

Differential equations: A bibliometric analysis

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Differential equations have many practical applications in several branches of knowledge. In mathematics, a differential equation “is an equation whose unknown is a function that appears in the equation in the form of its derivatives”. The study of differential equations is a broad field in applied mathematics widely used to construct mathematical models of physical phenomena with wide application in engineering [1–5].

The bibliometric analysis used the database Scopus/Elsevier to search for the documents. Using the term {differential equations}, TITLE-ABS-KEY ({differential equations}), 356,655 documents were identified (a search carried out on 19 March 2025).

The results obtained in documents can be seen in **Table 1**, for the first ten positions concerning year, source, author, affiliation, country, document type, scientific area, and funding support. The better results obtained show in function of the number of documents produced: year 2024 (17,272), followed by the years 2023 (16,846) and 2021 (16,118); source *Applied Mathematics and Computation*—Elsevier (4412) followed by *Journal of Mathematical Analysis and Applications*—Elsevier (3016) and *Journal of Computational and Applied Mathematics*—Elsevier (2961); author Pop, I.—Universitatea Babeş-Bolyai (663), followed by Baleanu, D.—Lebanese American University, (661) and Hayat, T—Quaid-i-Azam University (508); affiliation CNRS Centre National de la Recherche Scientifique (4278) followed by Russian Academy of Sciences (3848) and Chinese Academy of Sciences (2677); country USA (69,349) followed by China (61,950) and India (21,152); document type article (279,742) followed by Conference Paper (65,215) and Book Chapter (4842); scientific area Mathematics (178,067) followed by Engineering (147,229) and Physics and Astronomy (83,597) and funding support National Natural Science Foundation of China (23,663) followed by National Science Foundation (11,525) and Ministry of Science and Technology of China (7800).

Table 1. Documents (356,655) by (source Scopus/Elsevier, 19 March 2025).

	Year	Source	Author	Affiliation
1	2024 (17,271)	Applied Mathematics and Computation (4412)	Pop, I. (663)	CNRS Centre National de la Recherche Scientifique (4278)
2	2023 (16,846)	Journal of Mathematical Analys. and Applications (3016)	Baleanu, D. (661)	Russian Academy of Sciences (3848)
3	2021 (16,118)	Journal of Computational and Applied Mathematics (2961)	Hayat, T. (508)	Chinese Academy of Sciences (2677)
4	2022 (15,808)	Nonlinear Analysis Theory Meth. and Applications (2949)	Alsaedi, A. (461)	King Abdulaziz University (2299)

Table 1. (Continued).

	Year	Source	Author	Affiliation
5	2020 (14,593)	Computers and Mathematics with Applications (2817)	Agarwal, R.P. (390)	National Academy of Sciences of Ukraine (2261)
6	2019 (14,123)	Lecture Notes in Computer Science (2669)	Ahmad, B. (338)	Lomonosov Moscow State University (2056)
7	2018 (13,260)	AIP Conference Proceedings (2608)	Dehghan, M. (323)	Ministry of Education of China (2032)
8	2017 (12,861)	Mathematical Methods in The Applied Sciences (2407)	Nisar, K.S. (322)	Harbin Institute of Technology (1788)
9	2015 (11,703)	Journal of Computational Physics (2266)	Ishak, A. (308)	Tsinghua University (1695)
10	2016 (11,661)	Proceedings of The IEEE Conf. on Decision and Control (2263)	Ntouyas, S.K. (308)	Shanghai Jiao Tong University (1640)
	Country	Type	Area	Funding Support
1	USA (69,349)	Article (279,742)	Mathematics (178,067)	National Natural Science Foundation of China (23,663)
2	China (61,950)	Conference Paper (65,215)	Engineering (147,229)	National Science Foundation (11,525)
3	India (21,152)	Book Chapter (4842)	Physics and Astronomy (83,597)	Ministry of Science and Technology of China (7800)
4	Russian Fed. (20,518)	Review (2701)	Computer Science (72,715)	European Commission (4737)
5	Germany (19,511)	Book (1492)	Materials Science (29,731)	Russian Foundation for Basic Research (3566)
6	UK (16,435)	Conference Review (860)	Chemical Engineering (17,861)	Deutsche Forschungsgemeinschaft (3145)
7	France (15,468)	Editorial (418)	Chemistry (13,269)	Fundamental Research Funds for the Central Universities (2652)
8	Italy (13,498)	Note (387)	Earth and Planetary Sciences (11,749)	UK Research and Innovation (2596)
9	Canada (11,043)	Letter (282)	Energy (11,642)	U.S. Department of Energy (2536)
10	Iran (10,308)	Report (74)	Environmental Science (9427)	Engineering and Physical Sciences Research Council (2532)

Conflict of interest: The authors declare no conflict of interest.

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