PUBLICATION ACTIVITY ON RADIOANALYTICAL CHEMISTRY IN THE GERMAN DEMOCRATIC REPUBLIC

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The growth of the number of papers on radioanalytical methods and activation analysis, the distribution of the authorship and papers published in various periodicals are determined in the course of a scientometric analysis using the first complete National Bibliography of GDR on Radioanalytical Chemistry as a database.

Introduction

Initiated by the Editors of the Journal of Radioanalytical Chemistry, the National Bibliography of GDR on Radioanalytical Chemistry was compiled by the author.* The bibliography comprises the publications written by GDR authors from 1957 — the date when the prohibition of nuclear research dictated by the Potsdam agreement was relaxed — till the end of 1979. The compilation containing more than 500 papers published in home and foreign periodicals, including patents filed, books, presents the complete listing of publications with the title of the paper, the institution where the work has been carried out and the bibliographical data. The lectures presented orally at international conferences and symposia as well as unpublished research reports are not included.

The bibliography consists of two parts. The first part contains the publications on activation analysis. In the more extensive second part under the title of "Other radioanalytical methods" there are publications concerning with the analytical applications of radionuclides, e.g., methods with radioactive tracers, isotope dilution analysis, radiation absorption and scattering methods. The isotope-excited X-ray fluorescence analyses were not included. Special care was exercised in the compilation to the review papers and to their references citing methodically fundamental

*The National Bibliographies on Radioanalytical Chemistry will be published in special issues of the Journal of Radioanalytical Chemistry (Editor).
works. Investigations carried out with labelled compounds in medicine, biology and agriculture form a large portion of the bibliography.

The first complete National Bibliography of GDR on Radioanalytical Chemistry made possible to carry out some scientometric analysis including the investigation of authorship and co-authorship, the growth of the radioanalytical chemistry in the GDR and the distribution of papers among periodicals.

As the centres of activation analysis and radioanalytical methods in the GDR, the Central Institute of Nuclear Research, Rossendorf, and the Central Institute of Isotope and Radiation Research, Leipzig, are to be mentioned. In addition there are several institutes where researches on radioanalytical methods and also tracer application have been carried out: the Isotope Laboratories of the Universities at Dresden, Halle, Greifswald and Jena, and the institutes of the Academy of Sciences; the Central Institute of Microbiology and Experimental Therapy, Jena; Central Institute of Electron Physics, Berlin; Central Institute of Heart and Circulation Research, Berlin-Buch; Research Centre of Soil Fertility, Müncheberg; Institute of Bacteriological Epizootic Research, Jena; Research Centre of Animal Production, Rostock; Central Institute of Solid-State Physics and Material Research, Dresden, and other research and development centre, such as the Rectifier Works, Stahnsdorf, and the Research Institute of Non-Ferrous Metals at the VEB Mansfeld Kombinat “W. Pieck”, Freiberg.

Authorship and coauthorship

The total number of the papers published in the last twelve years by GDR authors in the field of nuclear analytical methods amounts to 580. Of them, 140 papers, i.e., 25% concern with the activation analysis and 440 the other radioanalytical methods. Considering the total number of publications from 225 isotope laboratories in the GDR and assuming that in each laboratory on average three to four scientists are employed, we may conclude that, on average, one to two research workers of each laboratory have produced one paper. But — according to Lotka’s law¹ — and as is shown in Fig. 1, by far the greatest contribution is indeed made by few authors: almost 200 papers have been produced by only 25 authors and 100 papers by 50 authors, whereas 75% of all papers have been produced by 175 authors.

The transition from individual to team work noticeable in the “great sciences” is indicated by the distribution of the authorship among the publications (Fig. 2). Average number of authors is 2.2 which corresponds to a team of two to three authors per paper, the usual number all over the world.