

Fifty years ago ...

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Fifty years ago—in the early 1960s—the world was different from what it is today. At that time, large parts of the world still had to recover from the disastrous consequences of the Second World War. People struggled for a better life and science appeared to provide a promising option to achieve this goal. One of the consequences of the Second World War was the formation of the United Nations in 1945, and the early 1960s may be considered as an era where world peace seemed a realistic vision. The political and military balance of power between the major global players at that time—the United States and the Soviet Union—seemed to work and even serious alarms and setbacks, such as the 1962 Cuban Missile Crisis, could (with luck) be solved. Despite the trauma of the atomic bomb explosions in Hiroshima and Nagasaki, the peaceful use of nuclear power was promoted in the 1950s as a safe economic option to cover the increasing global energy need, and in many countries, nuclear programs were initiated and the first research and commercial nuclear reactors were built. Also, about then, the first huge digital computers were developed and the early 1960s saw them being applied in many scientific fields.

This general belief in science and technology, together with military and other competition between the United States and the Soviet Union, may explain why in the 1950s another major global project was launched, that is, the

decision to conquer space. Again, in 1950s, first steps toward this goal were initiated, and in 1961, the Soviet Union succeeded in putting the first human being into a near Earth orbit—again an example where technology initially developed for military purposes (rocket science) was used in the civilian arena. Finally, in 1961 in the US, President Kennedy launched the Apollo mission in a trend-setting speech, which culminated in 1969 when the first manned vehicle landed on the Moon.

The belief in science and technology seemed endless, and it was this belief that characterized, among other aspects, the spirit that was present in the early 1960s. The understanding that uncontrolled economical growth could be a threat to the future of our planet was not yet developed and the famous “The Limits to Growth” report of the Club of Rome was yet to be published.

Fifty years ago, the people involved in developing and running Radiation and Environmental Biophysics were different to those involved today. In 1963, Boris Rajewsky was able to realize, together with Springer publisher house, an idea he had in mind for many years: to initiate a scientific peer-reviewed journal in Germany that covers biological aspects of radiation sciences. Rajewsky was a physicist by training who headed the Max Planck Institute for Biophysics in Frankfurt, Germany, for almost 30 years. In the early phase, the philosophy and concept of the journal were somewhat different from what they are today. Initially, the title of the journal “Biophysik” was in German and articles were accepted if they were written in German, French or English. In fact, the first issue that came out in 1963 included 58 articles in total out of which 57 were written in German language while only one was in English. As it happened, the first article in this issue was by Boris Rajewsky himself, with the title “Zum Zeitverhalten von Elektronenresonanzsignalen in röntgenbestrahltem

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Federkeratin” (On the time behavior of electron resonance signals in feather keratin irradiated by x-rays) (Rajewsky and Redhardt 1963). In 1970, Hermann Muth from Homburg/Saar, Germany, took over as an Editor-in-Chief and lead the journal until 1980. This period saw an increasing international appearance of the journal, which may be documented by the fact that the journal title changed to “Radiation and Environmental Biophysics” in 1974. Consequently, volume 11 included only five publications in German and the last French article published in the journal (Lipnik 1974), while the last article in German was published in volume 14 (Redmann and Reichel 1977). When Hermann Muth retired, Ulrich Hagen from the GSF in Munich, Germany, took over as an editor, until 1996. During this period, Radiation and Environmental Biophysics was already a well-established journal with a constant publication rate of about 25–30 articles per year. Already in 1994, Ulrich Hagen was supported by Albrecht Kellerer who had become head of the Radiobiological Institute of the Ludwig Maximilians University Munich. When Ulrich Hagen retired in 1996, Albrecht Kellerer continued and was supported by Traute Roedler-Vogelsang who served for the journal as a Managing Editor. During this period, the appearance changed twice and in 2003—it was the 40 years anniversary—the layout became as it is at present. Since 2005, we both followed as Editors-in-Chief, with a one-year period of support by Antony Brooks in 2007/2008, and we have continued to work for Radiation and Environmental Biophysics until today. When we took over, one of our first tasks was to introduce an online submission system as used by many other Springer journals. In 2006, the journal went online, and since then, we use—as all major journals today—this system which facilitates the daily work for the journal greatly.

Fifty years ago—in the pre-internet era—the publication process was different compared to what it is today. At that time, authors wrote their papers by typewriter, drew any figures in ink, and sent the manuscripts by air mail to the editorial office. Communication with the referees was done in a similar way. Daily life of an editor was driven by those procedures, and no automatic procedures were available that would have had facilitated manuscript handling and correspondence. Needless to say that printing costs were a limiting factor which among other aspects determined the size of the journal volumes, and consequently, the typical journal size was around 300 printed pages at that time (Fig. 1). When a reader was interested in a certain article, he had to buy a printed copy of the journal or to visit a library where a printed copy of the issue was available. In contrast, today the importance of printed copies is decreasing rapidly with printing costs becoming less important, while the distribution of electronic versions of the journal is becoming more and more important. It is for

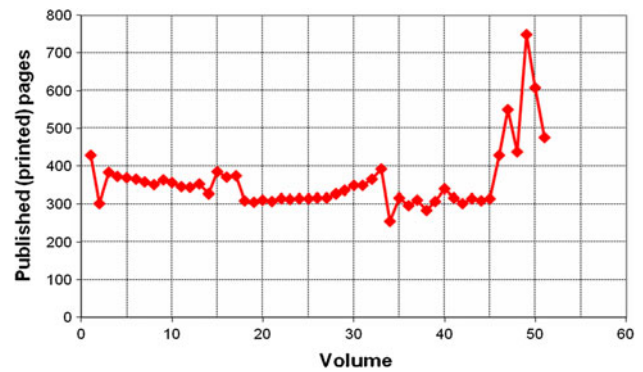


Fig. 1 Number of printed pages per issue in Radiation and Environmental Biophysics, from 1963 (volume 1) to 2012 (volume 51)

this reason that we could allow the journal to increase its size and in 2010, for example, issue 48 had more than 700 pages (Fig. 1). In line with this development, the number of published articles per issue also increased from 25–30 in the early period of the journal to 50–70, nowadays. In contrast to printed copies, electronic copies of published articles and their distribution became more and more important recently. While these played no role in the early phase of the journal when the worldwide web did not exist, the number of full-text downloads from the REB website (corrected for obvious robotic effects) increased tremendously in recent years, from about 8,000 in 2004 to about 47,000 in 2011 (Fig. 2).

Since its beginning, when it was largely a German journal, Radiation and Environmental Biophysics became more and more international, an aspect which must not be underestimated if one has to keep the journal competitive with the global distribution of the radiation-science community. Our current Associate Editors and Members of the Editorial Board come from nine countries and three continents (Europe, America, Asia). Moreover, in 2011, for example, about 39 % of the submitted manuscripts were

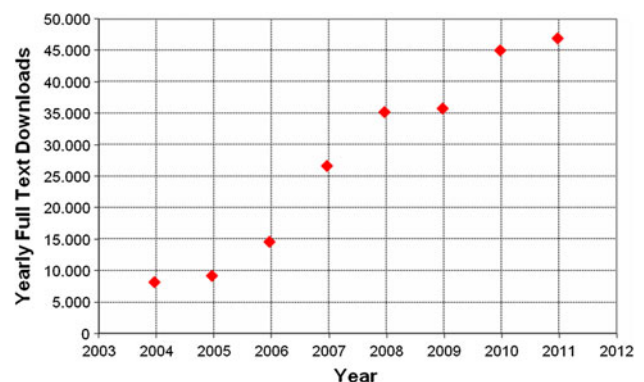


Fig. 2 Number of full-text downloads from the Radiation and Environmental Biophysics web site per year, from 2004 to 2011

from Europe, 12 % from America, 32 % from Asia, 16 % from Africa, and 1 % from Australia.

Fifty years ago, it was not at all clear to those who started this project how successful the journal would be. Today, in hindsight, it is clear that *Radiation and Environmental Biophysics* was indeed successful from the very beginning and was—through changing times—a vivid part of the radiation research community. This success would of course not have been possible without the continuous support of the Springer publisher house, and we would like to thank all those individuals at Springer who supported *Radiation and Environmental Biophysics* through all the years. Moreover, a scientific journal cannot be successful without colleagues who agree to serve as Associate Editors, Members of the Editorial Board, reviewers of the submitted manuscripts, and—last but not least—without the authors themselves who decide to submit high-quality manuscripts. The successful story of *Radiation and Environmental Biophysics* is also appreciated by Springer, and it is for this reason that the publisher house has offered—on the occasion of the 50 years anniversary of the journal—to publish a special virtual issue. In preparing this issue, we have asked our Associate Editors and Members of the Editorial Board to suggest important articles that have been published in our journal during the last 50 years and that reflect the development of radiation sciences in this period of time. Based on their advice, we will define the content of this issue which will then be available on the journal's website and free for download for a limited period of time. Read, enjoy and get a feeling on half a century of past scientific history.

Fifty years from now, the topics published in *Radiation and Environmental Biophysics* will certainly be different to those currently being published. In recent years, a number of new and exciting phenomena have been discovered in radiation biology including bystander effects, genomic

instability, and adaptive response, just to name a few, and new techniques have been developed such as identification of repair mechanisms after induction of double strand breaks in the DNA at very low doses by means of the γ -H2AX assay. Burning new problems and questions are appearing at the scientific horizon such as the role of individual radio-sensitivity and its consequences for radiation protection of humans, or the induction of non-cancer diseases after exposure to relatively low doses of several hundred mSv. The trend of increasing computer power appears to continue in future allowing for more and more sophisticated modeling of the energy deposition of ionizing radiation in various targets on the molecular, cellular, tissue and organism level, and of the radiation-induced effects related to that. The “omics” era has also begun in the field of radiation research and systems biology approaches are gaining impact. Personalized radiation therapy will probably be another area where radiation sciences are expected to play a major role. Knowing about these exciting developments, we will do our best to contribute to another 50 years of a successful story, and to keep the scientific standard of *Radiation and Environmental Biophysics* at least as high as it was fifty years ago when the world was so much different from what it is today...

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