



RADIATION PHYSICS AND CHEMISTRY

The Journal for Radiation Physics, Radiation Chemistry and Radiation Processing

AUTHOR INFORMATION PACK

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DESCRIPTION

Radiation Physics and Chemistry is a multidisciplinary journal that provides a medium for publication of substantial and original papers, reviews, and short communications which focus on research and developments involving **ionizing radiation** in **radiation physics**, **radiation chemistry** and **radiation processing**.

Radiation Physics and Chemistry aims to publish articles with significance to an international audience, containing substantial novelty and contributions to science. We expect that articles present new insight or hypothesis testing, that they focus on radiation effects or applications of ionizing radiation, provide uncertainties and statistical analysis where relevant, and present their findings in context with discussion of past and recent literature. The editors reserve the right to reject, with or without external review, articles which do not meet these criteria. This could include articles which are very similar to previous publications, except that target substrates, materials, analyzed sites or experimental methods have been changed.

A fuller though not exhaustive list of topics that are considered for publication include:

Radiation Physics

Fundamental processes in radiation physics

- Interaction mechanisms for example scattering and absorption of photon and particle radiations
- Attenuation coefficients
- X-ray fluorescence
- Cherenkov effect
- Polarization
- Effects of periodic structures (Bragg diffraction, channelling, parametric x-radiation, etc)
- Mathematical methods in radiation physics, reference data

Radiation sources and detectors

- Accelerator and radionuclide spectra and other properties
- Radiation fields from point and extended sources
- Detector response functions
- Basic physics of Dosimetry
- Radiation transport
- Buildup factors

Radiation Chemistry

- Ionizing radiation induced ionic and radical reactions
- Kinetics and mechanism of radiolysis reactions
- Pulse radiolysis technique and measurements
- Nanoparticle production by ionizing radiation
- Radiation induced chain reactions, polymerization
- Irradiation effects on polymers
- Dose and dose rate effects
- LET effects on chemical reactions
- Pollutant removal by ionizing radiation
- Computational models on radiation chemical reactions

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Radiation Processing

Radiation Sterilization

- Microbiology
- Toxicology
- Biocompatibility
- Validation

Food irradiation

- Microbiological quality
- Chemical effects
- Nutrition
- Detection induced radioactivity

Polymers

- Synthesis
- Polymerization
- Curing
- Grafting
- Crosslinking
- Degradation
- Composites

Environmental

- Effluent gas
- Waste water
- Water purification
- Toxin reduction
- Sludge
- Recycling of wastes

Radiation effects

- Semiconductors
- Gemstones
- Crystals
- Ceramics

Dosimetry and process control

- Dosimeter systems
- Analytical instrumentation

- Environmental influence
- Measurement uncertainty

Radiation sources and facilities for radiation processing

- Electron Accelerators
- Gamma and x-ray facilities
- Safety issues
- Transport of radioisotopes

AUDIENCE

Chemists and physicists working with ionizing radiation and its applications.

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Malcolm Cooper, Dept. of Physics, University of Warwick, Bransford Avenue, CV4 7AA, Coventry, UK
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(Nondestructive Evaluation Methods, Monte Carlo Methods, Modeling and Analysis of Radiation Measurement Systems)

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(Radioactivity, Radiation Detection, Environmental Radioactivity, Accelerator Mass Spectrometry (AMS), Ion Beam Analysis Techniques, XRF, 14C Dating, Applied Nuclear Physics)

Mayeen Uddin Khandaker, School of Healthcare and Medical Sciences, Center for Radiation Sciences, Sunway University, 47500, Bandar Sunway, Malaysia

Alessio Mangiarotti, Instituto de Física, University of Sao Paulo (USP), Rua do Matão nr.1371, Butantã, 05508090, São Paulo, Brazil

(Bremsstrahlung, Photon Scattering, Electron Scattering, Monte Carlo Simulation, Charged Particle Detector)

Ladislav Musilek, Fac. of Nuclear Sciences and Physical Eng., Czech Technical University in Prague (Ceské Vysoké Učení Technické), Brehova 7, 115 19, Praha 1, Czech Republic
(Radiation Measurements and Applications)

Hiroyuki Oyanagi, AIST Central 2, Photonics Research Institute, 1-1-1 Umezono, 305-8568, Ibaraki, Japan

Patrick Regan, Dept. of Physics, University of Surrey, GU2 7XH, Guildford, Surrey, UK

Eric Shirley, Sensor Science Division, National Institute of Standards and Technology (NIST), 100 Bureau Drive, Gaithersburg, MD 20899-8441, USA

Associate Editors in Radiation Chemistry:

Amitava Adhikary, Dept. of Chemistry, Oakland University, 146 Library Drive, Rochester, MI-48309-4451, USA
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Emilio Bucio, Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México (UNAM), Circuito Exterior s/n, Ciudad Universitaria, 04510, Mexico City, Mexico
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Marie Davídková, Nuclear Physics Institute, The Czech Academy of Sciences, Řež 130, 250 68, Řež, Czech Republic

Vladimir Feldman, Dept. of Chemistry, M.V. Lomonosov Moscow State University, Vorobyovy Gory, 119991, Moscow, Russian Federation

(Free Radicals in Solids and Polymers, EPR, Low Temperatures, Matrix Isolation)

Dušan Ražem, Radiation Chemistry and Dosimetry Lab., Bijenicka cesta 54, Ruđer Bošković Institute, P.O. Box 180, 10000, Zagreb, Croatia
(Chemical Kinetics)

Gustavo Varca, Nuclear and Energy Research Institute (IPEN/CNEN-SP), University of Sao Paulo (USP), Avenida Lineu Prestes 2242, Cidade Universitária, 05508-000, São Paulo, Brazil
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Olgun Guven, Kimya Bolumu, Hacettepe University, Beytepe, 06532, Ankara, Turkey
(Polymers)

Wolfgang Knolle, Institut für Oberflächenmodifizierung e.V., Permoserstrasse 15, D-04303, Leipzig, Germany
(Polymers)

Kim Morehouse, Food and Drug Administration, FDA, Center for Food Safety and Applied Nutrition, 5100 Paint Branch Parkway, College Park, MD 20740, USA
(Radiation Processing, Food Irradiation)

Anuradha Prakash, Food Science Program, Chapman University, One University Drive, Orange, CA 92866, USA
(Food Quality, Food Processing, Food Irradiation)

Andrew Whittaker, Centre for Magnetic Resonance, University of Queensland, Research Road, Brisbane, QLD 4072, Australia
(Polymers)

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A multidisciplinary journal linking science and industry

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Radiation Physics and Chemistry aims to publish articles with significance to an international audience, containing substantial novelty and contributions to science. We expect that articles present new insight or hypothesis testing, that they focus on radiation effects or applications of ionizing radiation, provide uncertainties and statistical analysis where relevant, and present their findings in context with discussion of past and recent literature. The editors reserve the right to reject, with or without external review, articles which do not meet these criteria. This could include articles which are very similar to previous publications, except that target substrates, materials, analyzed sites or experimental methods have been changed.

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For Radiation Physics: C. Chantler

For Radiation Chemistry: L. Wojnarovits

For Radiation Processing: P. Ulanski

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C. Chantler, (Radiation Physics) University of Melbourne, School of Physics, 3010 Victoria, Australia.
Email: chantler@unimelb.edu.au

P. Ulanski, (Radiation Processing) Institute of Applied Radiation Chemistry, Lodz University of Technology. Email: ulanskip@mitr.p.lodz.pl

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