

# Fifty years of Radiochimica Acta: a brief overview

By S. M. Qaim\*

Research Centre Jülich and University of Cologne, Germany

(Received September 20, 2011; accepted in updated form February 13, 2012)

(Published online August 13, 2012)

*Radiochimica Acta / Development history /  
Editors, advisors, contributors and referees /  
Impact factor and cited half-life / Top contributors /  
Highly cited papers / International periodical*

**Summary.** This paper provides a brief account of the development of this journal over the last fifty years. Having started in 1962 as a modest outlet for reporting research results in radiochemistry, *Radiochimica Acta* soon became a respected specialist journal. There has been long-term continuity both in editorial activity and publishing management, resulting in well-defined publishing policies. Starting with the Founding Editors, the Board of Editors was changed only in 1977 and 1996. Similarly the original Publisher, Akademischer Verlag, published the journal until 1983. Since then Oldenbourg Wissenschaftsverlag has been managing the publication process. The journal has been broad-based, encompassing all chemical aspects of nuclear science and technology. It has played a significant role in the dissemination of new knowledge, occasionally by bringing forth special issues in fast emerging areas. It has kept pace with the changing trends in worldwide radiochemical research. Whereas by about the middle of 1980s all areas of radiochemistry were equally represented, today the emphasis is more on applied topics, such as chemical behaviour and mobility of actinides and fission products, accelerator-based radiochemistry, medical applications of radioactivity, etc. The number of published scientific contributions to date amounts to about 5100, covering about 30 000 printed pages. The total number of authors is around 7000. The journal follows a strict peer-review system and is supported by a network of about 400 referees. About 200 manuscripts are received per year, out of which 30–35% are rejected. The impact factor (IF) of the journal is almost the highest among the radiochemistry related journals, and the cited half-life (CHL) among the highest of all chemistry and physics oriented journals. In short, today *Radiochimica Acta* is a well established, internationally recognised periodical. Presently, approximately 50 percent of the published contributions originate from Europe, 25 percent from North- and South America and the remaining 25 percent from Asia, Australia and Africa together. All articles are published in English, and the journal is available to readership both on-line and in printed form.

## 1. Introduction

The journal *Radiochimica Acta* was founded in 1962, under the patronage of the Nobel Laureate Otto Hahn, to cater

for the publishing needs of the then fast expanding field of radiochemistry. In those days the radiochemists published their work in several different journals of chemistry and physics and had thus no platform of their own for technical communications. With the introduction of *Radiochimica Acta* a new era dawned for radiochemistry. Although published in Germany, right from its inception the journal aimed at inculcating an international character and flavour. In its very first issue, contributions were published from München, Karlsruhe, Köln, Jülich (Germany), Orsay (France), Amsterdam (The Netherlands), Yale (USA), Buenos Aires (Argentina) and Tokai (Japan).

The international character has been maintained, continuously nurtured and further developed over its life of 50 years. Manuscripts could be written in the early phase of the journal in any of the three international languages, viz. English, French and German; however, over the years the trend has completely shifted, so that today all the articles are published in the English language. Presently, approximately 50 percent of the published contributions originate from Europe, 25 percent from North- and South America and the remaining 25 percent from Asia, Australia and Africa together. This article provides a short overview of the development of the journal.

## 2. Early phase

The journal had a modest start and aimed at publishing four issues per year, constituting a volume of about 200 printed pages. Both full papers and short communications were accepted. The founding Editors and the Publisher, Akademische Verlagsgesellschaft in Wiesbaden (Germany), showed great dedication, perseverance and flexibility. The publication process was slow and took about a year, because the peer-reviewing was rather time consuming, the diagrams were often redrawn and printing technology was not very modern. Nonetheless, within four years of its existence, the journal size increased to two volumes per year, encompassing many branches of radiochemistry and covering about 450 pages.

Soon after the start of *Radiochimica Acta*, competition also set in, and a few other journals dealing with some specific aspects of radiochemistry and radioactivity came into existence. However, *Radiochimica Acta* continued to follow its path of serious scientific publishing with full deter-

\*E-mail: s.m.qaim@fz-juelich.de.  
(Co-ordinating Editor of the Journal)

mination. It maintained its high standard, though the publishing speed was not improved; in fact to some extent it deteriorated.

### 3. Enhanced progress and present status

A big change came in 1977 when the whole Editorial Board was reconstituted and the scope of the journal was expanded to cover all “Chemical Aspects of Nuclear Science and Technology”. It was decided to accept mostly full length papers after strict peer-reviewing. A concerted action was implemented to bring forth a series of special issues dealing with various important areas of radiochemistry (for a list see below). The published reviews were received very well; they considerably increased the stature of the journal. Furthermore, the review and publication processes were streamlined and the journal started appearing regularly and according to a preplanned schedule.

A further positive change came in 1983 when a new Publisher, “R. Oldenbourg Wissenschaftsverlag” in München (Germany), took over the publishing responsibility for *Radiochimica Acta*. It is still enthusiastically publishing the journal. Compared with international enterprises it is a small publishing house, but very serious and well embedded in the German tradition of quality printing. It has had the privilege and distinction of printing school books in Bavaria for over a hundred years and, in addition, publishing a few other research journals. Based on mutual trust and respect between the Editors and the Publisher, a spirit of long-term cooperation and joint venture developed. The journal size increased further. From 1991 onwards, it encompassed four volumes, each of about 200 pages.

In 1996 the Editorial Board changed again. The continuity in thought and purpose was, however, maintained and the spirit of corporate identity between the scientists and the Publisher continues to exist to date. The referee system became stricter and the publishing process started shifting to electronic system. From the year 2000 onwards, the four yearly volumes were merged to one volume of about 800 pages per year, with an issue appearing every month. This change in publishing schedule established the journal as a regular periodical. After acceptance, manuscripts are now handled completely electronically. As far as the number of published volumes is concerned, it is a very pleasant coincidence that this Golden Jubilee Year of the journal carries the volume number 100.

### 4. Editors and advisors

The six founding editors of the journal (see Table 1) were assisted by about 25 advisors from all around the world. They did the hard ground work for setting the journal on a firm footing. Unfortunately, R. Wolfgang, the young and dynamic American Editor, died in 1971 and, with his death, the journal suffered a severe setback. The repercussions of his untimely demise were felt for many years.

In 1977 a new Editorial Board was constituted (*cf.* Table 1). Originally it consisted of five members but soon another member joined the Board. A group of 6 radiochemists acted as advisors but the number was increased

later to about 10. This team continued till 1995, the co-ordinators being G. L. Stöcklin (1977–1982), K. H. Lieser (1982–1989) and J.-P. Adloff (1989–1995). During this period the journal attained an international standard, thanks to the hard and dedicated work by all concerned.

A restructuring of the Editorial Board occurred again in the beginning of 1996 (*cf.* Table 1). With some replacements in between, today the Board consists of six editors, with S. M. Qaim as the Co-ordinating Editor. The untimely death of the active French Editor, C. Madic, in 2008 was a big loss and it took some time to recover from it. The Board is presently supported by 13 Advisors, representing the international radiochemistry community. A list of all persons who served as advisors to date is given in Table 2.

Appreciation needs to be expressed to all the editors and advisors for their painstaking efforts to bring the journal to the scientific standing it enjoys today.

### 5. Scope of the journal

The scope of *Radiochimica Acta* has always been broad-based, encompassing all areas of fundamental and applied radiochemistry, including radiation chemistry. Of particular interest are topics like fundamental chemistry of actinides and transactinides, chemistry of nuclear energy production, nuclear reactions and nuclear data for applications, chemical consequences of nuclear transformations, radioanalytical techniques, environmental and speciation investigations, radiochemical separations and applications of radionuclides in all fields, especially in medicine (*i.e.* radiopharmaceutical chemistry). Over the years, as mentioned above, a few other journals dealing with specific topics such as radioanalytical chemistry, environmental radioactivity and radionuclide applications (especially in medicine and biology) have been established, but *Radiochimica Acta* has maintained its broad-based character.

The journal has played a significant role in dissemination of new knowledge in all areas of radiochemistry. Furthermore, it has always endeavoured to popularise newer knowledge by publishing authoritative review articles on topics of timely interest. In fast emerging areas it has periodically brought forth special issues to apprise the general readership of newer developments. Examples of special issues are:

- Chemical Aspects of the Nuclear Fuel Cycle (1978).
- Special Topics in Hot Atom Chemistry (1981).
- Radiochemistry Related to Life Science (Part I: 1982; Part II: 1983).
- Chemistry of Actinides and other Radioelements (1983).
- Chemistry of the Nuclear Fuel Cycle (1984).
- Radionuclides in the Chernobyl Accident (1987).
- A History and Analysis of the Discovery of Elements 104 and 105 (1987).
- Hot Atom Chemistry (1988).
- Inorganic and General Astatine Chemistry (1989).
- Behaviour and Utilization of Technetium (1993).
- Nuclear Data for Medical Applications (2001).
- Chemical Speciation (2005; 2009).
- Radiolanthanides in Therapy (2007).
- European Program for Partitioning of Minor Actinides (EUROPART, 2008).

**Table 1.** Editors of Radiochimica Acta (*in chronological order*).

Serial number	Name, place and country	Period of assignment
Founding Editors		
1	Strassmann, F., Mainz, Germany	1962–1977
2	Born, H.-J., München, Germany	1962–1977
3	Aten Jr., A. H. W., Amsterdam, The Netherlands	1962–1977
4	Regnaut, P., Fontenay-aux-Roses, France	1962–1977
5	Glueckauf, E., Harwell, United Kingdom	1962–1977
6	Wolfgang, R., New Haven, USA	1962–1971 (deceased)
Interim Assignment		
7	Friedlander, G., Brookhaven, USA	1972–1973
Second Phase Editors		
8	Stöcklin, G. L., Jülich/Köln, Germany	1977–1995
9	Lieser, K.-H., Darmstadt, Germany	1977–1995
10	Adloff, J.-P., Strasbourg, France	1977–1995
11	Wolf, A. P., Brookhaven, USA	1977–1995
12	Wymer, R. G., Oak Ridge, USA	1977–1989
13	Pruett, D. J., Knoxville/Salt Lake City, USA	1989–2000
14	Tominaga, T., Tokyo, Japan	1979–1995
Third Phase Editors		
15	Qaim, S. M., Jülich/Köln, Germany ( <i>Co-ordinating Editor</i> )	1996–to date
16	Kratz, J. V., Mainz, Germany	1996–to date
17	Gäggeler, H. W., Bern/Villigen, Switzerland	1996–2003
18	Kudo, H., Sendai, Japan	1997–2005
19	Shinohara, A., Osaka, Japan	2005–to date
20	Madic, C., Gif-sur-Yvette, France	2001–2008 (deceased)
21	Simoni, E., Orsay, France	2008–to date
22	Baisden, P. A., Livermore, USA	1997–2003
23	Nitsche, H., Berkeley, USA	2005–to date
24	Nash, K. L., Pullman, USA	2002–2009
25	Clark, S., Pullman, USA	2010–to date

- Heavy Elements (*Celebrating International Year of Chemistry*, 2011).
- Innovative Positron Emitters (2011).
- Application of Radiotracers (2012).

A very special issue of the journal entitled: “One Hundred Years after the Discovery of Radioactivity”, covering 412 pages, was published in 1995. It contains authoritative reviews on almost all aspects of radiochemistry and has been hailed as a high class book. Even today, after 17 years, many of the articles are widely cited.

The journal has also published selected papers from some important conferences held in various regions of the world as special issues. The selection procedure has always been rigorous and the resulting standard of those publications was very high. Examples are Proceedings of the Migration Conferences published biennially (1988, 1990, 1992, 1994, 1996, 1998, 2000, 2002, 2004, 2006, 2008 and 2010), Proceedings of the Nuclear and Radiochemistry Conferences (NRC), held every four years, were published (1997, 2001, 2005) and Proceedings of the Plutonium Futures Conference held in Germany (2009). Selected papers from a few smaller but important workshops have also been published and are listed above as special issues. Thus the journal endeavours to report on the latest knowledge and developments in the field of radiochemistry

on a global basis, maintaining its standard of peer-review process.

## 6. Changing trends in radiochemical research

As mentioned above, the scope of the journal has been very broad and manuscripts in all areas of radiochemistry could be published. However, with the passage of time, certain trends in published contributions started emerging. For example, in the 1960s and early 1970s more research was conducted on fundamental themes, such as nuclear reactions, chemical effects of nuclear transformations, studies on chemical equilibria using radiotracers, *etc.* In the late 1970s, the emphasis started shifting to more applied problems like reactor technology, medical applications and environmentally related radioanalysis. By about the middle of 1980s work in all these areas was well established. An analysis shows that of all the published contributions in the years 1984 and 1985, about 25% were related to each of the four topics, namely, fundamental nuclear chemistry, chemistry of recoiling atoms, radiochemical separations and tracer studies, and chemistry of actinides and transactinides. Then came a very big shift in the philosophy and strategy of radiochemistry. With the reactor accident in Chernobyl in 1986, combined with the worldwide debate on the radioactive waste management, concerted

**Table 2.** Advisors to the Editorial Board of *Radiochimica Acta* (in alphabetical order).

Serial number	Name, place and country	Period of assignment
1	Baumgärtner, F. München, Germany	1962–2002
2	Benes, P., Prague, Czech Republic	1997–2008
3	Boyd, G. E., Oak Ridge, USA	1964–1976
4	Cellini, R. F., Madrid, Spain	1966–1976
5	Chai Z., Beijing, China	2008–to date
6	Clark, S., Pullman, USA	2009–2009
7	Fisher, Ch., Gif-sur-Yvette, France	1962–1976
8	Flegenheimer, D. J., Buenos Aires, Argentina	1962–1976
9	Friedman, A., Argonne, USA	1964–1976
10	Geckeis, H., Karlsruhe, Germany	2008–to date
11	Götte, H., Frankfurt, Germany	1962–1976
12	Harbottle, G., Brookhaven, USA	1962–1976
13	Hecht, F., Vienna, Austria	1962–1976
14	Hernegger, F., Vienna, Austria	1962–1976
15	Herrmann, G., Mainz, Germany	1962–1995
16	Herr, W., Köln, Germany	1962–1991
17	Hyde, E. K., Berkeley, USA	1962–1976
18	John, J., Prague, Czech Republic	2009–to date
19	Jurisson, S., Missouri, USA	2010–to date
20	Kalmykov, S. N., Moscow, Russia	2009–to date
21	Kim, J. I., Karlsruhe, Germany	1996–2009
22	Kimura K., Tokyo, Japan	1962–1976
23	Kutschera, W., Vienna, Austria	1996–2009
24	Lieser, K. H., Darmstadt, Germany	1962–1976
25	Lindner, R., Braunschweig/Karlsruhe, Germany	1962–1976
26	Liu, Y., Beijing, China	1989–2008
27	Maddock, A. G., Cambridge, United Kingdom	1977–1996
28	Madic, C., Fontenay-aux-Roses, France	1996–2001
29	Manchanda, V. K., Mumbai, India	2004–to date
30	Marcus, Y., Jerusalem, Israel	1966–1976
31	Meinke, W. W., Ann Arbor/Washington, USA	1964–1976
32	Merz, E., Jülich, Germany	1962–1976
33	Münzel, H., Karlsruhe, Germany	1962–1976
34	Nagame, Y., Ibaraki, Japan	2005–to date
35	Nakahara, H., Tokyo, Japan	1996–2005
36	Nakanishi, T., Kanazawa, Japan	2005–2010
37	Navratil, J. D., Golden, USA	1983–1991
38	Nitsche, H., Dresden, Germany; Berkeley, USA	1996–2006
39	Pappas, A. C., Oslo, Norway	1962–1976
40	Parry, S., London, United Kingdom	2007–to date
41	Peterson, J. P., Knoxville, USA	1997–2009
42	Qaim, S. M., Jülich, Germany	1990–1995
43	Ramaniah, M. V., Bombay, India	1965–1976
44	Riehl, N., München, Germany	1962–1976
45	Rösch, F., Mainz, Germany	2010–to date
46	Roth, E., Saclay, France	1979–1991
47	Ruth, T. J., Vancouver, Canada	1999–to date
48	Saito, N., Tokyo, Japan	1968–1996
49	Seelmann-Eggebert, W., Karlsruhe, Germany	1962–1976
50	Shinohara, A., Osaka, Japan	2002–2005
51	Shiokawa, T., Sendai, Japan	1977–1991
52	Simoni, E., Orsay, France	2002–2008
53	Smales, A. A., Harwell, United Kingdom	1964–1976
54	Starke, K., Marburg, Germany	1962–1976
55	Türler, A., München, Germany; Bern, Switzerland	2003–to date
56	Vargas, J. V., Belo Horizonte, Brazil	1962–1976
57	Warwick, P., Loughborough, United Kingdom	1994–to date
58	Yoshihara, K., Sendai, Japan	1992–2001
59	Zaidi, J. H., Islamabad, Pakistan	2007–to date
60	Zifferero, M., Rome, Italy	1962–1976
61	Zvára, I., Moscow, Russia	1981–2009

actions were initiated to understand the chemical behaviour and mobility of actinides and fission products under various natural conditions (*i.e.* migration). Those investigations are of fundamental significance, for example, in developing safe deep geological repositories for nuclear waste, and are

very urgent. The other, rather longer-term strategy, involved separation of long-lived fission waste and its destruction by nuclear incineration (partitioning and transmutation). Both types of studies have continued for more than 20 years and are still expanding. The intensified and changing research ac-

tivities are reflected in the type of publications seen in Radiochimica Acta.

Another area which has attracted tremendous attention over the last 25 years is related to accelerator-based radiochemistry. Here two directions are conspicuous. First, studies of superheavy elements. Though the work is carried out only in a few specialized laboratories, the number of associated scientists from several other institutions is large. The results obtained are very exciting, with the Periodic Table extended by physical methods up to  $Z = 118$  and by chemical methods up to  $Z = 114$ , and newer information is pouring in. The second direction is the development of short-lived positron emitting radionuclides and attaching them to organic molecules. These latter studies have led to tremendous progress in Positron Emission Tomography (PET), a non-invasive organ imaging technique for *in vivo* study of metabolic processes. Thus, in addition to inorganic and coordination-chemistry based tracers for Single Photon Emission Tomography (SPECT), *e.g.* with  $^{99m}\text{Tc}$ , a special type of organic radiochemistry has emerged which combines some significant features of both fundamental nuclear chemistry and hot atom chemistry. Needless to say that PET, SPECT and endoradiotherapy studies cannot be performed without radiochemistry. Worth pointing out also is that both the areas of accelerator-based radiochemistry are extremely interdisciplinary: the superheavy element research overlaps heavily with physics, and the radiopharmaceutical chemistry with medicine. The results are therefore dispersed in several journals, but Radiochimica Acta receives a considerable share of contributions in both the fields.

A statistical analysis of the papers published in recent years in Radiochimica Acta shows that about 50% of the contributions deal with the chemistry of the actinides and fission products, about 30% with non-energy related themes (like radionuclide production, radiopharmaceutical development, radiochemical separations, radioanalysis *etc.*) and the remaining 20% with fundamental nuclear, radio- and radiation chemistry. A newer emerging area is radioactivity combined with nanotechnology, but so far the number of contributions published in this journal has been very small.

## 7. Contributors to the journal

Over the last 50 years radiochemists from all corners of the globe have communicated their research results to Radiochimica Acta. About 5100 articles, covering about 30 000 printed pages, have been published. The number of contributing authors amounts to about 7000. About 4000 of all the authors contributed just one article, 1300 two articles, 500 three articles, 300 four articles, and about 200 five articles. About 175 scientists contributed more than 10 papers each. The top contributors to the journal are listed in Table 3. The Editors and the Publisher express their gratitude to all authors for their life-time dedication to the journal and to the field of radiochemistry.

## 8. Referees and review process

The standard of a primary journal is mainly dependent on the peer-review process which is followed after the

submission of a manuscript. Radiochimica Acta has continually tried to maintain a hard but fair review system. To this endeavour it has built up a network of about 400 experts in various branches of radiochemistry who act as referees when requested. A very grateful acknowledgement is due to our referees who do excellent work on an honorary basis. A note of appreciation is published every few years, but it is realized fully that the referees' efforts are not to be compensated. The referees and the editors have generally a sympathetic approach to the authors and try to help them with regard to the improvement of their manuscripts, both technically and linguistically. The journal receives about 200 manuscripts per year, out of which less than 5% are immediately acceptable. Most of the manuscripts have to be revised, some of them several times. The rejection rate is 30–35%. Our endeavour is to complete the review process within about four months but it depends on several factors, such as delay with the referee, workload on the editor *etc.*, but often the author does not respond to the criticism as fast as is desirable. The Publisher adheres to the policy that an accepted normal manuscript should appear in print within about five months.

## 9. Impact of the journal

The importance of a scientific journal is judged today by various criteria. Needless to say that good editing, correct language, clean setting and printing, rapid appearance in print (first on-line, later paper version) and regularity in time-schedule are still very important factors. However, the citation of a paper in the literature is becoming a more important criterion. Here two aspects appear to be very relevant: firstly, the impact factor (IF), which shows how much interest an article has aroused within the considered time-period, and secondly, the cited half-life (CHL) which depicts the importance of the article over a longer period. These two aspects are discussed below with respect to radiochemistry related journals.

### 9.1 Impact factor

The impact factors of the four radiochemistry-related journals, namely, J. Radioanalytical and Nuclear Chemistry (JRNC), J. Labelled Compounds and Radiopharmaceuticals (JLCR), Applied Radiation and Isotopes (ARI), and Radiochimica Acta (RCA), are plotted in Fig. 1 for the period 1995–2010. Evidently the values are not high for all the periodicals. This reflects the size of the community which is not very large. Another conspicuous characteristic is that the value fluctuates considerably from one year to the next. This is particularly so for JLCR. In general, except for JRNC, which has a consistently lower impact factor, the values for the other three journals are more or less around 1.1. For Radiochimica Acta, over the last several years, the impact factor has been increasing and became the highest, reaching a value of about 1.5 in 2009. J. Environmental Radioactivity has some features common to radiochemistry journals, but not all. Its impact factor is close to that of Radiochimica Acta.

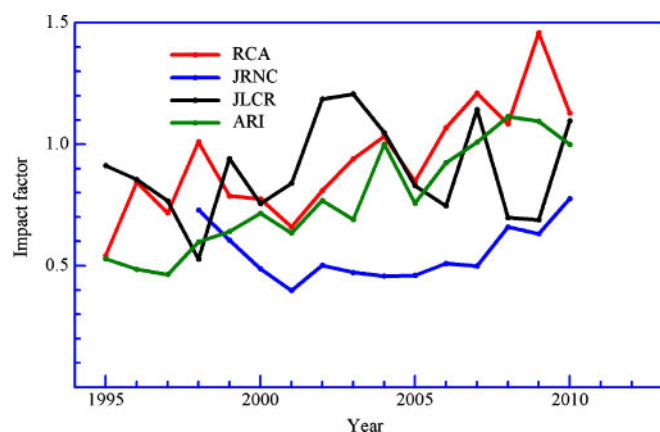


**Table 3.** Top contributors to *Radiochimica Acta* (list<sup>a</sup> of authors with more than 25 lifetime contributions).

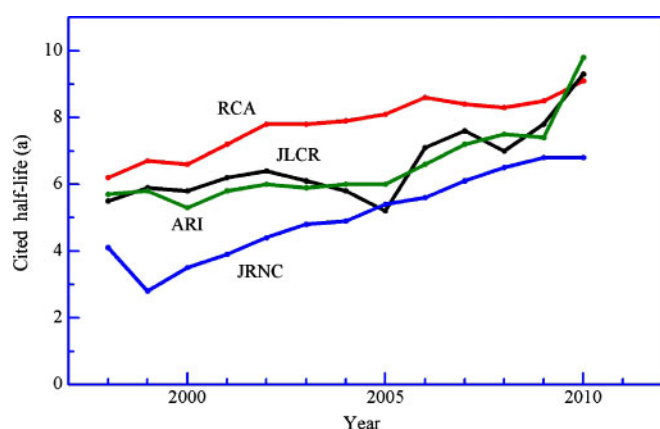
Rank	Author and affiliation	Number of contributions
1	Syed M. Qaim Forschungszentrum Jülich and Universität zu Köln, Germany	96
2	Jae-Il Kim Technische Universität München and Forschungszentrum Karlsruhe, Germany	93
3	Gregory R. Choppin Florida State University, Tallahassee, Florida, USA	81
4	Karl H. Lieser† Technische Hochschule Darmstadt, Germany	78
5	Heino Nitsche Lawrence Berkeley National Laboratory, Berkeley, California, USA	56
6	Norbert Trautmann Universität Mainz, Germany	52
7	Jens V. Kratz Universität Mainz, Germany	52
8	Thomas Fanghanel Forschungszentrum Karlsruhe and EC Joint Research Centre, Karlsruhe, Germany	51
9	Günter Herrmann Universität Mainz, Germany	42
10	Kenji Yoshihara Tohoku University, Sendai, Japan	42
11	Frank Rösch Universität Mainz, Germany	41
12	Gert Bernhard Forschungszentrum Dresden-Rossendorf, Germany	40
13	Vijay K. Manchanda Bhabha Atomic Research Centre, Trombay, India	40
14	Bernd Eichler Joint Institute of Nuclear Research, Dubna, USSR, and University of Bern, Switzerland	38
15	Mathias Schädel Gesellschaft für Schwerionenforschung, Darmstadt, Germany	37
16	Andreas Türler Paul-Scherrer-Institut, Villigen, Switzerland	35
17	W. Brüche Gesellschaft für Schwerionenforschung, Darmstadt, Germany	33
18	Heinz W. Gäggeler Paul-Scherrer-Institut, Villigen, Switzerland	33
19	Jamshed H. Zaidi Pakistan Institute of Nuclear Science and Technology, Islamabad, Pakistan	32
20	Darleane C. Hoffman Lawrence Berkeley National Laboratory, Berkeley, California, USA	32
21	Volker Neck† Forschungszentrum Karlsruhe, Germany	31
22	Gerhard L. Stöcklin† Forschungszentrum Jülich, Germany	30
23	Helmut Münzel† Forschungszentrum Karlsruhe and Technische Hochschule Darmstadt, Germany	29
24	A. H. W. Aten, Jr.† Institut voor Kernfysisch Onderzoek, Amsterdam, The Netherlands	29
25	Alfred P. Wolf† Brookhaven National Laboratory, Upton, New York, USA	28
26	Jean P. Adloff Université Louis-Pasteur, Strasbourg, France	28
27	Prasanta K. Mohapatra Bhabha Atomic Research Centre, Trombay, India	28
28	G. A. Brinkman† National Institute of Physics, Amsterdam, The Netherlands	27
29	Tsutomu Sekine Tohoku University, Sendai, Japan	27
30	K. E. Gregorich Lawrence Berkeley National Laboratory, Berkeley, California, USA	27
31	Robert Guillaumont Institut de Physique Nucléaire, Université de Paris Sud, Orsay, France	26
32	Andrew R. Felmy Pacific Northwest National Laboratory, Richland, Washington, USA	26

a: Printed and accepted contributions till 31 January 2012; information extracted from *Web of Knowledge*, Thomson Reuters, USA; independently corroborated by the staff of R. Oldenbourg Wissenschaftsverlag, München, Germany.

† Deceased.



**Fig. 1.** Impact factor (IF) of radiochemistry-related journals over the period 1995 to 2010 (information extracted from “Journal Citation Reports”, Thomson Reuters, USA).



**Fig. 2.** Cited half-lives (CHL) of radiochemistry-related journals over the period 1998 to 2010 (information extracted from “Journal Citation Reports”, Thomson Reuters, USA).

## 9.2 Cited half-life

The cited half-lives of the above mentioned four radiochemistry-related journals are given for the period 1998–2010 in Fig. 2. Evidently the values for Radiochimica Acta are among the highest. In fact the values for Radiochimica Acta are even higher than those for most of the broad-based chemistry and physics journals. These numbers depict that the papers published in Radiochimica Acta are of long-term value, with citations extending up to 25 years or even more.

## 10. Highly cited publications

The importance of an individual article is often judged by the number of citations it has received, though it is not necessarily always a positive index. A paper with controversial results, for example, may be highly criticized (and so highly cited). Nonetheless, looking positively at the matter, a highly cited paper adds prestige to a journal. The information available in the *Web of Knowledge* (Thomson Reuters, USA) showed that a large number of papers published in Radiochimica Acta received high citations. The publications with more than 50 citations are listed in Table 4. An analysis shows that most of them deal with the actinides, followed by papers on medically oriented radiochemistry, superheavy

**Table 4.** Highly cited Radiochimica Acta publications (*papers with more than 50 citations*).

Rank	Title of publication, authors and reference	Number of citations <sup>a</sup>
1	Actinide environmental chemistry R. J. Silva, H. Nitsche RCA <b>70/71</b> , 377–396 (1995)	181
2	Solubility and hydrolysis of tetravalent actinides V. Neck, J. I. Kim RCA <b>89</b> , 1–16 (2001)	151
3	Humics and radionuclide migration G. R. Choppin RCA <b>44/45</b> , 23–28 (1988)	143
4	Solution chemistry of the actinides G. R. Choppin RCA <b>32</b> , 43–53 (1983)	140
5	Absolute cross sections for the production of $^{18}\text{F}$ via the $^{18}\text{O}(p, n)^{18}\text{F}$ reaction T. J. Ruth, A. P. Wolf RCA <b>26</b> , 21–24 (1979)	129
6	Europium(III) and americium(III) stability constants with humic acid R. A. Torres, G. R. Choppin RCA <b>35</b> , 143–148 (1984)	123
7	Speciation of uranium in seepage waters of mine tailing pile studied by time-resolved laser-induced fluorescence spectroscopy (TRLFS) G. Bernhard, G. Geipel, V. Brendler, H. Nitsche RCA <b>74</b> , 87–91 (1996)	120
8	Uranyl(VI) carbonate complex formation: validation of the $\text{Ca}_2\text{UO}_2(\text{CO}_3)_3$ (aq.) species G. Bernhard, G. Geipel, T. Reich, V. Brendler, S. Amayri, H. Nitsche RCA <b>89</b> , 511–518 (2001)	113
9	Complexation of metal ions with humic acid: metal ion charge neutralization model J. I. Kim, K. R. Czerwinski RCA <b>73</b> , 5–10 (1996)	109
10	The role of natural organics in radionuclide migration in natural aquifer systems G. R. Choppin RCA <b>58/59</b> , 113–120 (1992)	107
11	Actinide colloid generation in groundwater J. I. Kim RCA <b>52/53</b> , 71–81 (1991)	94
12	No-carrier-added radiohalogenation methods with heavy halogens H. H. Coenen, S. M. Moerlein, G. Stöcklin RCA <b>34</b> , 47–68 (1983)	91
13	Complexation of the uranyl ion with aquatic humic acid K. R. Czerwinski, G. Buckau, F. Scherbaum, J. I. Kim RCA <b>65</b> , 111–119 (1994)	86

**Table 4.** (Continued).

Rank	Title of publication, authors and reference	Number of citations <sup>a</sup>
14	The release of uranium, plutonium, cesium, strontium, technetium and iodine from spent fuel under unsaturated conditions P. A. Finn, J. C. Hoh, S. F. Wolf, S. A. Slater, J. K. Bates RCA <b>74</b> , 65–71 (1996)	85
15	Actinide separation science G. R. Choppin, K. L. Nash, RCA <b>70/71</b> , 225–236 (1995)	82
16	Complexation of pentavalent and hexavalent actinides by fluoride G. R. Choppin, L. F. Rao RCA <b>37</b> , 143–146 (1984)	82
17	Technetium in the hydrosphere and in the geosphere, 1. Chemistry of technetium and iron in natural waters and influence of the redox potential on the sorption of technetium K. H. Lieser, C. Bauscher RCA <b>42</b> , 205–213 (1987)	81
18	Chemical properties of element 105 in aqueous solution: halide complex-formation and anion-exchange into triisooctyl amine J. V. Kratz, H. P. Zimmermann, U. W. Scherer, M. Schädel, W. Brüchle, K. E. Gregorich, C. M. Ganett, H. L. Hall, R. A. Henderson, D. M. Lee, J. D. Leyba, M. J. Nurmia, D. C. Hoffman, H. Gäggeler, D. Jost, U. Baltensperger, Ya. Nai-Qi, A. Türler, Ch. Lienert RCA <b>48</b> , 121–133 (1989)	79
19	Occurrence of Pu and fissiogenic REE in hydrothermal apatites from the fossil nuclear reactor 16 at Oklo (Gabon) R. Bros, J. Carpena, V. Sere, A. Beltritti RCA <b>74</b> , 277–282 (1996)	79
20	Uranium(VI) sulphate complexation studied by time-resolved laser-induced fluorescence spectroscopy (TRLFS) G. Geipel, A. Brachmann, V. Brendler, G. Bernhard, H. Nitsche RCA <b>75</b> , 199–204 (1996)	79
21	Sorption of Am(III) and Eu(III) onto $\gamma$ -alumina: experiment and modelling T. Rabung, T. Stumpf, H. Geckeis, R. Klenze, J. I. Kim RCA <b>88</b> , 711–716 (2000)	73
22	Separation of actinides in different oxidation states by solvent-extraction P. A. Bertrand, G. R. Choppin RCA <b>31</b> , 135–137 (1982)	72
23	The solubility of plutonium hydroxide in dilute solution and in high-ionic-strength chloride brines A. R. Felmy, D. Rai, M. J. Mason, R. W. Fulton RCA <b>48</b> , 29–35 (1989)	72
24	Speciation of aquatic actinide ions by pulsed laser spectroscopy R. Klenze, J. I. Kim, H. Wimmer RCA <b>52/53</b> , 97–103 (1991)	69

**Table 4.** (Continued).

Rank	Title of publication, authors and reference	Number of citations <sup>a</sup>
25	Uranium(VI) complexation with citric, humic and fulvic acids J. J. Lenhart, S. E. Cabaniss, P. MacCarthy, B. D. Honeyman RCA <b>88</b> , 345–353 (2000)	69
26	Aqueous chemistry of element 105 K. E. Gregorich, R. A. Henderson, D. M. Lee, M. J. Nurmia, R. M. Chasteler, H. L. Hall, D. A. Bennett, C. M. Gannett, R. B. Chadwick, J. D. Leyba, D. C. Hoffman, G. Herrmann RCA <b>43</b> , 223–231 (1988)	67
27	Complexation of americium(III) with humic acid J. I. Kim, G. Buckau, E. Bryant, R. Klenze RCA <b>48</b> , 135–143 (1989)	67
28	Uranium adsorption on ferrihydrite: effects of phosphate and humic acid T. E. Payne, J. A. Davis, T. D. Waite RCA <b>74</b> , 239–243 (1996)	67
29	ARCA-II: a new apparatus for fast, repetitive HPLC separations M. Schädel, W. Brüchle, E. Jäger, E. Schimpf, J. V. Kratz, U. W. Scherer, H. P. Zimmermann RCA <b>48</b> , 171–176 (1989)	66
30	A study of curium(III) humate complexation by time-resolved laser-fluorescence spectroscopy (TRLFS) J. I. Kim, H. Wimmer, R. Klenze, RCA <b>54</b> , 35–41 (1991)	65
31	Neptunium redox speciation M. R. Antonio, L. Soderholm, C. W. Williams, J.-P. Blaudeau, B. E. Bursten RCA <b>89</b> , 17–25 (2001)	65
32	Excitation functions of ( $p, xn$ )-reactions on <sup>nat</sup> Ni and highly enriched <sup>62</sup> Ni – possibility of production of medically important radioisotope <sup>62</sup> Cu at a small cyclotron H. Piel, S. M. Qaim, G. Stöcklin RCA <b>57</b> , 1–5 (1992)	64
33	Radionuclides in the geosphere: sources, mobility, reactions in natural waters and interactions with solids K. H. Lieser RCA <b>70/71</b> , 355–375 (1995)	64
34	A study of groundwater-colloids and their geochemical interactions with natural radionuclides in Gorleben J. P. L. Dearlove, G. Longworth, M. Ivanovich, J. I. Kim, B. Delakowitz, P. Zeh RCA <b>52/53</b> , 83–89 (1991)	63
35	Chemical interactions of actinide ions with groundwater colloids in Gorleben aquifer systems J. I. Kim, P. Zeh, B. Delakowitz RCA <b>58/59</b> , 147–154 (1992)	62
36	Solubility and hydrolysis behaviour of neptunium(V) V. Neck, J. I. Kim, B. Kanellakopulos RCA <b>56</b> , 25–30 (1992)	62



**Table 4.** (Continued).

Rank	Title of publication, authors and reference	Number of citations <sup>a</sup>
37	Applicability of calixarene-crown compound for the removal of cesium from alkaline tank waste T. J. Haverlock, P. V. Bonnesen, R. A. Sachleben, B. A. Moyer RCA <b>76</b> , 103–108 (1997)	62
38	Hydrolysis reactions of neptunium(V) C. Lierse, W. Treiber, J. I. Kim RCA <b>38</b> , 27–28 (1985)	61
39	Mixed $\text{Ca}^{2+}/\text{UO}_2^{2+}\text{CO}_3^{2-}$ complex formation at different ionic strengths S. N. Kalmykov, G. R. Choppin RCA <b>88</b> , 603–606 (2000)	61
40	Structure of uranium sorption complexes at montmorillonite edge sites C. Hennig, T. Reich, R. Dähn, A. M. Scheidegger RCA <b>90</b> , 653–657 (2002)	60
41	Evaluation of enthalpy of adsorption from thermochromatographic data B. Eichler, I. Zvara RCA <b>30</b> , 233–238 (1982)	59
42	Complexation of trivalent actinide ions ( $\text{Am}^{3+}$ , $\text{Cm}^{3+}$ ) with humic acid: a comparison of different experimental methods J. I. Kim, D. S. Rhee, H. Wimmer, G. Buckau, R. Klenze RCA <b>62</b> , 35–43 (1993)	59
43	Colloids in groundwater and their influence on migration of trace elements and radionuclides K. H. Lieser, A. Ament, R. Hill, R. N. Singh, U. Stingl, B. Thybusch RCA <b>49</b> , 83–100 (1990)	59
44	Determination of the hydration number of Cm(III) in various aqueous solutions T. Kimura, G. R. Choppin, Y. Kato, Z. Yoshida RCA <b>72</b> , 61–64 (1996)	59
45	A study of the surface sorption process of Cm(III) on silica by time-resolved laser fluorescence spectroscopy(I) K. H. Chung, R. Klenze, K. K. Park, P. Paviet-Hartmann, J. I. Kim RCA <b>82</b> , 215–219 (1998),	59
46	Influence of soil humic acid and fulvic acid on sorption of thorium(IV) on MX-80 bentonite D. Xu, X. K. Wang, C. L. Chen, X. Zhou, X. L. Tan RCA <b>94</b> , 429–434 (2006)	59
47	Reactions of nucleogenic halogen atoms in liquid halobenzenes (recoil halogenation-III) K. Berei, G. Stöcklin RCA <b>15</b> , 39–46 (1971)	56
48	Effect of pH and fulvic acid on sorption and complexation of cobalt onto bare and FA bound MX-80 bentonite D. Xu, D. D. Shao, C. L. Chen, A. P. Ren, X. K. Wang RCA <b>94</b> , 97–102 (2006)	56

**Table 4.** (Continued).

Rank	Title of publication, authors and reference	Number of citations <sup>a</sup>
49	Reaktionen von $^{38}\text{Cl}$ -Rückstossatomen in den binären Systemen $\text{CCl}_4$ -Benzol und $\text{CCl}_4$ -Toluol G. Stöcklin, W. Tornau RCA <b>6</b> , 86–93 (1966)	55
50	Solubility products of plutonium(IV) oxide and hydroxide J. I. Kim, B. Kanellakopulos RCA <b>48</b> , 145–150 (1989)	55
51	The determination of the first hydrolysis constant of Eu(III) and Am(III) M. S. Caceci, G. R. Choppin RCA <b>33</b> , 101–104 (1983)	55
52	The solubility of Th(IV) and U(IV) hydrous oxides in concentrated NaCl and $\text{MgCl}_2$ solutions D. Rai, A. R. Felmy, S. M. Sterner, D. A. Moore, M. J. Mason, C. F. Novak RCA <b>79</b> , 239–247 (1997)	55
53	Technetium in the nuclear fuel cycle, in medicine and in the environment K. H. Lieser RCA <b>63</b> , 5–8 (1993)	55
54	The solubility of hydrous thorium(IV) oxide in chloride media – development of an aqueous ion-interaction model A. R. Felmy, D. Rai, M. J. Mason RCA <b>55</b> , 177–185 (1991)	54
55	Nuclear data relevant to the production of the positron emitting radioisotope $^{86}\text{Y}$ via the $^{86}\text{Sr}(p, n)$ - and $^{86}\text{Rb}(^3\text{He}, xn)$ -processes F. Rösch, S. M. Qaim, G. Stöcklin RCA <b>61</b> , 1–8 (1993)	54
56	Production of some medically important short-lived neutron-deficient radioisotopes of halogens S. M. Qaim, G. Stöcklin RCA <b>34</b> , 25–40 (1983)	54
57	Complexation of Am(III) with humic acids of different origin J. I. Kim, D. S. Rhee, G. Buckau RCA <b>52/53</b> , 49–55 (1991)	53
58	Hydrolysis of actinyl(VI) cations G. R. Choppin, J. N. Mathur RCA <b>52/53</b> , 25–28 (1991),	53
59	Complexation of trivalent actinide ions ( $\text{Am}^{3+}$ , $\text{Cm}^{3+}$ ) with humic acid: the effect of ionic strength K. R. Czerwinski, J. I. Kim, D. S. Rhee, G. Buckau RCA <b>72</b> , 179–187 (1996)	53
60	A comparison of natural human acids with synthetic umic acid model substances: characterization and interaction with uranium(VI) S. Pompe, M. Bubner, M. A. Denecke, T. Reich, A. Brachmann, G. Geipel, R. Nicolai, K. H. Heise, H. Nitsche RCA <b>74</b> , 135–140 (1996)	53

**Table 4.** (Continued).

Rank	Title of publication, authors and reference	Number of citations <sup>a</sup>
61	Neptunium incorporation into uranyl compounds that form as alteration products of spent nuclear fuel: Implications for geologic repository performance P. C. Burns, K. M. Deely, S. Skanthakumar RCA <b>92</b> , 151–159 (2004)	53
62	Reactions of nucleogenic chlorine atoms with simple aromatic compounds: recoil chlorination II G. Stöcklin, W. Tornau RCA <b>9</b> , 95–105 (1968)	52
63	A study of hydrolysis reaction of curium(III) by time-resolved laser-fluorescence spectroscopy H. Wimmer, R. Klenze, J. I. Kim RCA <b>56</b> , 79–83 (1992)	52
64	A column experiment for the study of colloidal radionuclide migration in Gorleben aquifer systems J. I. Kim, B. Delakowitz, P. Zeh, D. Klotz, D. Lazik RCA <b>66/67</b> , 165–171 (1994)	52
65	Solubility, hydrolysis and colloid formation of plutonium(IV) R. Knopp, V. Neck, J. I. Kim RCA <b>86</b> , 101–108 (1999)	52
66	Plutonium isotopic composition in soil from the former Semipalatinsk nuclear test site M. Yamamoto, A. Tsumura, Y. Katayama, T. Tsukatani RCA <b>72</b> , 209–215 (1996)	52
67	Sorption of uranyl ions on hydrous silicon dioxide K. H. Lieser, S. Quandtklenk, B. Thybusch RCA <b>57</b> , 45–50 (1992)	52
68	The Rossendorf beam line ROBL – a dedicated experimental station for XAFS measurements of actinides and other radionuclides T. Reich, G. Bernhard, G. Geipel, H. Funke, C. Hennig, A. Rossberg, W. Matz, N. Schnell, H. Nitsche RCA <b>88</b> , 633–637 (2000)	51

a: Information extracted from *Web of Knowledge*, Thomson Reuters, USA (status 31 January 2012).

elements, environmental radiochemistry and hot atom chemistry. The Editors and the Publisher congratulate the authors on achieving this manifested distinction and have pleasure in thanking them for publishing excellent work in this journal.

## 11. Patrons of the journal

Many of the top contributors given in Table 3 have also been acting as editors, advisors or referees. Some of them are very distinguished scientists, carrying all types of national and international honours and awards. The journal had also the honour of getting attention of four Nobel Laureates in Chemistry. One of them, Otto Hahn, was the Found-

ing Father of this journal. Two others, Glenn T. Seaborg and F. Sherwood Rowland, contributed several papers to the journal. The former was a beacon of light for nuclear and actinide chemists and the latter for hot atom chemists. The fourth one, Yuan T. Lee, performed molecular beam studies of hot atom chemical reactions. We have pleasure in reproducing excerpts from one article of each of them in the Historical Section of this issue. The Editors and the Publisher thank with respect and gratitude all the patrons of the journal for their moral support and encouragement provided over the last 50 years.

## 12. Publishing staff

After the acceptance of a manuscript by the Editor the responsibility is shifted to the Publisher whose staff then handles all stages of the publication process. In this connection it is important to mention the name of Marianne Lotze whose untiring efforts up to the age of 90 made *Radiochimica Acta* a journal of high printing precision. In more recent years, Kristin Berber-Nerlinger and Birgit Zoglmeier have been efficiently managing the printing process under the supervision of Angelika Sperlich. At the higher administrative level, for about 25 years Johannes Oldenbourg personally and over the last three years Christine Autenrieth have been paying great attention to the smooth publishing of *Radiochimica Acta*.

## 13. Concluding remarks and future perspectives

After a hard struggle over many years, *Radiochimica Acta* attained the stature of a well-established international periodical about 30 years ago. Since then it has been publishing comprehensive research reports which have a long-lasting impact. It is a broad-based journal, encompassing all areas of radiochemistry. All articles are published in English and the Editors take responsibility for ensuring a high linguistic standard as well. The peer-review process is strict but fair, the rejection rate amounting to 30–35%. The Publisher endeavours to serve the scientific community efficiently and is keeping pace with the on-going fast development in the publishing technology. The future prospects for the journal thus appear to be bright, provided all patrons (contributors, referees, editors, advisors, *etc.*) continue to support the journal with the same zeal and fervour as in the past.

**Acknowledgments.** A close contact has existed between the journal *Radiochimica Acta* and several research institutes around the world, the home organisations of the Editors and Advisors. The association has been particularly strong with the Institute of Nuclear Chemistry of the University of Mainz (through F. Strassmann as Founding Editor (1962–1977), J. V. Kratz as Editor (1996 to date); G. Herrmann as long-time advisor (1962–1995)) and the Institute of Nuclear Chemistry of the Research Centre Jülich (through G. Stöcklin as Editor (1977–1995) and S. M. Qaim as Co-ordinating Editor (1996 to date)). Thanks are due to all concerned institutions for providing infrastructure support to the editorial work of the journal. On a personal note, the author feels indebted to many persons in the Institute of Nuclear Chemistry in Jülich for their continued help with regard to the editorial work, in particular H.H. Coenen for advice and moral support, B. Scholten and M. Holschbach for extracting journal-related information from *Journal Citation Reports* and *Web of Knowledge* (Thomson Reuters, USA), Gabriele Faulbrück for handling editorial correspondence, and I. Spahn and S. Spellerberg for general assistance.