



# RADIATION PHYSICS AND CHEMISTRY

The Journal for Radiation Physics, Radiation Chemistry and Radiation Processing

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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

Papers on photochemistry, microwave chemistry and thermochemistry are believed to belong to the scope of RPC only if they have strong relevance to radiation chemistry. EPR papers will only be considered for publication when the method is used for clarifying radiation chemical processes, e.g. by determining the nature of the transient intermediates. Radiochemistry papers such as tracer technique, radon or other radionuclide measurements, isotopic constitutions fall outside the scope of the journal.

## **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

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Chemists and physicists working with ionizing radiation and its applications.

## IMPACT FACTOR

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2016: 1.315 © Thomson Reuters Journal Citation Reports 2017

## ABSTRACTING AND INDEXING

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Aqualine Abstracts  
Cambridge Scientific Abstracts  
Chemical Abstracts  
Current Contents/ASCA  
Current Contents/Physics, Chemical, & Earth Sciences  
Current Contents/SciSearch Database  
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(Aqueous Systems, LETF Effects)

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(Chemical Kinetics)

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(Polymers)

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(Radiation Processing, Food Irradiation)

**Anuradha Prakash**, Food Science Program, Chapman University, One University Drive, Orange, CA 92866, USA

(Food Quality, Food Processing, Food Irradiation)

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### **INTRODUCTION**

The Journal for Radiation Physics, Radiation Chemistry and Radiation Processing

A multidisciplinary journal linking science and industry

### *Novelty and relevance*

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

**L. Wojnarovits**, (Radiation Chemistry) Institute of Isotopes, Hungarian Academy of Sciences., Budapest, Hungary. Email: wojnarovits.laszlo@energia.mta.hu

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### *Electronic artwork*

#### *General points*

- Make sure you use uniform lettering and sizing of your original artwork.
- Preferred fonts: Arial (or Helvetica), Times New Roman (or Times), Symbol, Courier.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
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Strunk Jr, W., White, E.B., 2000. *The Elements of Style*, fourth ed. Longman, New York.

Reference to a chapter in an edited book:

Mettam, G.R., Adams, L.B., 2009. How to prepare an electronic version of your article, in: Jones, B.S., Smith, R.Z. (Eds.), *Introduction to the Electronic Age*. E-Publishing Inc., New York, pp. 281–304.

Reference to a website:

Cancer Research UK, 1975. Cancer statistics reports for the UK. <http://www.cancerresearchuk.org/aboutcancer/statistics/cancerstatsreport/> (accessed 13 March 2003).

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[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T., 2015. Mortality data for Japanese oak wilt disease and surrounding forest compositions. *Mendeley Data*, v1. <https://doi.org/10.17632/xwj98nb39r.1>.

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