

Observations on Journal Citation Reports

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Journal Citation Reports are increasingly used not only for evaluation of the performance of individual mathematicians (and other scientists, of course), but also for evaluation of institutions, distribution of research funds, etc. We found that activities of a single person can substantially distort the rating of journals. In our opinion these facts deserve to be widely known.

Some time ago we took a look at the ranking of mathematical journals in the Journal Citation Reports [3] from 2022, based on the Journal Impact Factor. (This counts citations in 2022 to papers published in 2020 and 2021.) We were surprised to see among the first 50 highly cited journals some entries which we did not expect there.

We were especially interested in the sudden jump in the rating of *Computational Methods and Function Theory (CMFT)*, a journal we both of us have many publications, and one of us serves as a member of the editorial board. We found that the Journal Impact Factor raised from 0.855 in 2020 to 2.1 in 2022. So we decided to investigate the reasons for this dramatic growth.

It turned out that of the 250 references to CMFT for the indicated period, 129 are to one article [13]:

Zhao, Tie-Hong; He, Zai-Yin; Chu, Yu-Ming; Sharp Bounds for the Weighted Hölder Mean of the Zero-Balanced Generalized Complete Elliptic Integrals.

The next two most highly cited articles are [12] with 37 citations and [10] with 13 citations. All three have Yu-Ming Chu in the list of authors.

The corresponding numbers from the MathSciNet database are much lower. For example, for the first paper [13] MathSciNet lists 10 citations in 2022, which is still quite high for a paper published in 2021. We understand that MathSciNet counts only citations in mathematical journals while Journal Citation Reports uses a much larger set of journals, so we were curious what kind of mathematical discovery was made in [13] that generated so many citations in other sciences.

We looked at two randomly selected papers citing [13]. The first one is [5]. The paper is 10 pages long and lists 103 references. The sentence where [13] is mentioned is the following:

“New developments in many fields of science [61, 104] and technology [64, 65, 76, 105, 124], such as medicine [9, 33], plants [3, 48, 74], energy [80, 113], behavior [43], engineering [68, 110], chemical [31, 84], physic [112, 114, 122], applied analysis [109, 115], analytical [21, 69, 108], calculations [19, 22, 99, 121], computer [16, 111, 118], mathematic [38, 117, 119], and even geometry [85, 91, 120, 123], have significant impact on life [6–8, 47, 70] and health [44, 98, 116].”

Meanwhile the paper [5] has been retracted by the Editor-in-Chief [6]. The second paper that cites [13] where we looked at is [8]. It has a reference list of 99 items, 25 of which are co-authored by Yu-Ming Chu. The reference to [13] is in this sentence:

“Nanoliquid is a combined fluid which contains suspension of non-metallic or metallic nano-scaled solid powders [31-40].”

Paper [13] is listed as [32].

We are not the first to observe suspicious citations to papers by Yu-Ming Chu. For example, Leonid Schneider calls him an “irrelevant citations plantator” in his blog “For Better Science” [9]. We also mention that a number of papers by him have been retracted by the editors [4], for reasons such as “suspicious changes in authorship between the original submission and the revised version”, concerns “about the integrity of the peer review process”, or “significant overlap with an earlier publication”. (Curiously enough, a retraction does not *decrease* but in fact seems to *increase* the number of papers in MathSciNet by 1.) A surprise, however, was for us to see how large the effect of scientific misconduct by a single person is on the ranking of journals.

We finally looked at some other journals among the top 50 in the list of Journal Citation Reports. In the following list, the number before the journal name is the place in the rating of mathematical journals in the Journal Citation Reports from 2022. We then give the total number of citations and those for the three most-cited papers (where Yu-Ming Chu is always a coauthor.)

15. *Journal of Mathematical Inequalities*. Citations: 603. Top three: 139, 126, 87.
17. *Revista de la Real Academia de Ciencias Exactas Fisicas y Naturales Serie A-Matematicas*. Citations: 1108. Top three: 118, 90, 56.
27. *AIMS Mathematics*. Citations: 2907. Top three: 144, 130, 37.

Conclusion. That a person can inflate his or her citation rate by irrelevant citations is a relatively minor problem. The important problem is the following.

The ranking of journals by the Journal Citation Reports is widely used in many countries for all kinds of purposes, e.g. for awarding grants or evaluation of individual mathematicians for promotions. This is despite of the fact that many organizations and individuals have signed the Declaration on Research Assessment (DORA) [1] which says that journal-based metrics such as impact factors should not be used for such purposes.

The scientific community and those who are involved in evaluation of the scientific performance of organizations or individuals should be aware that journal rankings can easily be and in fact are severely manipulated by certain individuals.

Remark. We wrote this note in 2023 and shared it with some colleagues, but did not make it public then. We now checked the current (December 2025) citation rates. The impact factor of CMFT has gone down to 0.6 in 2023 and 0.7 in 2024. Note that the paper [10], which was published online in 2020 already, does not count for the impact factor in 2023 and 2024. So the impact factor of CMFT is essentially at the level (even a bit lower) than in 2020. The impact factor of the other journals mentioned has also gone down.

The number of retracted papers has increased since we wrote this in 2023, so we added some retractions in [4]. According to Web of Science [11] or Google Scholar [2], among the four most cited papers by Yu-Ming Chu there are two of the retracted papers listed in [4]. We also refer to the Retraction Watch Database [7].

References

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- [2] Google Scholar, <https://scholar.google.com/citations?user=Gi0UXRQAAAAJ&hl=en>
- [3] Journal Citation Reports, <https://jcr.clarivate.com/jcr/browse-journals> (by subscription only).
- [4] Links to retraction notices: <https://doi.org/10.1016/j.amc.2023.127998>, <https://doi.org/10.1016/j.amc.2023.127996>, <https://doi.org/10.1186/s13662-022-03745-1>, <https://doi.org/10.1177/0954406220987265>, <https://doi.org/10.3389/fenrg.2024.1446750>, <https://doi.org/10.3389/fenrg.2024.1446747>, <https://doi.org/10.1016/j.molliq.2025.127715>, <https://doi.org/10.1016/j.molliq.2025.127086>.
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