

Editorial

Editorial for the Special Issue “Atmospheric Radon Measurements, Control, Mitigation and Management”

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The Special Issue of the open-access journal *Atmosphere* addresses the issue of “Atmospheric Radon Measurements, Control, Mitigation and Management”, based on the global need for better management of radon and indoor air pollutants inside buildings, based on reliable research experience.

Evidence shows that air pollution worldwide is responsible for a significant burden of deaths, hospital admissions and exacerbation of symptoms. Among the natural environmental pollutants that can accumulate in the atmosphere, indoor or outdoor, radon gas is considered the main source of ionizing radiation exposure for the general population.

Radon (^{222}Rn) is a radioactive gas product of the decay of radium (^{226}Ra), which belongs to the decay series of uranium (^{238}U) and is present in various type of soils and rock of the earth’s crust. Radon originating from the ground can permeate through the soil and penetrate the indoor space of buildings, where it can accumulate at a level that results in a health risk, and it is recognized as the second leading cause of lung cancer by the World Health Organization (WHO). Relevant scientific research in recent decades, several case studies conducted on large population cohorts, and internationally adopted legislation have well established that the continued inhalation of radon air in homes and workplaces poses a scientifically proven health hazard, which depends mainly on the levels to which it is exposed and the duration of the exposure period. Variation of radon levels in buildings depends on several factors, and among the most important are the geological features of the investigated area, the environmental parameters, the building characteristics and occupational patterns. Fortunately, public exposure to radon, after an appropriate assessment, can be controlled and/or prevented by preventive measures, mitigation methods and management solutions, including handling and treatment, mitigation and minimization of indoor radon levels inside the buildings.

This volume aims to contribute to a better understanding of the challenges related to radon issues, to the improvement of radon-related legislation and public policies and to help better understand the regulatory tools and procedures leading to the reduction of occupational and public exposures to radon in the atmosphere of buildings. Moreover, the requirements of the latest EURATOM Directive 59/2013 adopted by the European Council introduce for all the European member states the necessity to design instruments and regulation methods focused on compliance with the reference level adopted by radon regulation in each country. Therefore, the journal falls into the category of volumes dedicated to radon, whose contribution is currently paramount, providing useful tools and references for radon management, risk communication, public education and mitigation actions.

Relevant papers in the field have been accepted to publication and supported by science-based evidence, which includes relevant studies, experiences, strategies, procedures and practices at the institutional, local, national, European or global level.

This volume includes 17 important articles in this field of scientific and experimental research related to the radon field, written by reputable researchers and specialists in these researches, including prominent names in the radon scientific community. In general, the articles were reviewed and accepted for publication after a critical peer review. The



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published articles are intended to provide guidance and solutions for correctly measuring and evaluating radon in different environments and the efficient management of radon levels in affected buildings for radiation protection of the population. An attempt has been made to classify the contributions below [1–17]:

- Three papers aim to define radon awareness and policy perspectives, to set-up radon specific norms to control of the health risk of radon exposure in the Republic of Moldova and to better define measurement procedures, approaches and standard guidelines for Romanian Schools.
- The practical implementation of radon legislations worldwide requires reliable measurements of the radon activity concentration in air. Thus, four papers show relevant results related to the progress in metrology, detectors and infrastructure networks for radon measurement and management in Romania, with important practical applications in the calibration of the instruments used for indoor radon activity concentration measurements.
- Seven articles present relevant results on studies conducted on seasonal variations of radon concentrations in buildings from Russian Residential High-Rise, Italian Karst Region, in some regions of Switzerland, including results obtained in the atmosphere of a Tourist Cave in Japan, as well as with regard to the impact on public health associated with radon released from Karstic Springs used as drinking water in rural Romania and the presentation of a case study conducted in Italy on relationships among indoor radon, earthquake magnitude data and long cancer risks.
- Three articles address the field of NORM measurements in construction materials and radon mitigation in affected buildings, with case studies in Thailand, Korea and the practical implementation of radon reduction solutions in the Galicia region of Spain.

Therefore, I consider that the “Atmospheric Radon Measurements, Control, Mitigation and Management” Volume has fully contributed to providing the opportunity for researchers, academia and other relevant stakeholders to publish their original research or review on “Radon” and to identify new research achievements that can be used to address the issue. The published papers are of high scientific quality, covering many areas of research in the field of radon, with applications in public policy, practical recommendations, geophysics, environment, life sciences and building sustainability.

Conflicts of Interest: The authors declare no conflict of interest.

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