



History, tradition, and development of journals of the Korean Mathematical Society

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Abstract

In October 1946, mathematicians and physicists founded the Korean Society of Mathematics and Physics, which was relaunched as the Korean Mathematical Society (KMS) in March 1952. This article presents the history of three journals published by the KMS. Volume 1 of the first journal, *Mathematics Education*, was published in 1955, but it was discontinued after publication of volume 3. After that, as the KMS was reorganized in the 1960s, it began once more to publish a journal in 1964, with the title *Mathematics*. Later, *Mathematics* was divided into the *Journal of the Korean Mathematical Society* and the *Bulletin of the Korean Mathematical Society*. A third journal, *Communications of the Korean Mathematical Society*, was first published in 1986. Since then, a total of three journals have been published by the KMS. We can conceive of the years before 1980 as an era focused on education, while the subsequent years have constituted a research era. In this period, mathematics in Korea achieved remarkable growth through extensive international collaboration in research and the internationalization of journals of the KMS. In particular, the *Journal of the Korean Mathematical Society* and *Bulletin of the Korean Mathematical Society* achieved being indexed in SCIE, while *Communications of the Korean Mathematical Society* achieved being indexed in ESCI, a stage that precedes being indexed in SCIE. The journals published by the KMS will continue to serve as a venue for outstanding research results from throughout the world to be published and contribute greatly to the international growth of Korean mathematical capabilities.

Keywords

History; Mathematics; Publications; Republic of Korea; Societies

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Introduction

The Korean Mathematical Society (KMS) was relaunched on March 11, 1952; it was initially founded as the Korean Society of Mathematics and Physics in 1946. This article presents the histo-

ry of three journals published by KMS and describes how these journals have developed internationally. Volume 1 of *Mathematics Education* was published in 1955, but the journal was discontinued after issuing volume 3. In its place, a journal titled *Mathematics* was launched in 1964. Then, in 1968, *Mathematics* was divided into a journal and bulletin, entitled the *Journal of the Korean Mathematical Society* (JKMS) and the *Bulletin of the Korean Mathematical Society* (BKMS), respectively. Furthermore, in 1986, *Communications of the Korean Mathematical Society* (CKMS) was first published. This article describes the history of these three journals based on the content of the *History of the Korean Mathematical Society* (volume 1) and the *70 Year history of the Korean Mathematical Society* [1,2]. This article will provide an opportunity for younger scholars to understand the history of the journals published by the KMS and the role played by senior scholars who have invested considerable time and energy into the development of the journals. Moreover, it also will contribute to further international development of these journals.

Capabilities of Korean Mathematicians after Independence in 1945

After the Japanese colonial government pulled out in 1945, the Korean math world held conferences within the framework of the Korean Society of Mathematics and Physics. However, as these conferences focused on the introduction of new theories or methodologies in the field of mathematics education, they were not suitable venues for serious research articles. However, a piece of surprising news then arrived in the math world. With

the title “On a problem of Max A. Zorn,” a paper written by Prof. Rimhak Ree of Seoul National University (SNU) was published in the *Bulletin of the American Mathematical Society* in 1949, volume 55, pages 575-576. As the only paper by a Korean mathematician that was published in an international journal between 1945 and 1950, the year of the Korean War, this paper confirmed that the capabilities of Korean mathematicians were excellent, even though there were not many mathematicians at the time. The publication of this great paper became the foundation of future development of math journals.

The First Bulletin (*Mathematics Education*)

After the KMS was relaunched at the temporary school of College of Engineering, SNU on March 11, 1952 (Seodaesin-dong, Busan), its third general meeting was held in an auditorium at the College of Liberal Arts and Sciences, SNU on August 29, 1954. Here, the issue of publishing a journal was seriously discussed as a special matter. Although the economic circumstances then were not appropriate for devotion to learning or striving for research time, publishing a journal was discussed, and as a result, *Mathematics Education* volume 1 was published on July 5, 1955. Its size was 52 × 218 mm, and the body text consisted of 80 pages (Fig. 1). Its editor is unknown.

Mathematics Education volume 1 contained opening remarks by Chairman Yoon-Sik Choi (최윤식), congratulatory messages from Seon-Geun Lee (이선근), the Minister of Culture and Education, and Kyu-Nam Choi (최규남), the President of Seoul National University, pieces about mathematics education at the

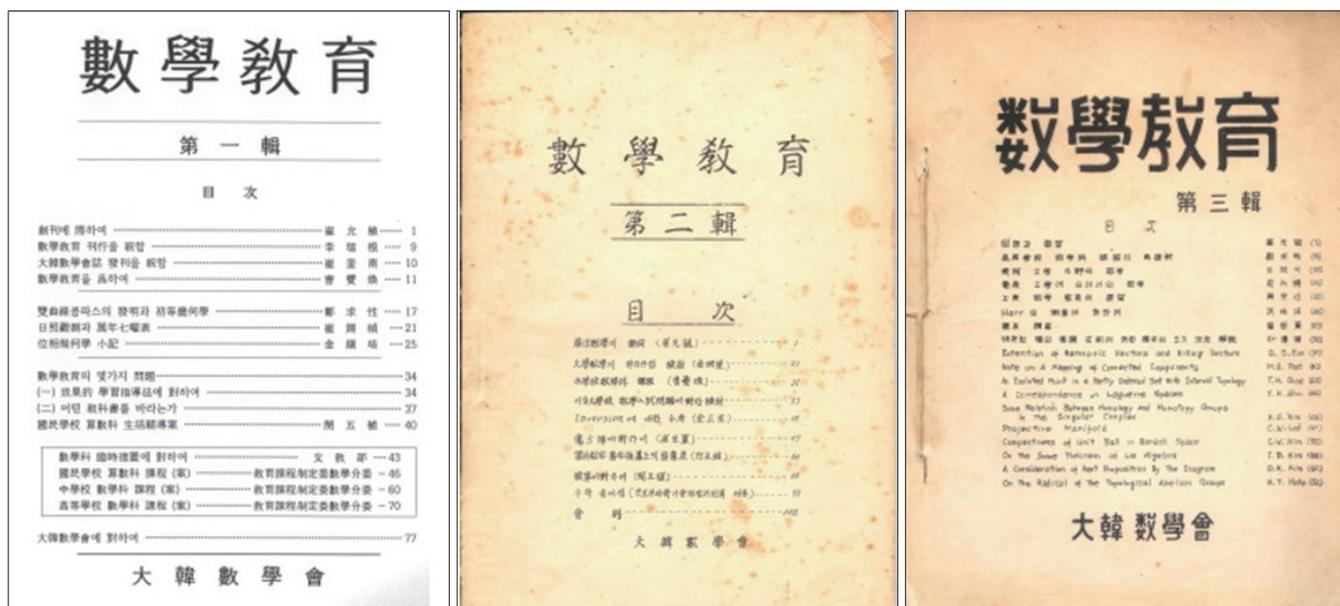


Fig. 1. Cover pages of the *Mathematics Education* vol. 1 to 3 published in 1955, 1957, and 1958 respectively by the Korean Mathematical Society.

time, and an interpretation of the draft mathematics curriculum of each school that was promulgated in August 1955 (Fig. 1).

Mathematics Education volume 2, which was published in the spring of 1957, consisted of 104 pages and was mostly about mathematics education. It contained a codification of mathematics terminology enacted by the Ministry of Education and Human Resources Development.

Mathematics Education volume 3, which was published in the spring of 1958, contained 68 pages and a total of 18 articles, four of which were about mathematics education in Korean and 13 were about mathematics. Of those 13 articles, 10 were mimeographs typed in English.

Mathematics, a Journal Published at the Time of the Reorganization of the KMS

On March 28, 1964, the KMS held a board of directors meeting at Chonbuk National University, decided to publish a journal, and indicated that the details would be left to the discretion of the permanent board of directors. This decision was made because *Mathematics Education* had been discontinued since the publication of volume 3 in 1958, and in light of the foundation of the Korean Society of Mathematical Education, continuing to publish a journal named *Mathematics Education* would not be justified. Therefore, *Mathematics* was chosen as the title of the journal that would be newly published, and the decision was made to publish it starting with an initial issue, not as a continuation of *Mathematics Educa-*

tion. Mathematics volume 1 was issued and distributed on June 6, 1964, when a conference was held at the Republic of Korea Naval Academy. *Mathematics* volume 1 consisted of 36 pages and contained a series of lectures at the level of graduate school classes, master's theses, summaries of papers presented at conferences, and a description of activities of various universities and members; the issue was characterized as being quite enlightening (Fig. 2).

This first issue of *Mathematics* is now regarded as volume 1 of the JKMS and the BKMS, and volume 2, 3, and 4 were published in 1965, 1966, and 1967, respectively. *Mathematics* volume 1 and 2 were edited by Woo-Han Lee, and the College of Liberal Arts and Sciences of SNU took responsibility for editing *Mathematics* starting with volume 3, which is confirmed to have been edited by Sehie Park. The text of volume 3 comprised 38 pages, consisting of 5 papers, 3 survey articles, and a book review. Additionally, news of the KMS was introduced briefly.

Governmental Support for Journal Publication

With the start of the 5-year economic development plan in 1962, the Korean government gradually emphasized the importance of science and technology. On January 16, 1967, when the second 5-year economic development plan started, the Framework Act on Science and Technology was enacted and the Ministry of Science and Technology was established. The Ministry of Science and Technology secured research grants as part of the government's budget to support the activities of small academic societies in difficult situations, and then received proposals from academic societies about how they planned to spend academic activity grant funds after screening. The grant process has continued to the present day, and each academic society receives governmental aid for the publication of academic journals and academic activities through the Korean Federation of Science and Technology Societies (KOFST). In 1968, the KMS also received grants of 250,000 won for journal publication and 50,000 won for conference expenses. To receive these grants, the KMS had to submit a project plan. On June 8, 1968, the board of directors met to create the project plan, and the decision was then made to publish *Mathematics* volume 5. Eul-Yong Park and Woo-Han Lee, who were delegated by the board of directors to take responsibility for the publication process, called a temporary editorial board meeting at the College of Liberal Arts and Sciences of SNU, and discussed all issues regarding the development of journals of the KMS in depth. Eul-Yong Park, Woo-Han Lee, Sehie Park, Jeh Pil Kim, Chi-Young Kim (김치영), Jeong-Soo Kim (김정수), Chairman Gyeong-Chan Park (박경찬), and Standing Director Seong-Goo Woo (우성구) participated as members of the temporary editorial board. At this

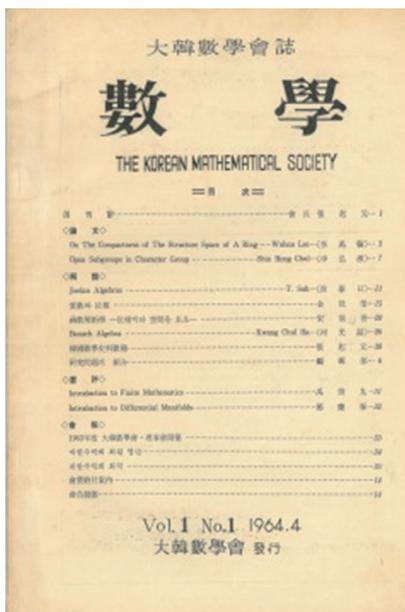


Fig. 2. Cover page of the 1st volume of *Mathematics* published by Korean Mathematical Society in 1964.

editorial board meeting, it was decided that its academic journal of the KMS was to be divided and published as the JKMS and the BKMS. The journal of the KMS, *Mathematics*, included mathematics research papers, book reviews, and the news about the KMS. The temporary editorial board decided to divide the *Mathematics* into the JKMS and the BKMS, and each journal to be published two issues per year, a total of 400 pages. It was also decided that both journals would start from volume 5, following volume 4 of *Mathematics*. After that, volume 5 of the JKMS, which only contained mathematics papers, was published on an accelerated schedule on October 26, 1968, the day of the regular conference. The editorial members of the first JKMS were the same as those who attended the temporary editorial board meeting. However, for the first issue of the BKMS, Woo-Han Lee was the editor, and the members of the editorial board were Jeh Pil Kim, Jae Chul Rho, Sehie Park, Jang Ik Eom (엄장익), and Chang Goo Lim (임창구).

Rapid Growth of the JKMS and the BKMS at the Time of the 35th Anniversary of the KMS

In 1968, the JKMS and the BKMS started from volume 5 (Fig. 3). The decision was made that the JKMS would include only papers written in English, while the BKMS would include papers written in Korean or English; this idea was suggested by Sehie Park and Jeh Pil Kim. Thick, commercially-available, blue colored paper and yellow colored paper was used for the JKMS and BKMS, respectively, to reduce printing expenses. The JKMS and BKMS were published twice a year each, with a total of 400 pages, and provided a venue for exchanges with universities, research institutes, academic societies, and libraries all over the world. They received papers from foreign scholars, as well as members of the KMS, and they were distributed worldwide.

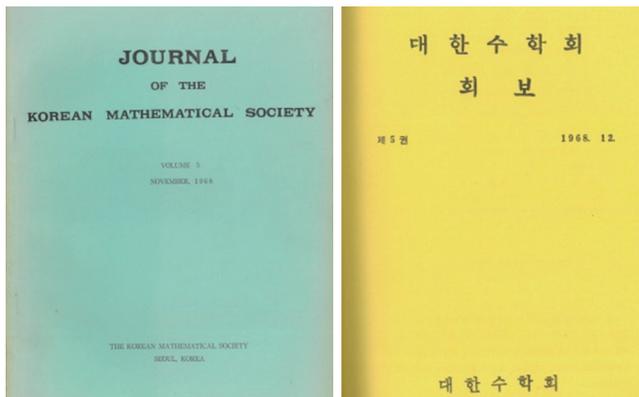


Fig. 3. Cover page of the 5th volumes of Journal of the Korean Mathematical Society and *Bulletin of the Korean Mathematical Society* published in 1968.

Start of the TeX Era for Academic Journals

In the 1990s, the publishers that set the letters in type and printed the journals declared that they would no longer typeset mathematics papers, which were full of complicated symbols. This was a serious crisis for the journals of the KMS. For this reason, the KMS decided to use TeX for both the JKMS and the BKMS, starting with volume 28, number 1 (the February issue in 1991). The KMS computerized all manuscripts that were submitted by members of the KMS by having an expert typist use the new system of TeX. The manuscripts were first printed on large papers using a 24-pin dot printer, and were then reduced again and printed to improve the quality of the final text. To promote this method of creating electronic manuscripts among members, information about this process was published in the newsletter. At the time, the computing committee, especially Chairperson Hong-Jong Kim and the member Ki-Hyoung Ko, who developed the Korean version of TeX, were very helpful.

Efforts of the KMS to Be Selected for the Excellent English Journals Cultivation Project and to Be Indexed in SCI

The KOFST launched the Excellent English Journals Cultivation Project by selecting excellent domestic English-language journals and intensively supporting them, and the JKMS was selected for this project in 1997. The world's leading authorities in the corresponding fields were invited to publish in these journals, or international conferences in which such prestigious scholars participated were held in Korea. The papers they presented were published in excellent domestic English-language journals, which helped improving the quality of domestic journals. This project played a major role in holding international conferences and improving the status of the JKMS through the 2000s.

JKMS, BKMS, CKMS Indexation in International Index Databases

In the late 1990s, research grants to faculties, were expanded, and publishing papers in journals indexed in the SCI or by the Korea Research Foundation (formerly National Research Foundation of Korea) began to be used as an evaluation criterion for professors' research performance. In December 2001, the JKMS, BKMS, and CKMS (Fig. 4) were indexed by the Korea Research Foundation. In 2000, KMS held an international conference called "Mathematics in the New Millennium," and attracted outstanding papers from the invited presenters for publication in the JKMS, thereby greatly improv-

ing its reputation. In June of the same year, KMS started preparing for the JKMS to be indexed in SCIE in earnest. The next Editing Executive Director Woo-Young Lee and members ensured the punctuality of journal publication, which was an important requirement for being indexed in the SCIE, and internationalized the editing system. Additionally, the construction of an online journal system for the journals of the KMS was completed after a great deal of effort by Editing Executive Director Woo Young Lee for about 1 year, and with this, in early January 2003—over a year after applying to be indexed in the SCI—it was decided that the JKMS would be indexed retroactively from volume 39 (2002) in SCIE and the CompuMath Citation Index. Finally, the longtime goal of KMS and its members was achieved. On January 14, 2003, KMS publicized this fact in major newspapers and held a conference to commemorate the JKMS being indexed in the SCIE in the auditorium 2F of the KOFST on February 20, 2003.

For the BKMS, Editing Executive Director Sang-Geun Hahn applied for indexation in the online Thomson ISI database from volume 45, number 1 in January 2008, and the journal was notified that it would be indexed in SCIE on April 30, 2008. It was indexed retrospectively from volume 44 (2007). After the JKMS was indexed in the SCIE, the BKMS was also indexed in the SCIE. Since 2008, KMS has remained the only academic society in Korea that publishes journals in the field of mathematics at the level of the SCI database. CKMS achieved being indexed retrospectively from volume 31 (2016) in the ESCI, which is a stage that precedes being indexed in SCIE.

Internationalization and Computerization of Journals

On October 10, 2006, the online manuscript submission system for the JKMS was launched. The English-language homepage of the JKMS was created, along with a manuscript submission management system, as part of the internationalization initiative. This system was also designed in a way that authors could select possible reviewers for their manuscripts. Starting on January 14, 2008, this system was expanded to the BKMS and CKMS and used for all subsequent submissions. In August 2008, original texts from all three journals, starting with the first issues, were made available online, with downloadable PDFs and database search capacity.

Open Access Policy

The KMS introduced an open access policy early, allowing anyone in the world to freely read, distribute, and utilize non-profit papers from its three journals (JKMS, BKMS, and CKMS). Since two of these three journals are partially supported through the taxes paid by Korean citizens, in the form of governmental aid, they were made publicly available in order for everyone who is interested in mathematics, as well as math majors, to easily access the papers. The JKMS has no publication fee as an international journal, while the other 2 journals have a publication fee of 10,000 won (US dollar 10) per page, which is low enough to be accessible even for researchers with no research funds. It is difficult to find an international journal that is open access and

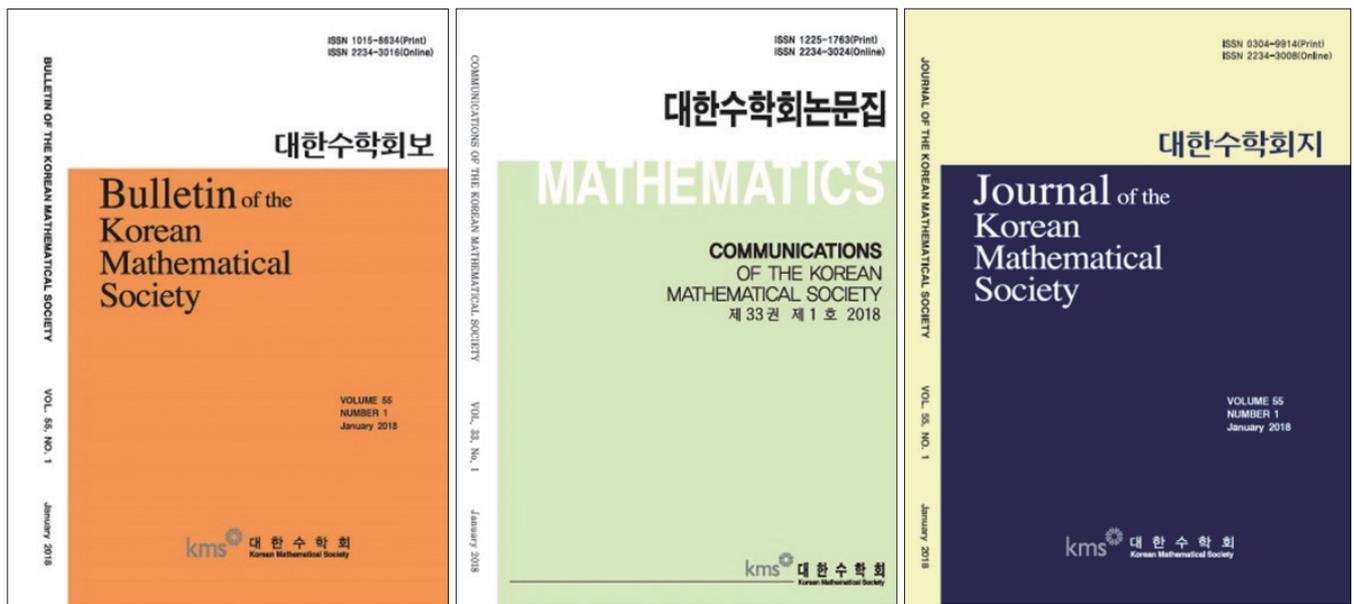


Fig. 4. Recent cover page of three society journals of the Korean Mathematical Society published in 2018.

has no publication fee or a low publication fee. Thus, the journals of the KMS are exemplars of academic journals that receive governmental aid and whose publication is supported by its related academic society.

Enhancement of Fairness of Academic Journal Research Ethics

Regulations on research ethics were enacted in 2008 as an effort to enhance the fairness of academic journal research ethics, and the Research Ethics Committee was established as a permanent committee of the KMS in 2015. All papers to be published go through a similarity verification process, and when a research ethics violation is caught or reported, the Research Ethics Committee is called and deliberates on the matter. When the violation is serious, an investigation committee consisting of experts in the corresponding field is constructed, and strict investigation and verification of the reported papers are conducted, after which appropriate follow-up measures are taken.

Conclusion

The KMS has surmounted various challenges, such as journal typesetting, the restrictive number of papers to be published, the paper review period, and research fund support. However, the journals of the KMS were able to grow internationally thanks to many editorial executive directors and operational staff members who have devoted to the journals. The American Mathematical Society, which is the most representative society in the field of mathematics, has made its efforts to

abide by strict reviews and regulations and to meticulously check whether any research ethics violations have occurred, and the American Mathematical Society has served as a good example for the KMS. The journals of the KMS are expected to keep growing steadily and to make major contributions to the development of mathematics (Fig. 4).

Conflict of Interest

The authors are members of KMS, and they have participated in the society in many different roles, including handling editors, vice-presidents, and as members of the KMS Board of Directors. This article presents the authors' personal opinions, not official opinions of the KMS.

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