

ISSN: 2168-5436 Volume 7, Number 3, August 2018



# International Journal of Medical Physics, Clinical Engineering and Radiation Oncology



ISSN: 2168-5436



[www.scirp.org/journal/ijmpcero](http://www.scirp.org/journal/ijmpcero)

# Journal Editorial Board

ISSN 2168-5436 (Print) ISSN 2168-5444 (Online)

<http://www.scirp.org/journal/ijmpcero>

---

## Editors-in-Chief

**Prof. Huan Bosco Giap** Scripps Proton Therapy Center, USA  
**Prof. Ning Jeff Yue** Rutgers Cancer Institute of New Jersey, USA

## Associate Editors-in-Chief

**Prof. Maria F. Chan** Memorial Sloan-Kettering Cancer Center, USA  
**Dr. Xiao-Feng Li** University of Louisville, USA

## Editorial Board

**Prof. Wolfgang Werner Birkfellner** Medical University Vienna, Austria  
**Prof. Zhen Cheng** Stanford University, USA  
**Prof. Indra J. Das** Indiana University School of Medicine, USA  
**Prof. Song Gao** University of Texas, USA  
**Prof. Alireza Heidari** California South University (CSU), USA  
**Prof. Mostafa Heydarian** University of Toronto, Canada  
**Prof. Seigo Kinuya** Kanazawa University, Japan  
**Dr. Wolfram Laub** Oregon State University, USA  
**Prof. Percy Lee** University of California at Los Angeles, USA  
**Dr. Jinluan Li** Fujian Provincial Cancer Hospital, China  
**Prof. Lanchun Lu** The Ohio State University, USA  
**Prof. Panayiotis Mavroidis** Karolinska Institutet and Stockholm University, Sweden  
**Prof. Yulin Song** Memorial Sloan-Kettering Cancer Center, USA  
**Dr. Kelin Wang** Pennsylvania State University, USA  
**Prof. Bixiu Wen** Sun Yat-sen University, China  
**Prof. Lei Xing** Stanford University, USA  
**Prof. Peter K. N. Yu** City University of Hong Kong, China  
**Prof. Habib Zaidi** Geneva University Hospital, Switzerland  
**Dr. Mutian Zhang** University of Nebraska Medical Center, USA  
**Dr. Qinghui Zhang** University of Nebraska Medical Center, USA  
**Dr. Li Zuo** Ohio State University Wexner Medical Center and College of Medicine, USA

# Table of Contents

**Volume 7    Number 3**

**August 2018**

**An Investigation of the Required MR Bone Attenuation Correction for Quantitative Whole-Body PET/MR Imaging Using Clinical NaF PET/CT Studies**

H. A. Ai, O. Mawlawi, R. J. Stafford, J. Bankson, Y. P. Shao, M. Guindani, R. E. Wendt III.....273

**Enhanced K-Edge Radiography Using a High-Spatial-Resolution Cadmium Telluride Array Detector**

M. Watanabe, E. Sato, Y. Oda, H. Moriyama, O. Hagiwara, H. Matsukiyo, T. Enomoto, S. Kusachi.....296

**Robustness Evaluation of a Novel Proton Beam Geometry for Head and Neck Patients Treated with Pencil Beam Scanning Therapy**

S. Huang, H. Y. Liu, J. J. Shen, H. F. Zhai, M. Kirk,

B. Hartl, A. Lin, J. McDonough, S. Both, H. B. Lin.....308

**Quality Control of Dual Energy X-Ray Absorptiometry**

M. A. Reza, A. K. Paul, H. R. Khan, M. R. Rahman.....323

**Technical Note: Identification of CT Texture Features Robust to Tumor Size Variations for Normal Lung Texture Analysis**

W. Choi, S. Riyahi, S. J. Kligerman, C.-J. Liu, J. G. Mechalakos, W. Lu.....330

**Measurement of Electron Return Effect and Skin Dose Reduction by a Bolus in an Anthropomorphic Physical Phantom under a Magnetic Resonance Guided Linear Accelerator (MR-LINAC) System**

E. Y. Han, Z. F. Wen, H. J. Lee, A. dela Cruz Paulino, C. Lee.....339

**Proton Beam Ocular Treatment in Eyes with Intraocular Silicone Oil: Effects on Physical Beam Parameters and Clinical Relevance of Silicone Oil in EYEPLAN Dose-Volume Histograms**

I. K. Daftari, K. K. Mishra, M. Seider, B. E. Damato.....347

**Denoising Projection Data with a Robust Adaptive Bilateral Filter in Low-Count SPECT**

S. Nakabayashi, T. Chikamatsu, T. Okamoto, T. Kaminaga, N. Arai,

S. Kumagai, K. Shiraishi, T. Okamoto, T. Kobayashi, J. Kotoku.....363

**Investigation of Hot-Spots in TomoDirect 3DCRT Breast Treatment**

Q. Chen, M. Mallory, E. Crandley, S. Khandelwal.....376

**Laser Pulse Duration Optimization for Photothermal Therapy with Gold Nanostars**

J. T. Cao.....391

**Relationship between Patient-Dependent Parameters and Radiation Dose Rates  
Measured around Patients Undergoing PET/CT Imaging Using <sup>18</sup>F-FDG**

K. Soliman, S. Al Qahtani, A. Alenezi.....403

**Automated Heuristic Optimization of Prostate VMAT Treatment Planning**

C. Fiandra, A. Alparone, E. Gallio, C. Vecchi, G. Balestra,

S. Bartoncini, S. Rosati, R. Ragona, U. Ricardi.....414

# International Journal of Medical Physics, Clinical Engineering and Radiation Oncology (IJMPCERO) Journal Information

## SUBSCRIPTIONS

The *International Journal of Medical Physics, Clinical Engineering and Radiation Oncology* (Online at Scientific Research Publishing, [www.SciRP.org](http://www.SciRP.org)) is published quarterly by Scientific Research Publishing, Inc., USA.

### Subscription rates:

Print: \$59 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: [sub@scirp.org](mailto:sub@scirp.org)

## SERVICES

### Advertisements

Advertisement Sales Department, E-mail: [service@scirp.org](mailto:service@scirp.org)

### Reprints (minimum quantity 100 copies)

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: [sub@scirp.org](mailto:sub@scirp.org)

## COPYRIGHT

### Copyright and reuse rights for the front matter of the journal:

Copyright © 2018 by Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>

### Copyright for individual papers of the journal:

Copyright © 2018 by author(s) and Scientific Research Publishing Inc.

### Reuse rights for individual papers:

Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

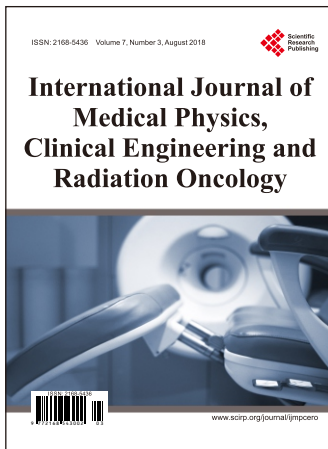
### Disclaimer of liability

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

## PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:

E-mail: [ijmpcero@scirp.org](mailto:ijmpcero@scirp.org)



## International Journal of Medical Physics, Clinical Engineering and Radiation Oncology

ISSN 2168-5436 (Print) ISSN 2168-5444 (Online)

<http://www.scirp.org/journal/ijmpcero>

**International Journal of Medical Physics, Clinical Engineering and Radiation Oncology** publishes original research and clinical articles relevant to medical physics, clinical/biomedical engineering and radiation oncology. It provides an international forum for research, reviews, education and training on the following topics:

- Biomedical optics
- Clinical trials, outcomes research
- Diagnostic physics and its applications
- Education and training in medical physics, clinical/biomedical engineering, and radiation oncology
- Genetics and tissue engineering
- Hadron-therapy
- Measuring systems, digital signal processing, and medical instrumentation
- Medical imaging
- Molecular imaging
- New technologies development and applications
- Nuclear medicine
- Professional issues in medical physics, clinical/biomedical engineering, and radiation oncology
- Radiation detection, protection, shielding, and radiation response
- Radiation dosimetry and metrology
- Radiation oncology
- Radiobiology
- Radiotherapy physics and its applications
- Therapies (non-ionising radiation)

Publications may be in the form of a (1) Review Article, (2) Research Article, (3) Short Report, (4) A Rapid Communication, (5) Technical Note, (6) Correspondence, (7) Editorial, (8) Special Report, (9) Clinical Trials or (10) Advertisements.

### Notes for Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. All papers are refereed through a peer review process. For more details about the submissions, please access the website.

### Website and E-Mail

<http://www.scirp.org/journal/ijmpcero>

E-mail: [ijmpcero@scirp.org](mailto:ijmpcero@scirp.org)