Study on the Promotion in the Citation of the Nuclear Engineerng and Technology

Young Choon Chun[a*] , J. B. Yoo[a,] J.H. Yi[a]
[a]Korea Atomic Energy Research Institute, 1045 Daedeok-daero, Yuseong-gu, Daejeon, 305-353,Korea
Corresponding author: ycchun@kaeri.re.kr

1. Introduction

The Korean journal published in English, Nuclear Engineering and Technology (hereunder NET) has been enlisted in the global citation database SCI E(Science Citation Index Expanded) of Thomson Reuters (past ISI), beginning with NET vol.39 No.1 (Feb. 2007). As of July 2009, the citation index of NET as reported by JCR (Journal Citation Report) based on the cumulative data from ISI (Institute for Scientific Information) reached to 0.991.

This index ranks on 12th among the 33 journals in the area of nuclear science and technology in the science and technology covered by JCR, meaning fairly high impact factor. The following year 2010, however, witnessed the JCR figure dropping down to 0.465.

The reason behind such drastic fall would be the decreased citation and in a lesser extent self-citation in 2010, in comparison with 2009, despite the increased number of paper publication.

This study attempts to give an analysis as of the end of 2011 on the NET citation frequency in SCI Source Journal and the citation frequency by KAERI authors, together with the nationalities of NET authors and SCI journals that refer to NET most.

Based on the analysis, the paper suggests some ways to promoting the position of NET as a journal in the international nuclear sector.

2. Citation Analysis of NET

With a view to analyse the statistics of citation, the results of NET as referred in the Web of Science (hereunder WOS) as an academic database of ISI.

The analysis spanned from 2007 to 2011 with a focus on the number of NET cited in the SCI Source Journals, the number of NET citation by KAERI authors, the distribution of nationalities of NET authors and the SCI journals that refer to NET most.

The WOS search resulted in NET citation in SCI Source Journals 382 times by 207 papers for the period of 2007-2011.

For the same period, the number of KAERI authors who referred to NET was 153 which is about 40% of the total citations.

2.1 Survey of NET Citation Frequency in the SCI Source Journal

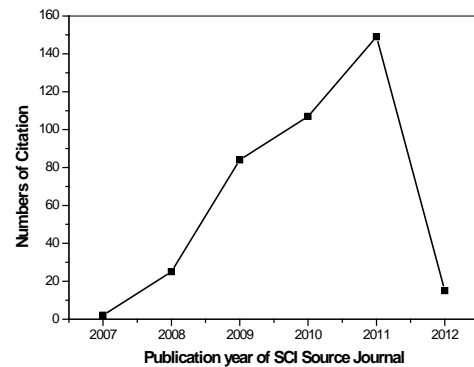The yearly trend of citation in the Source Journal is plotted as below

Figure 1. Yearly numbers of citations in the source journals.

As shown in Figure 1, the number of citations has steadily increased from 2 in 2007, 25 in 2008, 84 in 2009, 101 in 2010, 149 in 2011.

As the number 15 in 2012 is up to only March, it does not bear much significance.

2.2 Nationalities of NET Authors

The following sums up the nationalities of NET authors

Figure 2. Statistics on nationalities of NET authors

Among the 377 papers published for the period of 2007-2011, Korean authors count 257 representing 68 % and KAERI authors 135 representing 53 %.

2.3 SCI Journal that refer to NET Most

The statistics also show the academic journals which cited NET most as following :

Nuclear Engineering and Design : 59 times
Nuclear Engineering and Technology: 53 times

Annals of Nuclear Energy: 35 times
Journal of Nuclear Science and Technology 24
Journal of Nuclear Materials 21
Progress in Nuclear Energy 12
Nuclear Technology 11
Reliability Engineering and System Safety 9
IEEE Transactilons on Nuclear Science 7

3. Promotion of NET citation to an international caliber of nuclear journal

The quality of journals could be measured by the intellectual contributions and its academic impacts. The Impact Factor (IF) of JCR is meant to measure such impacts of journals in terms of quantitative figures. The IF is an "indicator to represent the degree of importance, quality and impact" by means of averaging the number of citations of literature group.

In order to promote the citation of NET journal, the following ways are suggested:

First, the most recent data on the IF of NET as searched in the JCR 2010 is 0.465. More active efforts are required to promote from SCI-E to SCI.
Two ways might be worthwhile for such target. One is to increase the number of citations on the basis of IF figures and the other is to control the number of papers to a low limit.

Second, Encouraging the authors to increase the number of citations by awarding prize to the papers and also to the main authors.

Third, analysis of papers should be based on bibliographical data. Incorrect data on basic information cause trouble in the analysis.
Consistency in such details as the title, author name in full, volume and number, page and affiliation are required.

For reference, the IF is derived by the following equation

$$\text{Impact Factor} = \frac{\text{Cite to recent items (2007, 2008 during 2009)}}{\text{Number of recent items (2007, 2008)}}$$

If the denominator becomes smaller and the numerator lager, the IF is to increase resulting in subsequent improvement in quality

Fourth, the analysis of nationalities shows Korean authors count 257 representing 68 % among the 377 papers published for the period of 2007-2011.
This unevenness is a restrictive indicator for an international journal. It also means the need for active effort to increase the share of foreign authors toward internationalization of the NET journal.

4. Conclusion

As shown by the results of the analysis in this study, it is suggested that:

● **More active efforts are required to promote from SCI-E to SCI. Two ways might be worthwhile for such target. One is to increase the number of citations on the basis of IF figures and the other is to control the number of papers to a low limit.**

● **Stricter control of the number of papers by peer review to enhance the IF**

● **Encouraging the authors by awarding prize to increase the citations**

● **Correct bibliographical data with consistency in sch details as th title, author name in full, volume and bumber, page ans affiliation, etc.**

REFERENCES

[1] James Testa, Director, Editorial Development, Thomson-ISI, The Thomson Scientific Journal Selection Process. [online]
http://scientific.thomson.com/free/essays/selectionofmaterial/journalselection

[2] ISI Web of Knowledge, Journal Citation Report [online] http://isiknowledge/JCR