
COLLABORATING JOURNALS

BRIEF HISTORY OF RADIOLOGICAL PHYSICS AND TECHNOLOGY JOURNAL (RPT)

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Abstract A concise article on brief history, unique features, and current status of the journal *Radiological Physics and Technology (RPT)* by Editor-in-Chief and Deputy Editors

Keywords Radiological Physics, Medical Physics, Radiological Technology

I. AIMS AND SCOPE

Radiological Physics and Technology (RPT) is the official English-language journal of the Japanese Society of Radiological Technology (JSRT) and the Japan Society of Medical Physics (JSMP), which have a combined membership of more than 18,000. Although a large fraction of the articles in this relatively new journal may be written by members of these societies, we welcome contributions from authors in many countries around the world. The first issue was published in 2008, and the journal has been published biannually since then. The purpose of the journal *Radiological Physics and Technology* is to provide a forum for sharing new knowledge related to research and development in radiological science and technology, including medical physics and radiological technology in diagnostic radiology, nuclear medicine, and radiation therapy among many other radiological disciplines, as well as to contribute to progress and improvement in medical practice and patient health care.

Five types of contributions are published in the RPT, including review articles, research articles, technical notes, clinical procedures and techniques, and letters to the editor. Manuscripts submitted are initially reviewed by the Editor-in-Chief, who will then select a Deputy Editor for additional review. The Deputy Editor chooses an

Associate Editor, who is responsible for further evaluation and peer review. The manuscripts are reviewed by the Associate Editor and by at least one referee, who is chosen by the Associate Editor. The final decision on acceptance is made by the Editor-in-Chief in consultation with the Deputy Editor.

Authors should submit their manuscript online at the site: <https://www.editorialmanager.com/rpte> and upload all of the manuscript files following the instructions given on the screen. The article will be published online first after the receipt of the corrected proofs. This is the official first publication citable with DOI. After release of the printed version, the paper can be cited by the issue and page numbers. The electronic version of the RPT is available freely for one year at <http://link.springer.com/journal/12194>. For orders and inquiries about subscription, please contact a bookseller or Springer Customer Service at subscription@springer.com.

II. TECHNOLOGY

We believe that new ideas and new findings are the most important ingredients in scientific and technical publications. It is worthwhile to report new ideas and new findings as soon as possible, even if the supporting data might not be completely available at an early phase of research and development. Therefore, we welcome short articles clearly describing new ideas and new findings that are likely to have a significant impact on radiological physics and technology in the future. We are willing to take a small risk against a potentially large benefit to the societies. Authors can then publish long articles later, with comprehensive analysis and extensive data, which will provide strong evidence and support for their early findings. Another advantage of short articles is that they can be prepared by authors quickly, reviewed by referees

quickly, and read by many readers quickly. Note also that the value of an article is not dependent on the length of the article. For example, Paul C. Lauterbur wrote a short article of two pages about his early findings on MRI, for which he later received a Nobel Prize.

We believe that one of the roles of the journal is to assist young researchers in nurturing their growth as a scientist, and thus our editorial policy includes trying to salvage a manuscript as much as possible by providing constructive reviews to authors, if the manuscript has at least a potentially publishable content, although the manuscript appears to be written poorly. Because the native language of many authors is not English, the RPT provides a special editing service by our Editorial Assistant, which is free to authors, for initial polishing of all manuscripts submitted, and also a final polishing only for technically accepted manuscripts. However, authors

whose native language is not English are strongly advised to have their manuscripts checked by an English-speaking person who understands the material, before submission to the journal.

III. CURRENT STATUS OF RADIOLOGICAL PHYSICS AND TECHNOLOGY

The RPT has published eight volumes of journals from January 2008 to July 2015. The number of articles and the number of pages in each issue are illustrated in Fig. 1, which indicates a gradual increase in the number of articles.

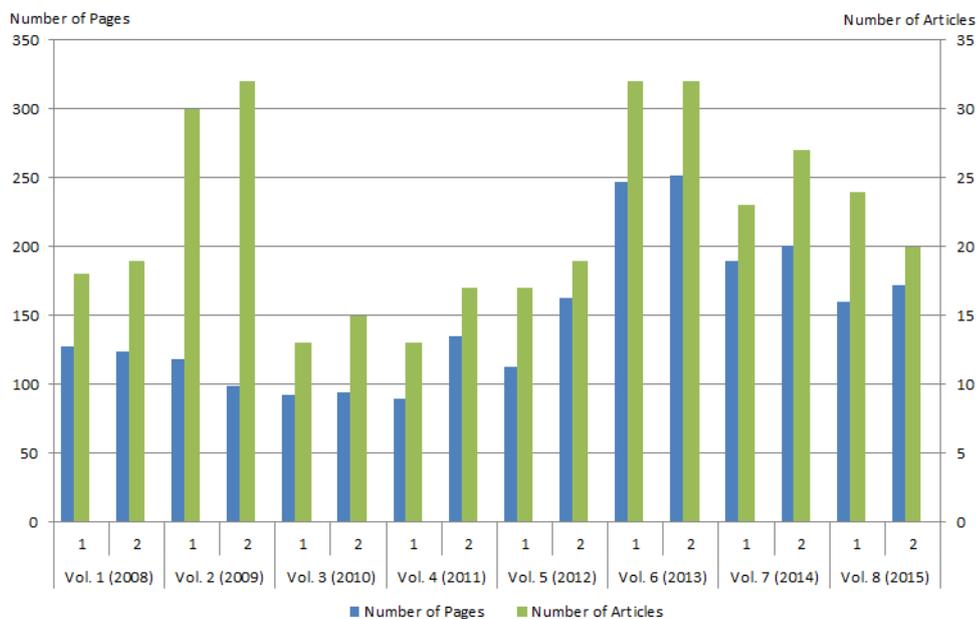


Fig.1 Number of articles and number of pages of the RPT from 2008 to 2015

The total number of manuscripts submitted from 2007 to July 2015 is 459, and the total number of accepted manuscripts is 308, thus providing an average acceptance rate of 67.1% (the annual acceptance rate ranges from 46.9% to 94.4%). Approximately 25-30% of the total submissions originated outside Japan, including Asia, North America, Europe, the Middle East, South America, and Africa. The number of downloads has increased

substantially from below 11,000 in 2011 and 2012 to above 16,000 in 2013 and 2014. Downloads by geography indicate 54% from the Asia-Pacific region, 23% from Europe, 16% from North America, and 7% from the remaining regions. Some of the most downloaded articles in 2014 are shown in Table 1.

Table 1 Articles in the RPT with top 15 downloads from September 2014 to August 2015

Article	Author	Publication Year	Downloads
ROC analysis in medical imaging: a tutorial review of the literature	Charles E. Metz	2008	434
Evaluation of the effectiveness of X-ray protective aprons in experimental and practical fields	Hiroshige Mori	2014	365
Effects of diffusional kurtosis imaging parameters on diffusion quantification	Issei Fukunaga	2013	333
Calculation of air-kerma rate of diagnostic X-ray generators	Yoh Katoh	2011	305
Comparison of magnetic resonance imaging sequences for depicting the subthalamic nucleus for deep brain stimulation	Hiroshi Nagahama	2015	279
Validation of a quick three-dimensional dose verification system for pre-treatment IMRT QA	Yuji Nakaguchi	2015	261
Optimization of acquisition parameters and accuracy of target motion trajectory for four-dimensional cone-beam computed tomography with a dynamic thorax phantom	Yoshinobu Shimohigashi	2015	254
Radiologic assessment of a self-shield with boron-containing water for a compact medical cyclotron	Genki Horitsugi	2012	252
Modulation transfer function measurement of CT images by use of a circular edge method with a logistic curve-fitting technique	Tomomi Takenaga	2015	252
Antoine Henri Becquerel (1852–1908): a scientist who endeavored to discover natural radioactivity	Masaru Sekiya	2015	241
Development of GATE Monte Carlo simulation for a dual-head gamma camera	Mehdi Momennezhad	2012	239
Comparison of neutron fluxes in an 18-MeV unshielded cyclotron room and a 16.5-MeV self-shielded cyclotron room	Toshioh Fujibuchi	2012	209
Spatial resolution measurement for iterative reconstruction by use of image-averaging techniques in computed tomography	Atsushi Urikura	2014	200
Factors affecting the chemical exchange saturation transfer of Creatine as assessed by 11.7 T MRI	Shigeyoshi Saito	2015	185
Copper filtration in pediatric digital X-ray imaging: its impact on image quality and dose	Philippe Brosi	2011	176

The 15 most cited articles up to the present are listed in Table 2. The journals frequently citing articles published in the RPT are Medical Physics, Physics in Medicine and Biology, Journal of Applied Clinical Medical Physics, and

Proceedings of SPIE. The origins of authors citing the RPT are the USA, Japan, Germany, China, Switzerland, and others.

Table 2 Most cited articles in the RPT from 2008 to 2015

Article	Author	Publication Year	Number of Cites
ROC analysis in medical imaging: a tutorial review of the literature	Charles E Metz	2008	47
Demonstration of iodine K-edge imaging by use of an energy-discrimination X-ray computed tomography system with a cadmium telluride detector	Abulajiang Abudurexiti	2010	26
X-ray fluorescence camera for imaging of iodine media in vivo	Hiroshi Matsukiyo	2009	21
Experimental verification of proton beam monitoring in a human body by use of activity image of positron-emitting nuclei generated by nuclear fragmentation reaction	Teiji Nishio	2008	19
Simulation and experimental studies on magnetic hyperthermia with use of superparamagnetic iron oxide nanoparticles	Kenya Murase	2011	12
A review of image-guided radiotherapy	George T Y Chen	2009	10
Evaluating the performance of a MOSFET dosimeter at diagnostic X-ray energies for interventional radiology	Koichi Chida	2009	10
System design of a small OpenPET prototype with 4-layer DOI detectors	Eiji Yoshida	2012	9
Application of an artificial neural network to the computer-aided differentiation of focal liver disease in MR imaging	Xuejun Zhang	2009	9
Development of a GPU-based multithreaded software application to calculate digitally reconstructed radiographs for radiotherapy	Shinichiro Mori	2009	8
Analysis method of noise power spectrum for medical monochrome liquid crystal displays	Katsuhiko Ichikawa	2008	7
Dosimetric evaluation of nuclear interaction models in the Geant4 Monte Carlo simulation toolkit for carbon-ion radiotherapy	Satoru Kameoka	2008	7
Three-dimensional motion study of femur, tibia, and patella at the knee joint from bi-plane fluoroscopy and CT images	Takashi Ohnishi	2010	7
Polarity effect in commercial ionization chambers used in photon beams with small fields	Tetsunori Shimono	2009	7
Use of a clinical MRI scanner for preclinical research on rats	Akihide Yamamoto	2009	7
Imaging simulations of an "OpenPET" geometry with shifting detector rings	Taiga Yamaya	2009	7

IV. RECOGNITION OF GREAT PIONEERS IN RADIOLOGICAL SCIENCE

For the cover of the journal RPT, we decided to honor the great pioneers in radiological science by displaying their portraits, laboratories and unique equipment that they used or developed, and relevant images. As illustrated in Fig. 2, the first pioneer is Wilhelm. C. Roentgen (vol. 1, 2008); then follow Marie Curie (vol. 2, 2009), Godfrey Hounsfield (vol. 3, 2010),

Peter Mansfield and Paul C. Lauterbur (vol. 4, 2011), Shinji Takahashi (vol. 5, 2012), Kurt Rossmann (vol. 6, 2013), Hal O. Anger (vol. 7, 2014), and Antoine Becquerel (vol. 8, 2015). The next issue in 2016 will have Rolf M. Sievert (vol.9). Articles about the lives and achievements are provided for Shinji Takahashi [1], Kurt Rossmann [2], Hal Anger [3], and Antoine Becquerel [4].

V. REVIEW ARTICLES BY LEADING SCIENTISTS

Review articles are intended to be authoritative reviews of subjects of significance to the field of radiological science and technology. Seven invited review

articles* and three proffered review articles published in the RPT are listed in Table 3, which are commonly cited and also downloaded frequently.

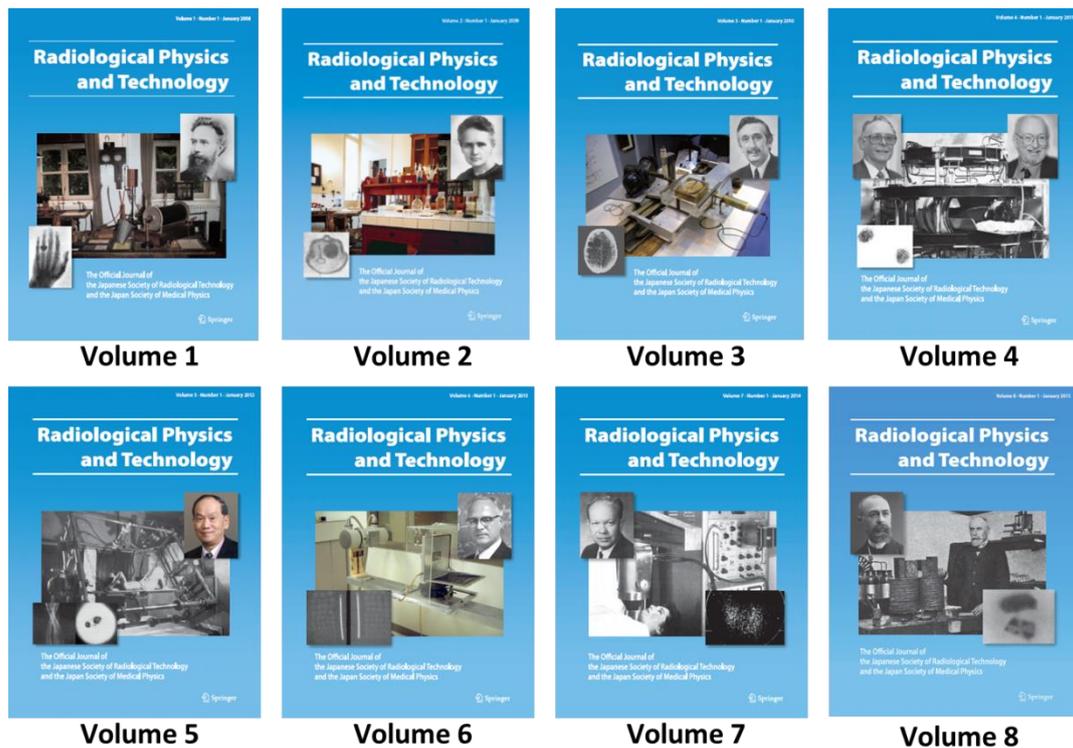


Fig.2 Top cover pages of the RPT from 2008 to 2015

Table 3 Invited* and proffered review articles by leading scientists

Article	Author	Publication Year
ROC analysis in medical imaging: a tutorial review of the literature*	Charles E. Metz	2008
A review of image-guided radiotherapy*	George T. Y. Chen; Gregory C. Sharp; Shinichiro Mori	2009
Water-equivalent pathlength reproducibility due to respiratory pattern variation in charged-particle pancreatic radiotherapy	Motoki Kumagai; Shinichiro Mori; Ryusuke Hara; Hiroshi Asakura; Riwa Kishimoto; Hirotohi Kato; Shigeru Yamada; Susumu Kandatsu	2009
Calculation of air-kerma rate of diagnostic X-ray generators	Yoh Katoh; Sogo Mita; Masahiro Fukushi; Yoshiyuki Nyui; Shinji Abe; Junichi Kimura	2011
From PACS to Web-based ePR system with image distribution for enterprise-level filmless healthcare delivery*	H. K. Huang	2011
Current status and future prospects of multi-dimensional image-guided particle therapy*	Shinichiro Mori; Silvan Zenklusen; Antje-Christin Knopf	2013
Patient investigation of average glandular dose and incident air kerma for digital mammography	Ai Kawaguchi; Yuta Matsunaga; Tomoko Otsuka; Shoichi Suzuki	2014
Medical imaging, PACS, and imaging informatics: retrospective*	H. K. Huang	2014
Research in digital mammography and tomosynthesis at the University of Toronto*	Martin J. Yaffe	2014
Potential clinical impact of advanced imaging and computer-aided diagnosis in chest radiology: importance of radiologist's role and successful observer study*	Feng Li	2015

VI. RECOGNITION OF OUTSTANDING ARTICLES
PUBLISHED IN RADIOLOGICAL PHYSICS AND
TECHNOLOGY

The JSRT and the JSMP established the Doi Award in 2008, to be given for outstanding articles in each of the three primary fields related to diagnostic imaging, nuclear medicine, and radiation therapy physics published in the RPT each year. The Doi Award has been named in view of Professor Kunio Doi's notable contributions to medical imaging and computer-aided diagnosis while he has been Professor of Radiology at the University of Chicago during

the last 40 years, and also the first Editor-in-Chief of the journal RPT. Outstanding articles which received the Doi award are listed in Table 4. The recipients of the Doi Award receive cash awards, and they give an invited lecture at the annual meeting of the Japan Radiology Congress (JRC) in Yokohama, Japan. Authors from overseas are encouraged and qualified to be candidates for the Doi Award, as long as an individual is not a previous recipient.

Table 4 Articles with Doi Awards from 2009 to 2014

Year	Fields	Article	Author
2009	Diagnostic Imaging	Study of intra-abdominal fat distribution in sigmoid colon cancer in Japanese patients by use of MDCT data	Toshihiro Ogura
	Nuclear Medicine and MRI	Imaging simulations of an "OpenPET" geometry with shifting detector rings	Taiga Yamaya
	Radiation Therapy Physics and Health Physics	Measurement of thermal neutron fluence distribution with use of ²³ Na radioactivation around a medical compact cyclotron	Toshioh Fujibuchi
2010	Diagnostic Imaging	Three-dimensional motion study of femur, tibia, and patella at the knee joint from bi-plane fluoroscopy and CT images	Takashi Ohnishi
	Nuclear Medicine, Informatics, and General	MRI, Creation and application of three-dimensional computer-graphic animations for introduction to radiological physics and technology	Tomoyuki Hasegawa
	Radiation Therapy Physics	Practical approaches to four-dimensional heavy-charged-particle lung therapy	Shinichiro Mori
2011	Diagnostic Imaging	Effectiveness of temporal and dynamic subtraction images of the liver for detection of small HCC on abdominal CT images: comparison of 3D nonlinear image-warping and 3D global-matching techniques	Eiichiro Okumura
	Nuclear Medicine, Informatics, and General	MRI, Automated segmentation method of white matter and gray matter regions with multiple sclerosis lesions in MR images	Taiki Magome
	Radiation Therapy Physics	Simulation and experimental studies on magnetic hyperthermia with use of superparamagnetic iron oxide nanoparticles	Kenya Murase
2012	Diagnostic Imaging	Automated segmentation of psoas major muscle in X-ray CT images by use of a shape model: preliminary study	Naoki Kamiya
	Nuclear Medicine and MRI	Optimization of injection dose based on noise-equivalent count rate with use of an anthropomorphic pelvis phantom in three-dimensional ¹⁸ F-FDG PET/CT	Kazumasa Inoue
	Radiation Therapy Physics	In-treatment 4D cone-beam CT with image-based respiratory phase recognition	Satoshi Kida
2013	Diagnostic Imaging	Computerized image-searching method for finding correct patients for misfiled chest radiographs in a PACS server by use of biological finger prints	Risa Toge
	MRI, Nuclear Medicine and Informatics	Feasibility of MR perfusion-weighted imaging by use of a time-spatial labeling and inversion pulse	Yoshiyuki Ishimori
	Radiation Therapy Physics	Technical approach to individualized respiratory-gated carbon-ion therapy for mobile organs	Mutsumi Tashiro
2014	Diagnostic Imaging	Development and evaluation of statistical shape modeling for principal inner organs on torso CT images	Xiangrong Zhou
	MRI, Nuclear Medicine and Informatics	A method for assessing metabolic information on liver and bone marrow by use of double gradient-echo with spectral fat suppression	Harumasa Kasai
	Radiation Therapy Physics	A formulation of cell surviving fraction after radiation exposure	Hiroyuki Date

VII. FINAL THOUGHTS

The RPT is a relatively new journal in the field of radiological science and technology, which has made good progress over the last eight years. So far, however, we were not able to acquire the impact factor, which is considered an indicator of the usefulness of a scientific and technical journal worldwide. The lack of the impact factor can be a considerable handicap for a new journal to be able to grow quickly. Some academic institutions do not allow trainees such as Ph.D. students to publish their dissertations in journals without the impact factor. Therefore, we have been struggling to improve the RPT significantly and quickly to attain this goal. We do hope that many researchers in many countries around the world will seriously consider publishing their articles in Radiological Physics and Technology.

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