

Preface: Cumulative Index

Thirty-seven years ago, Thomas J. Watson, Jr., introduced the first issue of the *IBM Journal of Research and Development* with the following message:

The new IBM Journal of Research and Development is a strong indication of the increasing emphasis we at IBM want to place in the future on fundamental science and technology.

In the IBM Journal, our scientists and engineers will describe their latest and most significant new ideas and concepts, as well as new and improved products. I hope and believe that the IBM Corporation will make real contributions to the expanding perimeters of knowledge in the physical sciences and mathematics, as well as in the more specialized areas of data processing, computer technology, and communications. The prompt publication of new scientific and technological advances is, I believe, of real benefit to the individual and to the company. I also feel that it is desirable to share such knowledge with others throughout the world as soon as is reasonably possible.

New scientific knowledge is, without doubt, one of the greatest sources of hope for man in our time. It can never remain the exclusive secret of any group or nation for any considerable period. I am convinced that, through a more widespread and rapid publication of any additions we may make to this store of knowledge, we at IBM can contribute significantly to a freer exchange of ideas and knowledge among all men.

Since its creation in 1957, the *IBM Journal of Research and Development* has reflected the company's technical emphasis by publishing 2190 papers and communications and by listing more than 20 000 U.S. patents issued to IBM and more than 30 000 papers published by IBM authors in other technical journals.

This issue is a thirty-seven-year Cumulative Index covering the 203 issues of the *Journal* published to date. The Index consists of four parts: authors, topics, subjects, and abstracts.

Author Index Entries in the Author Index are arranged alphabetically by the last name of the first author. Primary entries contain the author names, the title of the paper, the volume and issue number in boldface, the beginning page number, and the year of publication.

If a paper has more than one author, secondary entries appear for the additional authors. These entries refer to the primary entry and omit the other authors and the title.

Topic Index The Topic Index identifies those journal issues which are devoted in whole or in part to a particular topic. Papers belonging to these topics are listed in order of publication. Listings include the title of the paper, the last name of the first author, and the beginning page number. Headings include the volume and issue number and the year of publication.

Subject-Code Listing The Subject Index was formed by merging and editing the annual subject indexes. Because of year-to-year variations in subject headings, related papers do not always appear under the same heading in the merged index. To aid in cross-referencing the entries, each heading in the merged index is assigned a four-character code. For example, *Scanning tunneling microscopy* is SC01. All the subject codes associated with a paper are given with that paper each time it appears in any of the 400 subject listings. To aid in locating papers in the Subject Index, an alphabetical listing of the codes and subjects is provided.

Subject Index Entries in the Subject Index include the title of the paper, the last name of the first author, the volume and issue number (boldface), the beginning page number, the year of publication, and the codes of all other subjects pertaining to that paper.

Abstracts The Abstracts section lists papers chronologically by volume, issue, and year, in the order in which they appear in the table of contents of each issue. Individual entries show the title (boldface), authors, and beginning page number of each paper, followed by the abstract. For completeness, material which does not contain an abstract, such as a preface or a short communication, is noted by an entry which contains the title, author, and beginning page number.

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Editor