



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

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

Chemists and physicists working with ionizing radiation and its applications.

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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

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