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A B S T R A C T

Obtaining outstanding results is the most important step for research, but getting these results published in a journal that can generate the greatest impact to the scientific community and society is just as important as obtaining the results. I did a simple investigation about the papers related to thermoelectrics that were published in different journals between the years of 2000 and 2017. I noticed that there is not a journal with more than 5% of the papers on thermoelectrics. To better serve the community and better inform the society of the importance of thermoelectrics, we now start a new journal, *Materials Today Physics*, to hopefully publish papers on thermoelectrics with a much higher percentage but open to other novel discoveries on materials and physics.

1. Introduction

Over the last a couple of decades, research on thermoelectrics has been extensive on improving the exiting materials' performance [1–6], discovering new materials [7–18], fabricating high performance modules [19–22], attempting new systems [23,24], understanding the electron and phonon scattering mechanisms and transport [25,26], and predicting new materials [27], etc. Outstanding results have been published in a variety of journals. I was interested in finding out how is every journal doing on publishing the papers on thermoelectrics. Therefore, I did a detailed analysis of the published papers on thermoelectrics since 2000 and separated the data into three periods of time with each period of 6 years. All the data were obtained from the database of Web of Science core collection.

2. Results

Fig. 1 shows the number of papers related to thermoelectrics that were published in different journals in three different periods (2000–2005, 2006–2011, and 2012–2017). Clearly, there is a general trend that more and more papers on thermoelectrics were published in all these journals. Owing to the difference in the total number of papers published in each journal, the number of papers on thermoelectrics published in different journals varies by two orders of magnitude. For example, the number of papers published in *Phys. Rev. B*, *Appl. Phys. Lett.*, and *J. Appl. Phys.* are more than ~250 between 2012 and 2017. On the contrary, the papers on thermoelectrics published in *Science* and *Nature* in the same period are 5 and 10, respectively.

Despite of the fact that the absolute number of papers published in different journals varies significantly, the percentages of the papers on thermoelectrics published by most of the journals are quite comparable, 1–3% for 2012–2017, as shown in Fig. 2. It is noted that the percentage is much lower (~0.1%) for several journals such as *Science*, *Nature*, *Proc. Natl. Acad. Sci. USA*, and *Angew. Chem. Int. Ed.* in the same period. Clearly, all these results indicate that even though the percentage of papers on thermoelectrics by most of the journals has been increasing but none of them has more than 5% on thermoelectrics.

To further investigate the impact of the papers related to thermoelectrics published in different journals, the total citations (from 2000 to 2017) of these papers are shown in Fig. 3. Among these journals, there are several of them with the total citation for the thermoelectric papers more than 10,000. Such as *Science*, *Nature*, *Nat. Mater.*, *Phys. Rev. Lett.*, *Phys. Rev. B*, *Nano. Lett.*, *Appl. Phys. Lett.*, and *J. Appl. Phys*. It is worth noting that the total citation for the thermoelectric paper published in *Phys. Rev. B* is the highest as 38,552. Journals such as *Nat. Commun.*, *Nat. Nanotech.*, *Proc. Natl. Acad. Sci. USA.*, and *Nano Energy* have relatively less total citations, which could be ascribed to the fact that three of them are relatively new while *Proc. Natl. Acad. Sci. USA.* has only published less than 20 papers.

Fig. 4 shows the citation per paper over 18 years for the papers related to thermoelectrics published in different journals. This value is exceptionally high for the journals like *Science* (938), *Nature* (656), and *Nat. Mater.* (262). For most of the other journals, this value falls into the range between 20 and 80. It clearly indicates the thermoelectric papers published in different journals have been cited very well.

To further demonstrate the impact of the thermoelectric papers in different journals, we introduced a new parameter of "TE impact factor". The TE impact factor is calculated by using the identical method that calculates the real impact factor of any journals, but with only taking the papers related to thermoelectrics into consideration. As shown in Fig. 5, with the exception of the journals like

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2542-5293/

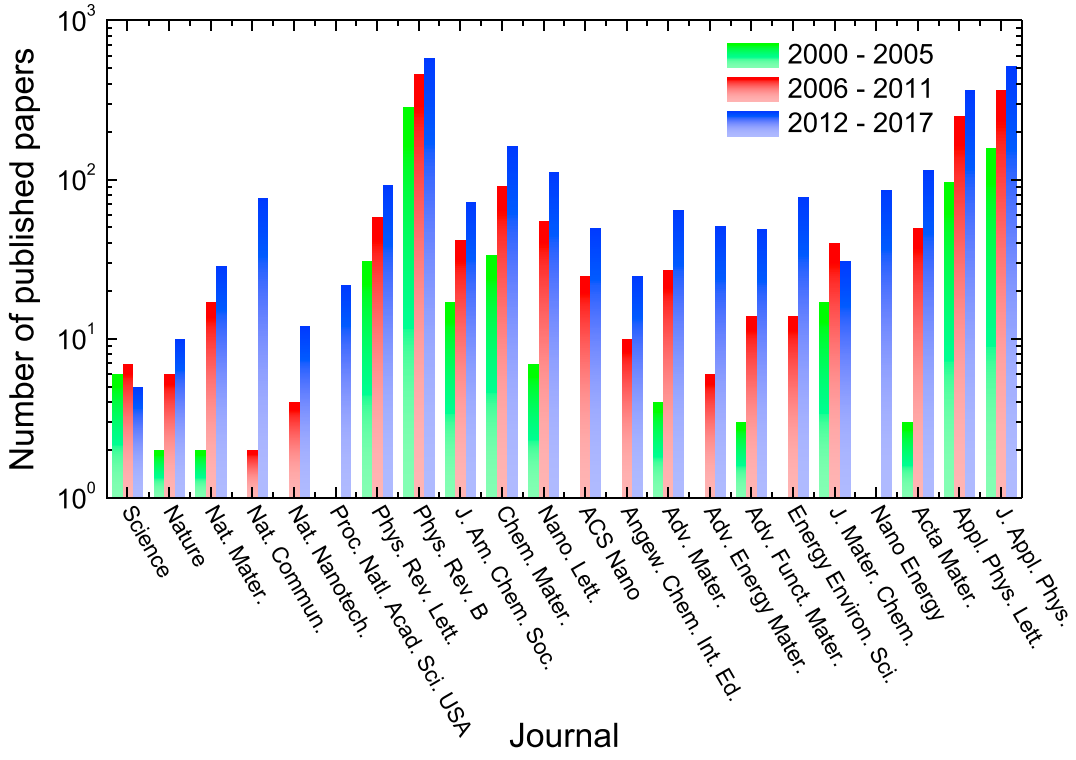

Fig. 1. The number of papers related to thermoelectrics that were published in different journals in different periods since 2000. (For the data of 2017, we extrapolated to a full year from the data of the first 4 months.)

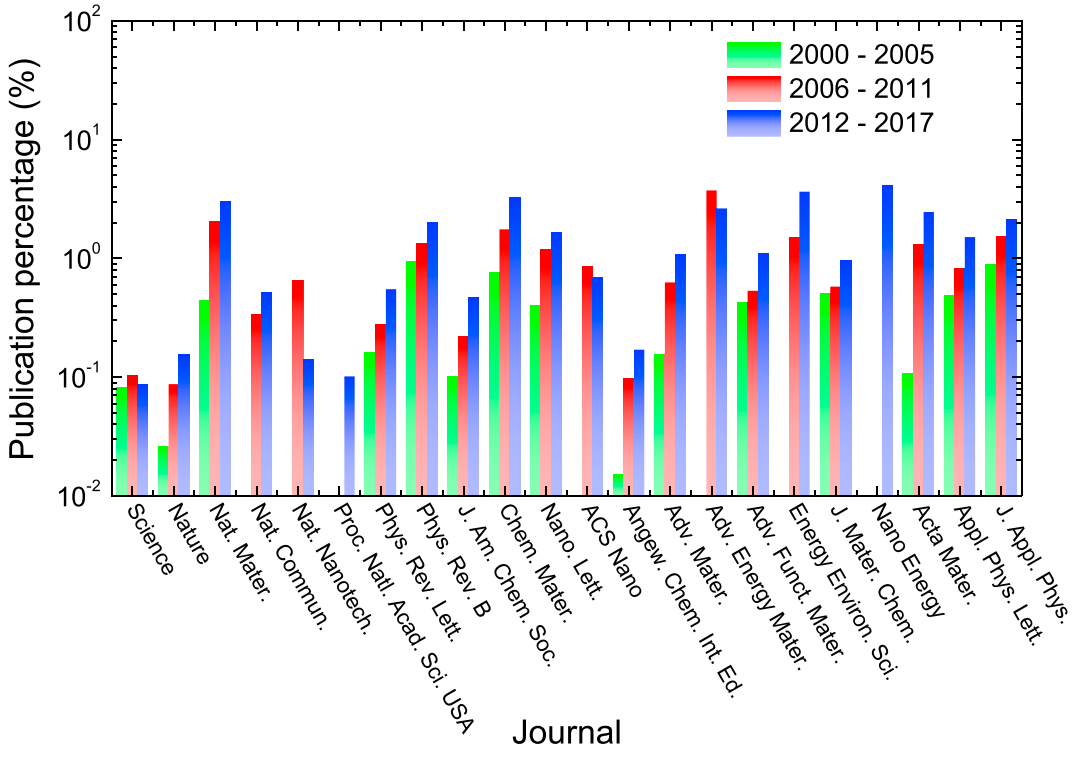

Fig. 2. Percentage of the papers related to thermoelectrics published in different journals in different periods since 2000.

Nature and *Science* that have TE impact factors significantly higher than the journal impact factors, most of the journals have a little bit higher TE impact factor than the journal impact factor, which should make you proud if you are working in this field. It demonstrates that the thermoelectric papers indeed made a large contribution to the impact factor of these journals.