wrist using a CNT x-ray source array** [10948-197]
- 10948 5H **A single-shot method for X-ray grating interferometry** [10948-199]
- 10948 5I **Determination of 3D scattered radiation distributions from the Zubal Phantom as a function of LAO/RAO and CRA/CAU gantry angulation** [10948-200]
- 10948 5J **Can breast models be simplified to estimate scattered radiation in breast tomosynthesis?** [10948-201]
- 10948 5L **Scatter correction with a deterministic integral spherical harmonics method in computed tomography** [10948-203]
- 10948 5N **Improvement of material decomposition accuracy using denoising and deblurring techniques in spectral mammography** [10948-205]
- 10948 5O **Novel geometry for X-Ray diffraction mammary imaging: experimental validation on a breast phantom** [10948-206]
- 10948 5P **Use of machine learning in CARNA proton imager** [10948-207]
- 10948 5Q **Spot decomposition in a novel pencil beam scanning proton computed tomography** [10948-208]
- 10948 5R **Analysis of feature relevance using an image quality index applied to digital mammography** [10948-209]
- 10948 5S **Performance evaluation of the preclinical PET/MRI nanoScan with NEMA IQ-Phantom and self-designed 3D printed phantoms** [10948-210]
- 10948 5T **Feasibility of locating infarct core with 2D angiographic parametric imaging (API) using computed tomography perfusion data** [10948-211]
- 10948 5U **Quantitative evaluation of the effect of attenuation correction in SPECT images with CT-derived attenuation** [10948-212]
- 10948 5V **Investigation of scintillation light spread in a hemi-ellipsoid monolithic crystal for Cardiac SPECT using Geant4** [10948-213]
- 10948 5W **Cardiac CT estimability index: an ideal estimator in the presence of noise and motion** [10948-214]

- 10948 5X **Comparison of digital mammograms obtained with the cassette-type retrofit mammography flat panel detector installed on an analog system and the conventional full-field digital mammography** [10948-215]
- 10948 5Y **Patient-informed and physiology-based modelling of contrast dynamics in cross-sectional imaging** [10948-216]
- 10948 5Z **Computational-efficient cascaded neural network for CT image reconstruction** [10948-217]
- 10948 60 **Optimizing voxel-wise dose calculations in cone-beam computed tomography** [10948-218]
- 10948 61 **Toward large-area flat-panel sandwich detectors for single-shot dual-energy imaging** [10948-219]
- 10948 63 **Iterative CT image reconstruction using neural network optimization algorithms** [10948-223]
- 10948 64 **A novel mammographic fusion imaging technique: the first results of tumor tissues detection from resected breast tissues using energy-resolved photon counting detector** [10948-3]

Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Abadi, Ehsan, 29, 2R, 2V, 3I, 4F, 4N, 5Y
Abbasi, Adeel Ahmed, 3Q
Abdelmalik, Michael R. A., 3M
Acciavatti, Raymond J., 0B
Adams, Bernhard W., 0G
Adhiambo, Brenda, 1T
Adler, Jonas, 04
Ahn, Chul Kyun, 46
Ahn, Yujung, 1I
Akgun, Ugur, 5P
Al-Hallaq, Hania, 4W
Allman, Ariana B., 5T
Amato, Carlo, 17
Anastasio, Mark A., 1P
Anderson, Adam W., 2G
Antonuk, Larry E., 19
Astolfo, Alberto, 1R
Aviles, Melvin, 0G
Aygün, N., 14
Baba, Hiroyasu, 1U
Badal, Andreu, 0O
Badano, Aldo, 0O
Badea, C. T., 1F, 2A, 4D
Baek, Jongduk, 37, 48, 49, 4K, 5E
Bai, Yulong, 3V
Bakic, Predrag R., 0C, 0N, 2D, 3X
Bao, Ande, 3M
Barufaldi, Bruno, 0B, 0C, 0M, 0N, 5R
Bayat, Sam, 1S
Bayrak, Roza G., 2G
Beason-Held, Lori, 2G
Beaudry, Joel, 47
Becker, Amy E., 0U
Bednarek, Daniel R., 0E, 2H, 3N, 45, 5I
Benedict, Stanley, 3L
Berujon, Sebastien, 1S
Bhattacharji, Priya, 5S
Biehl, Michael, 5R
Billingsley, A., 5F
Blaber, Justin A., 2G
Blocker, S. J., 4D
Bohic, Sylvain, 1S
Boita, Joana, 1K, 2F
Bond, Justin, 0G
Boone, John M., 0U, 3L
Borges, Lucas R., 0C, 5R
Bosmans, Hilde, 0A, 0J, 3Y, 42
Boyd, Douglas, 3L
Brenner, Andrew J., 3M
Broche, Ludovic, 1S
Broennimann, Christian, 0V, 17
Brun, Emmanuel, 1S
Brunet, M., 03
Cai, Jianmei, 28, 57
Cai, Liang, 4G, 4H, 4Q
Campbell, Robert M., 4E
Cao, Guohua, 2O, 4O
Cao, Q., 0Y
Cao, Xu, 3V
Capostagno, S., 1O
Caron, Renato F., 0C
Cascio, Ethan, 0G
Cederström, Björn, 1J
Cha, Bo kyung, 35
Cha, Kenny H., 0O
Chae, Seung-Hoon, 37
Chandra, Anusha Ramesh, 05
Chandrasekaran, Shivkumar, 56
Chang, Hing-Chiu, 5S
Chang, Jung Min, 5X
Chen, Buxin, 2Q
Chen, Guang-Hong, 0H, 0S, 0X, 1C, 1Q, 1Z, 30
Chen, Jianwei, 4S, 54
Chen, Jyh-Cheng, 5S
Chen, Liyuan, 2I
Chen, Lujie, 2J
Chen, Wufan, 2P
Chen, Xueli, 3V
Chen, Ying, 3Z
Chen, Yujia, 1P
Cheng, Kailun, 0L
Cho, Hyosung, 35
Choi, Dahim, 37
Choi, Jang-Hwan, 37
Choi, Sunghoon, 08, 1E
Clark, D. P., 1F, 2A
Cockmartin, Lesley, 0A, 0J, 3Y
Con, Celal, 16
Cormode, David P., 1J
Costa, Arthur C., 5R
Coulter, Sean, 4A
Cremer, Till, 0G
Cruz-Bastida, Juan Pablo, 30
Cui, Jianan, 0Z
Cunningham, Ian A., 16, 1H
Curran, Walter J., 27, 43
Daly, Megan, 3L
Dance, David R., 2E, 2F, 5J

Danielsson, Mats, 1W
 Davies, Jason M., 05, 5T
 Dema, Catherine, 5P
 Dey, Joyoni, 56, 5V
 Di Prima, Flavio, 17
 Diaz, Oliver, 2E, 5J
 Ding, X., 5Q
 Divil, Sarah E., 0O, 2I
 Dobbins, James T., 0U
 Donahue, William P., 5V
 Donath, Tilman, 17
 Dong, Lei, 18
 Dong, Xu, 2O, 4O
 Dong, Xue, 27
 Donovan, Callan, 38
 Dorn, Sabrina, 2U
 Douglas, Lindsay, 4W
 Draeger, R., 5F
 Duan, Jiayu, 28, 57
 Duffy, Stephen W., 1R
 Dunn, Hannah L., 2F
 Dustler, Magnus, 3X
 Dutta, Sandeep, 4C
 Ehliar, Andreas, 1W
 Ehtiati, T., 1O
 Ejaz, Ayesha, 38
 El Fakhri, Georges, 0G, 53, 5Z
 Elangovan, Premkumar, 2E, 5J
 El-Mohri, Youcef, 19
 Ely, Austin, 3L
 Endrizzi, Marco, 1R
 Eom, Jisoo, 5D, 5N
 Erath, Julien, 0P
 Eriksson, Markus, 3A
 Ertley, Camden D., 0G
 Esquinas, Pedro L., 47
 Fahrig, Rebecca, 37
 Fayard, Barbara, 1S
 Feinstein, S., 5F
 Feldman, Vera, 5O
 Feng, Mang, 0H, 1C, 1Z
 Feng, Xinzeng, 3M
 Figl, Michael, 3Y
 Fisher, Paul R., 40
 Fletcher, Joel G., 2Y
 Foletta, Kyle, 3L
 Foley, Michael R., 0G
 Folkert, Michael, 2I
 Foos, D., 14
 Förnvik, Daniel, 3X
 Fu, Geng, 32
 Fu, Wanyi, 29, 5Y
 Fung, George S. K., 24
 Gandhi, Vaibhav, 38
 Gang, Grace J., 0L, 23
 Gao, Hewei, 32, 3K
 Gao, Kai, 3P
 Gao, Yongfeng, 55
 Garrett, John W., 0X
 Gassenmaier, Tobias, 1M
 Ge, Yongshuai, 36, 4S, 54
 Gilat Schmidt, Taly, 1Y, 2K
 Gjestebj, Lars A., 2C
 Gkoumas, Spyridon, 0V, 17
 Go, Eunsol, 1I
 Goldan, Amir H., 1H, 3B
 Gomez-Cardona, Daniel, 30
 Gong, Kuang, 0R, 0Z, 53
 Graff, Christian G., 0O
 Grogg, Kira S., 0G
 Grunz, Jan-Peter, 1M
 Gu, Xuejun, 2I
 Gul, Burak E., 5P
 Gunnell, E., 5F
 Guo, Chao, 2H, 5I
 Guo, Ning, 0Z
 Guo, Shuxu, 4E
 Guo, Xueqi, 0L
 Gupta, Amit, 55
 Ha, Seungwoo, 60
 Haase, V., 20
 Hagen, Charlotte K., 1R
 Hahn, K., 20
 Haig, Ian G., 1R
 Hainline, Allison E., 2G
 Hamel, Cole J., 0G
 Hammond, Christine, 2K
 Han, Minah, 49
 Hansen, Colin B., 2G
 Harms, Joseph, 27, 43
 Harrawood, Brian, 2R, 4F
 Harrison, Dan, 2C
 Harvey, Evan, 1Z
 Hashemi, Masoud, 3A
 Hashimoto, Daisuke, 64
 Hassan, Laila, 1T
 Havariyoun, Glafkos, 1R
 Hawker, P. M. Sam, 1R
 Hayashi, Hiroaki, 64
 Hazemann, Jean-Louis, 5O
 He, Congxiao, 4U
 He, Ji, 10
 Heo, Changyong, 46
 Heo, Kang, 18
 Heo, Sung Kyn, 61
 Herbst, Magdalena, 1L, 1M, 39
 Hernandez, Andrew M., 0U, 3L
 Hesser, Jürgen, 1N
 Higgins, Kristin, 27, 43
 Hoernig, Mathias, 40
 Hoffman, John M., 1I
 Hoffmann, Udo, 5W
 Holbrook, M., 4D
 Hormuth, David A., 3M
 Hou, Rui, 29
 Howansky, Adrian, 3E
 Hoyer, Jocelyn, 34, 4J
 Hsieh, Scott S., 08, 1I
 Hsu, Jessica C., 1J
 Hu, Zhanli, 36

Huang, Hailiang, 40
 Huang, Lianjie, 3P
 Huang, Yunsong, 3P
 Huck, Sascha Manuel, 24
 Hughes, Thomas J. R., 3M
 Hummel, Johann, 3Y
 Humphries, Thomas, 4A
 Hupfer, Martin, 0D
 Hussain, Lal, 3Q
 Huynh, Christopher, 3A
 Inscoe, Christina R., 07, 5F
 Ionita, Ciprian N., 05, 5T
 Irfanoglu, Okan, 2G
 Irmen, Peyton, 18
 Ivanov, Alex, 5W
 Izawa, Takashi, 1U
 Jang, Hyunsuk, 18
 Jenkins, Parker, 1Y
 Jensen, Arne, 0V
 Jeon, Hosang, 60
 Jeon, Hyojin, 1I
 Jeong, Jin-Woo, 1I
 Ji, Xu, 0H, 1C, 1Q, 1Z
 Jia, Shumei, 32, 3K
 Jia, Xun, 2I
 Jiang, Changhui, 36
 Jiang, Xiao, 58
 Jin, Hyeongmin, 46
 Jo, Mijung, 5X
 Job, Isaias D., 3F
 Jones, Elizabeth C., 4J, 4M, 4N
 Jones, J. Louise, 1R
 Joswiak, Claire, 4W
 Jung, Kahee, 5X
 Kabolizadeh, P., 5Q
 Kachelrieß, Marc, 0P, 0Q, 17, 2U
 Kang, Jun-Tae, 1I
 Kang, Young-Nam, 08
 Kapadia, Anuj J., 29, 2R, 2V, 4F
 Kappler, Steffen, 1L, 1M, 39
 Karim, Karim S., 16
 Kassaei, Ali, 18
 Kaul, Madhuri, 4G, 4Q
 Khan, Rohaan, 1T
 Kilian-Meneghin, J., 2H
 Kim, Burnyoung, 5D, 5N
 Kim, Byeongjoon, 37, 48, 49
 Kim, Dohyeon, 1E, 1G
 Kim, Dong Sik, 4I
 Kim, Dong Woon, 6I
 Kim, Donghyeok, 4K
 Kim, Dooho, 18
 Kim, Hee-Joung, 08, 1E, 1G
 Kim, Ho Kyung, 60, 6I
 Kim, Hyemi, 1E, 1G
 Kim, Jae-Woo, 1I
 Kim, Jinwoo, 60
 Kim, Jong Hyo, 46
 Kim, Juhee, 37
 Kim, Junwoo, 6I

Kim, Kyungsang, 0Z, 53, 5Z
 Kim, Namho, 3L
 Kim, Sunghee, 1I
 Kim, Wonhyung, 5D, 5N
 Kimoto, Natsumi, 64
 Kimpe, Tom, 2D
 Kimura, Hiroto, 64
 King, Michael A., 56
 Kirby, Miranda, 1D
 Koder, Yoshie, 64
 Koenig, Thomas, 4V
 Konieczek, Martin, 19
 Kopp, Felix K., 2X
 Köster, Niko, 0D
 Koyama, Shuji, 64
 Krebs, J., 0E
 Kudo, H., 5H
 Kumagai, Oichi, 1U
 Kuntz, Jan, 0Q
 Labriet, Helene, 1S
 Laeseke, Paul, 44
 Lai, Xiaochun, 4G, 4H, 4Q
 Lajeverdiour, Alireza, 3S
 Landman, Bennett A., 2G
 Larkin, Oliver J., 1R
 Lau, Kristen C., 1J
 LeClair, R. J., 03
 Lee, Changwoo, 5E
 Lee, Denny L., 18
 Lee, Donghoon, 1E
 Lee, Dongyeon, 35
 Lee, Eunae, 4I
 Lee, Eunhyeok, 48
 Lee, Hyeonran, 5X
 Lee, Jeong-Woong, 1I
 Lee, Minjae, 1E, 1G
 Lee, Seungwan, 5D, 5N
 Lee, Sooyeul, 08
 Lee, Su Hyun, 5X
 Lee, Young, 3A
 Lee, Youngjin, 5N
 Lee, Yueh, 07, 5F
 Lei, Yang, 27, 43
 Lemmer, Uli, 0W
 Leng, Shuai, 2W, 2Y, 4I, 4L, 4V
 Lepore, Brianna, 0K
 Levy, Elad I., 5T
 Lhuissier, Pierre, 1S
 Li, Bin, 2I
 Li, Danhong, 1T
 Li, Haifang, 55
 Li, Ke, 0H, 0S, 0X, 1C, 1Q, 1Z
 Li, Quanzheng, 0Z, 53, 5Z
 Li, Taoran, 18
 Li, X., 5Q
 Li, Yinsheng, 0S
 Li, Yunzhi, 16
 Lian, S., 5H
 Liang, Albert K., 19
 Liang, Dong, 36, 4S, 54

Liang, Zhengrong, 55
 Liu, Huafeng, 0Z
 Liu, Jingxuan, 40
 Liu, Tian, 27, 43, 5Q
 Liu, Xin, 36
 Liu, Xin, 2Q
 Lo, Joseph Y., 29, 4Y
 Lu, Hongbing, 55
 Lu, Hsiao-Ming, 0G
 Lu, Jianping, 07, 5F
 Lu, Minghui, 15
 Lu, Yujie, 5L
 Lu, Zheng-Feng, 4W
 Lubinsky, A. R., 3E
 Luckner, Christoph, 1M, 39
 Luo, Shouhua, 2J
 Luo, Shuang, 2J
 Lyashenko, Alexey V., 0G
 Ma, Hongfeng, 2K
 Ma, Jianhua, 10, 2P, 55
 MacDonald, Carolyn A., 1T, 4U
 Mackenzie, Alistair, 1K, 2E, 2F
 Maetani, T., 5F
 Maidment, Andrew D. A., 0B, 0C, 0K, 0M, 0N, 18,
 1J, 2D, 3X, 5C, 5R
 Maier, Andreas, 20, 37, 39
 Maier, Joscha, 0P, 0Q
 Mainprize, James G., 3A
 Malajovich, Irina, 18
 Mann, Ritse, 04
 Mantella, Nick, 1H
 Mao, Hui, 43
 Marshall, Emily, 4W
 Marshall, Jordan, 05
 Marshall, Nicholas W., 0A, 0J, 42
 Massimi, Lorenzo, 1R
 Matsumura, Masao, 1U
 Maur, Susanne, 1N
 McCollough, Cynthia H., 1B, 2S, 2W, 2Y, 4I, 4L, 4V
 Mei, Kai, 2X
 Mertelmeier, Thomas, 40
 Mescher, Henning, 0W
 Michielsen, Koen, 04, 13
 Minot, Michael J., 0G
 Missert, Andrew D., 2Y
 Mizutani, Mitsuhiro, 64
 Montoya, Juan, 0S
 Moore, William H., 55
 Mori, Kensaku, 3I
 Moriakov, Nikita, 04
 Mou, Xuanqin, 28, 57
 Moussalli, Philippe, 42
 Mowery, Y. M., 4D
 Munro, Peter R. T., 1R
 Najj, Marian, 5U
 Nakamura, Tadashi, 09
 Nano, Tomi F., 16
 Nath, Vishwesh, 2G
 Negussie, Ayele H., 4N
 Nelan, Rachel L., 1R
 Nelson, Brandon, 2W, 4V
 Ng, Susan, 3X
 Nico, Anula, 3A
 Nishide, Hiroto, 64
 Nishihara, Toshiyuki, 1U
 Nissman, D., 5F
 Noël, Peter B., 2X
 Noo, Frederic, 11, 20
 Nordstrom, Hakan, 3A
 Oda, Hirohisa, 3I
 Okada, Masahiro, 64
 Olivo, Alessandro, 1R
 Özdemir, Mahmut, 2U
 Paganetti, Harald, 0G
 Paganin, David M., 1S
 Pan, Xiaochuan, 2Q, 51, 52
 Park, Chulkyu, 35
 Park, Hyun-Seok, 37
 Park, Sora, 1I
 Parodi, Katia, 24
 Partain, Larry, 3L
 Parvathaneni, Prasanna, 2G
 Patel, Pretesh, 27
 Paulus, Caroline, 5O
 Pearson, Erik, 4W
 Peel, Anthony, 1R
 Pegues, Hope, 4Y
 Pelc, Norbert J., 1V, 21
 Pen, Olga V., 4O
 Persson, Mats, 1V, 1W
 Petersilka, Martin, 2B
 Petroccia, Heather, 18
 Petrov, D., 0J
 Petruccelli, Jonathan C., 1T, 4U
 Philips, Wilfried, 2D
 Phillips, William T., 3M
 Piepers, Bastian, 2D
 Pierpaoli, Carlo, 2G
 Pisana, Francesco, 2U
 Platisa, Ljiljana, 2D
 Podgorsak, Alexander R., 05
 Popecki, Mark A., 0G
 Prakash, Prakhar, 4C
 Pritchard, William F., 4N
 Puett, Connor, 07, 5F
 Qi, Jinyi, 0R
 Qiang, Yi, 4G
 Qiu, Jianfeng, 5S
 Quan, Guotao, 2M
 Rajagopal, Abhejit, 56
 Rajagopal, Jayasai R., 4F, 4J, 4M, 4N
 Rajendran, Kishore, 4I, 4L
 Ramirez, Juan Carlos, 4F
 Rangelova, Tsvetanka, 13
 Rathore, Salma, 3Q
 Rava, Ryan A., 5T
 Reiser, Ingrid S., 4W, 51, 52
 Ren, Liqiang, 1B, 2S
 Resnick, Susan, 2G
 Richards, Taylor, 5W

Rinaldi, Kim, 40
 Rissi, Michael, 0V, 17
 Ritschl, Ludwig, 1L, 1M, 39
 Robins, Marthony, 4J
 Rodríguez Pérez, Sunay, 42
 Rogers, Baxter P., 2G
 Rose, Sean D., 51, 52
 Roth, Holger, 3I
 Rubin, Geoffrey D., 29
 Rudin, Stephen, 05, 0E, 2H, 3N, 45, 5I
 Rummeny, Ernst J., 2X
 Ruschin, Mark, 3A
 Saeed, Sharjil, 3Q
 Sahbaee, Pooyan, 4N
 Sahgal, Arjun, 3A
 Sajja, Shailaja, 3A
 Salehjahromi, Morteza, 2C, 2L
 Salomon, Elisabeth, 3Y
 Salvadeo, Denis H. P., 5C
 Salvo, Luc, 1S
 Samei, Ehsan, 22, 29, 2R, 2V, 34, 3I, 4F, 4J, 4M, 4N, 4Y, 5W, 5Y
 Sasaki, Mariko, 64
 Sauer, Thomas, 2R
 Sawall, Stefan, 0Q, 17
 Scaduto, David A., 40
 Schilling, Kurt G., 2G
 Schlemmer, Heinz-Peter, 2U
 Schöndube, H., 20
 Schwoebel, Paul, 0U
 Scott, Christopher C., 16
 Sechopoulos, Ioannis, 04, 13, 1K
 Sedlmair, Martin, 4F
 Segars, W. Paul, 22, 29, 2R, 2V, 3I, 4F, 5W
 Selvakumaran, Vignesh, 29
 Semturs, Friedrich, 3Y
 Seo, Changwoo, 35
 Seo, Wontaek, 5X
 Seo, Youngho, 53
 Setiawan, Hananiel, 5Y
 Setlur Nagesh, S. V., 0E, 45
 Shafai-Erfani, Ghazal, 27, 43
 Shah, Zoheb, 1R
 Shallwani, Hussain, 05
 Shanblatt, Elisabeth, 2W, 4V
 Shankar, A., 0E
 Shapiro, Edward, 15
 Sharma, Shobhit, 29, 2R, 2V, 4F
 Shen, Li-Chen, 5S
 Shen, Liyue, 26
 Shieh, Chun-Chien, 47
 Shim, Hyunjung, 49
 Shim, Hyunsuk, 43
 Shin, Choul Woo, 5X
 Shiraz Bhurwani, Mohammad Mahdi, 05, 5T
 Shiroma, Amy, 15
 Shu, Hui-Kuo, 43
 Si, Dong, 4A
 Siddiqui, Adnan H., 05, 5T
 Sidky, Emil Y., 2Q, 51, 52
 Siewerdsen, J. H., 0Y, 14, 1L, 1O, 23
 Simms, Matthew, 4A
 Sisniega, A., 0Y, 14, 1O
 Sjölin, Martin, 1W
 Smit, Bennie, 1R
 Smith, Frank, 3Z
 Smith, Taylor B., 29, 5Y
 Snyder, Kenneth V., 5T
 Soejoko, D. S., 0J
 Solomon, Justin B., 29, 34
 Song, Samuel, 3L
 Song, Yoon-Ho, 1I
 Soysal, Hanif R., 5V
 Speidel, Michael A., 44
 Star-Lack, Josh, 15
 Starr-Baier, Sean, 1T
 Stavro, Jann, 1H, 3B
 Stayman, J. Webster, 0L, 0Y, 14, 1A, 23
 Steiger, Joachim, 15
 Stephanov, Olivier, 1S
 Stevens, C., 5Q
 Stevens, R., 14
 Stier, Noah, 56
 Stierstorfer, Karl, 0D, 20, 24, 2B, 4F
 Stochaj, Michael E., 0G
 Struelens, Lara, 42
 Stsepankou, Dzmitry, 1N
 Suaris, Tamara, 1R
 Sun, Changjian, 4E
 Sun, Weiyuan, 1T, 4U
 Sundberg, Christel, 1W
 Suzuki, Reina, 64
 Tabary, Joachim, 5O
 Taboada, Alfonso G., 0V
 Tadinada, Aditya, 38
 Takahashi, Keiko, 09
 Tan, Jiaying, 55
 Tanaka, Rie, 3I
 Tang, Ruixiang, 29
 Tang, Xiangyang, 27
 Tanguay, Jesse, 1D, 1H
 Tao, Shengzhen, 2S, 2W, 4I, 4L
 Tao, Xi, 2P
 Tavakoli, Meysam, 5U
 Teuwen, Jonas, 04
 Thompson, Richard, 4G, 4H, 4Q, 5L
 Thuerling, Thomas, 0V, 17
 Tian, Sibo, 43
 Tian, Yi, 2B
 Tilley, Steven, 1A
 Timberg, Pontus, 3X
 Tingberg, Anders, 3X
 Tivnan, Matthew, 1A
 Tognina, Carlo, 3F
 Tong, Huayu, 4Y
 Tong, Yubing, 4E
 Torigian, Drew A., 4E
 Treb, Kevin, 1C
 Troville, Jonathan, 2H, 3N, 5I
 Trueb, Peter, 17

Udupa, Jayaram K., 4E
 Uhrig, Monika, 2U
 Vancoillie, L., 0A, 0J
 Vandenbroucke, D. A. N., 0J
 Varney, Gabriel, 5P
 Vasudev, Varun, 2D
 Veale, Matthew, 4G
 Vekhande, Swapnil, 2O
 Vent, Trevor L., 0B, 0K, 0M, 18
 Veress, Alexander I., 22
 Vieira, Marcelo A. C., 0C, 5C, 5R
 Vignero, J., 0A
 Vilagosh, Zoltan, 3S
 Vimieiro, Rodrigo B., 0C, 5C
 Vogt, S., 1L
 Vöth, Tim, 0P
 Wagner, Martin G., 44
 Waltham, Richard M., 1R
 Wang, Adam, 1S
 Wang, Ge, 2C
 Wang, Jing, 2I
 Wang, Min, 3V
 Wang, Qian, 2C, 2L
 Wang, Tonghe, 27, 43
 Wang, W., 23
 Wang, X., 14
 Wang, Yang, 2B
 Wang, Yi, 2M
 Wang, Yongbo, 2P
 Waqas, Mohammad, 0S
 Warren, Lucy M., 2E
 Watanabe, Megumi, 64
 Weil, Michael, 3L
 Weiss, C. R., 1O
 Wells, Kevin, 2E, 5J
 Wettstein, Steve, 3F
 Wicklein, Julia, 1M, 40
 Wigati, K. T., 0J
 Wikner, Jacob, 1W
 Wiley, Benjamin J., 4Y
 Wileyto, E. Paul, 0B
 Wilkinson, Collin J., 5P
 Williams, Owen, 2G
 Wood, Andrew W., 3S
 Wood, Brad J., 4N
 Woodall, Ryan T., 3M
 Worstell, William A., 0G
 Wu, Caiyun, 4E
 Wu, Chengyue, 3M
 Wu, Dufan, 53, 5Z
 Wu, Haoqi, 3V
 Wu, Mingye, 2K
 Wu, P., 14
 Wu, Xiaoming, 2M
 Wu, Yizhong, 4I
 Xia, Dan, 2Q
 Xing, Lei, 26
 Xing, Ruiwen, 4A
 Xing, YuXiang, 3K
 Xu, Menglu, 3V
 Yadav, Sumit, 38
 Yamakawa, Keisuke, 09
 Yamamoto, Shuichiro, 64
 Yan, D., 5Q
 Yan, Gang, 2P
 Yang, Feichen, 4Y
 Yang, Jaewon, 53
 Yang, Xiaofeng, 27, 43, 5Q
 Yang, Yongfeng, 36
 Yankeelov, Thomas E., 3M
 Yeon, Ji-Hwan, 1I
 Yin, Fang-Fang, 3A
 Yorkston, J., 0Y
 Yoshida, Naoko, 64
 Youn, Hanbean, 60
 Young, Kenneth C., 2E, 2F, 5J
 Yu, Hengyong, 2C, 2L
 Yu, Lifeng, 1B, 2S, 2Y
 Yu, Zhou, 5L
 Yuan, Nimu, 0R
 Yun, Jonghee, 60
 Yun, Ki Nam, 1I
 Zackrisson, Sophia, 3X
 Zambon, Pietro, 0V, 17
 Zbijewski, W., 0Y, 14, 1L, 1O
 Zeng, Rongping, 0O
 Zhan, Xiaohui, 4G, 4Q, 5L
 Zhang, Chengzhu, 0S
 Zhang, G., 0J
 Zhang, Hao, 55
 Zhang, Hua, 2P
 Zhang, Jin, 1S
 Zhang, Jun, 63
 Zhang, Li, 3K
 Zhang, Qiyang, 36, 4S, 54
 Zhang, Ran, 0H, 0X, 1C, 1Q, 1Z, 30
 Zhang, You, 2I
 Zhang, Zheng, 2Q
 Zhang, Zhicheng, 4O
 Zhao, C., 1L
 Zhao, Qihua, 19
 Zhao, Wei, 1H, 3B, 3E, 40
 Zhao, Wei, 26
 Zheng, Hairong, 36
 Zheng, JunZheng, 3K
 Zheng, Liang, 2J
 Zhi, Shaohua, 28, 57
 Zhou, Jian, 0R
 Zhou, Jun, 27, 5Q
 Zhou, Otto, 07, 5F
 Zhu, Jiongtao, 4S
 Zhu, Lei, 58
 Zhu, Shouping, 3V
 Zimmerman, Kevin C., 4G, 4H, 4Q
 Ziskin, Vitaliy, 3L
 Zuo, Hongquan, 63

Conference Committee

Symposium Chairs

Ronald M. Summers, National Institutes of Health Clinical Center
(United States)
Georgia D. Tourassi, Oak Ridge National Laboratory (United States)

Conference Chairs

Taly Gilat Schmidt, Marquette University (United States)
Guang-Hong Chen, University of Wisconsin-Madison (United States)

Conference CoChair

Hilde Bosmans, Katholieke University Leuven (Belgium)

Conference Program Committee

Shiva Abbaszadeh, University of Illinois at Urbana-Champaign
(United States)
Adam M. Alessio, University of Washington (United States)
Kirsten Boedeker, Toshiba Medical Research Institute USA
(United States)
Mini Das, University of Houston (United States)
Mats E. Danielsson, KTH Royal Institute of Technology (Sweden)
Maria Drangova, Robarts Research Institute (Canada)
Rebecca Fahrig, Siemens Healthcare GmbH (Germany) and Stanford
University School of Medicine (United States)
Thomas G. Flohr, Siemens Healthcare GmbH (Germany)
Arundhuti Ganguly, Varex Imaging Corporation (United States)
Stephen J. Glick, U.S. Food and Drug Administration (United States)
and University of Massachusetts Medical School (United States)
Michael Grass, Philips Research (Germany)
Marc Kachelriess, Deutsches Krebsforschungszentrum (Germany)
Karim S. Karim, University of Waterloo (Canada)
Hee-Joung Kim, Yonsei University (Korea, Republic of)
Patrick J. La Riviere, The University of Chicago (United States)
Quanzheng Li, Massachusetts General Hospital (United States)
Joseph Y. Lo, Duke University (United States)
Peter B. Noël, University of Pennsylvania (United States)
Frédéric Noo, The University of Utah (United States)
Jinyi Qi, University of California, Davis (United States)
John A. Rowlands, Thunder Bay Regional Research Institute (Canada)
John M. Sabol, GE Healthcare (United States)

Ioannis Sechopoulos, Radboud University Medical Center
(Netherlands)
Joseph W. Stayman, Johns Hopkins University (United States)
Anders Tingberg, Lund University (Sweden)
Yuxiang Xing, Tsinghua University (China)
John Yorkston, Carestream Health, Inc. (United States)
Lifeng Yu, Mayo Clinic (United States)
Wei Zhao, Stony Brook Medicine (United States)

Session Chairs

- 1 X-ray Imaging
Hee-Joung Kim, Yonsei University (Korea, Republic of)
Anders Tingberg, Lund University (Sweden)
- 2 Tomosynthesis Imaging
Stephen J. Glick, U.S. Food and Drug Administration (United States)
John M. Sabol, GE Healthcare (United States)
- 3 Detector Physics I
Karim S. S. Karim, University of Waterloo (Canada)
Arundhuti Ganguly, Varex Imaging Corporation (United States)
- 4 Quantitative Image Quality Assessment
Joseph Y. Lo, Carl E. Ravin Advanced Imaging Labs. (United States)
Frédéric Noo, The University of Utah (United States)
- 5 Machine Learning I
Jinyi Qi, University of California, Davis (United States)
Kirsten Boedeker, Canon Medical Research USA, Inc. (United States)
- 6 Imaging Physics: Pushing the Boundary
Taly Gilat Schmidt, Marquette University (United States)
Guang-Hong Chen, University of Wisconsin-Madison (United States)
- 7 Image Reconstruction
Joseph W. Stayman, Johns Hopkins University (United States)
Guang-Hong Chen, University of Wisconsin-Madison (United States)
- 8 Detector Physics II
Wei Zhao, Stony Brook Medicine (United States)
Shiva Abbaszadeh, University of Illinois (United States)
- 9 Spectral Imaging
Lifeng Yu, Mayo Clinic (United States)
Adam M. Alessio, University of Washington (United States)

- 10 Breast Imaging
Ioannis Sechopoulos, Radboud University Medical Center
(Netherlands)
Rebecca Fahrig, Siemens Healthineers (Germany)
- 11 Cone Beam CT
Marc Kachelrieß, Deutsches Krebsforschungszentrum (Germany)
John Yorkston, Carestream Health, Inc. (United States)
- 12 X-ray Phase Contrast Imaging
Mini Das, University of Houston (United States)
Peter B. Noël, University of Pennsylvania (United States)
- 13 Photon Counting Imaging
Mats Danielsson, KTH Royal Institute of Technology (Sweden)
Hilde Bosmans, Katholieke University Leuven (Belgium)
- 14 Algorithm
Thomas Flohr, Siemens Healthineers (Germany)
Patrick J. La Rivière, The University of Chicago (United States)
- 15 Machine Learning II
Quanzheng Li, Massachusetts General Hospital (United States)
Yuxiang Xing, Tsinghua University (China)

2019 Medical Imaging Award Recipients

Robert F. Wagner Best Student Paper Award

Robert F. Wagner was an active scientist in the SPIE Medical Imaging meeting, starting with the first meeting in 1972 and continuing throughout his career. He ensured that the BRH, and subsequently the CDRH, was a sponsor for the early and subsequent Medical Imaging meetings, helping to launch and ensure the historical success of the meeting. The Robert F. Wagner All-Conference Best Student Paper Award (established 2014) is acknowledgment of his many important contributions to the Medical Imaging meeting and his many important advances to the field of medical imaging.

This award is co-sponsored by:

The Medical Image Perception Society

SPIE.

2019 Recipients:

First Place: **Volume-of-interest imaging using multiple aperture devices** (10984-74)
Wenying Wang, Grace J. Gang, Jeffrey H. Siewerdsen, Joseph W. Stayman, Johns Hopkins University (United States)

Second Place: **Surgical aid visualization system for glioblastoma tumor identification based on deep learning and in-vivo hyperspectral images of human patients** (10951-35)

Himar Fabelo, The University of Texas at Dallas (USA) and Universidad of Las Palmas de Gran Canaria (Spain); Martin Halicek, The University of Texas at Dallas (United States) and Georgia Institute of Technology & Emory University School of Medicine (United States); Samuel Ortega, Universidad de Las Palmas de Gran Canaria (Spain); Adam Szolna, Jesus Morera, Hospital Universidad de Gran Canaria Doctor Negrin (Spain); Roberto Sarmiento, Universidad of Las Palmas de Gran Canaria (Spain); Gustavo M. Callicó, Universidad de Las Palmas de Gran Canaria (Spain); Baowei Fei, The University of Texas at Dallas (United States) and The University of Texas Southwestern Medical Center (United States)

Physics of Medical Imaging Student Paper Awards sponsored by GE Healthcare

Winner: **Volume-of-interest imaging using multiple aperture devices** (10948-74)
Wenying Wang, Grace J. Gang, Jeffrey H. Siewerdsen, Joseph W. Stayman, Johns Hopkins University (United States)

Runner-up: **A novel mammographic fusion imaging technique: the first results of tumor tissues detection from resected breast tissues using energy-resolved photon counting detector**

(10948-3) Mariko Sasaki, Shuji Koyama, Yoshie Kodera, Reina Suzuki, Hiroto Kimura, Nagoya University Graduate School of Medicine (Japan); Hiroko Nishide, Gifu University of Medical Science (Japan); Mitsuhiro Mizutani, Megumi Watanabe, Naoko Yoshida, Mikawa Breast Cancer Clinic (Japan); Hiroaki Hayashi, Natsumi Kimoto, Kanazawa University (Japan); Shuichiro Yamamoto, Daisuke Hashimoto, Masahiro Okada, JOB Corporation (Japan)

Runner-up: **Radon inversion via deep learning** (10948-35); Ji He, Jianhua Ma Sr., Southern Medical University (China)

Physics of Medical Imaging Poster Presentation Awards sponsored by Siemens Healthineers

Cum Laude: **Visibility guided differential phase contrast denoising** (10948-177) Brandon J. Nelson, Mayo Clinic (United States); Thomas Koenig, Mayo Clinic (United States) and Ziehm Imaging GmbH (Germany); Elisabeth R. Shanblatt, Shuai Leng, Cynthia H. McCollough, Mayo Clinic (United States)

Honorable Mention: **Quantifying truth-based change in radiomics features between CT imaging conditions** (10948-111) Jocelyn Hoyer, Duke Univ. Medical Ctr. (United States); Justin Solomon, Ehsan Samei, Duke Univ. (United States)

Honorable Mention: **Development of a real-time scattered radiation display for staff dose reduction during fluoroscopic interventional procedures** Jonathan Troville, Joshua Kilian-Meneghin, Chao Guo, Stephen Rudin, Daniel R. Bednarek, Univ. at Buffalo (United States) and Canon Stroke and Vascular Research Ctr. (United States) (10948-88)