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Retractions: Analyzing the Role of Misconduct and Plagiarism in Chemistry Manuscripts


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Retractions: Analyzing the Role of Misconduct and Plagiarism in Chemistry Manuscripts

Dr. Yulia Sevryugina

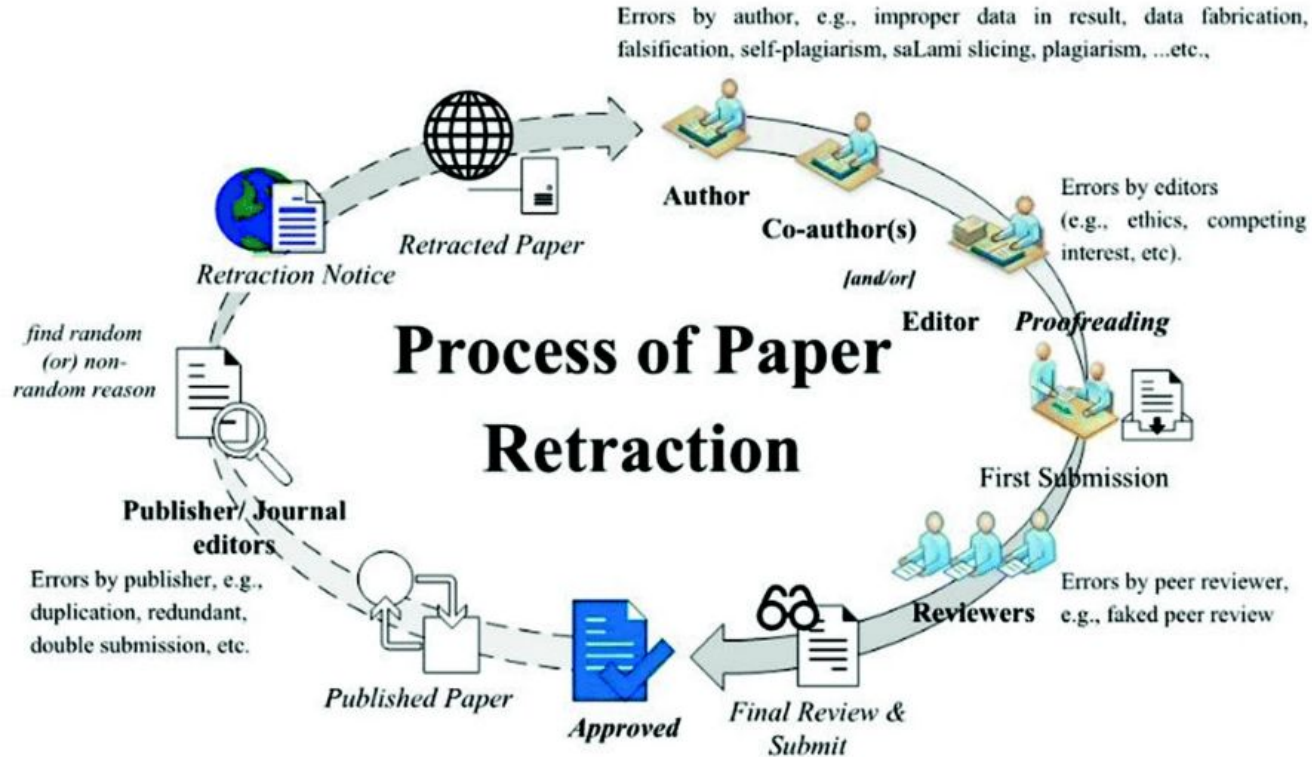
June 5, 2024



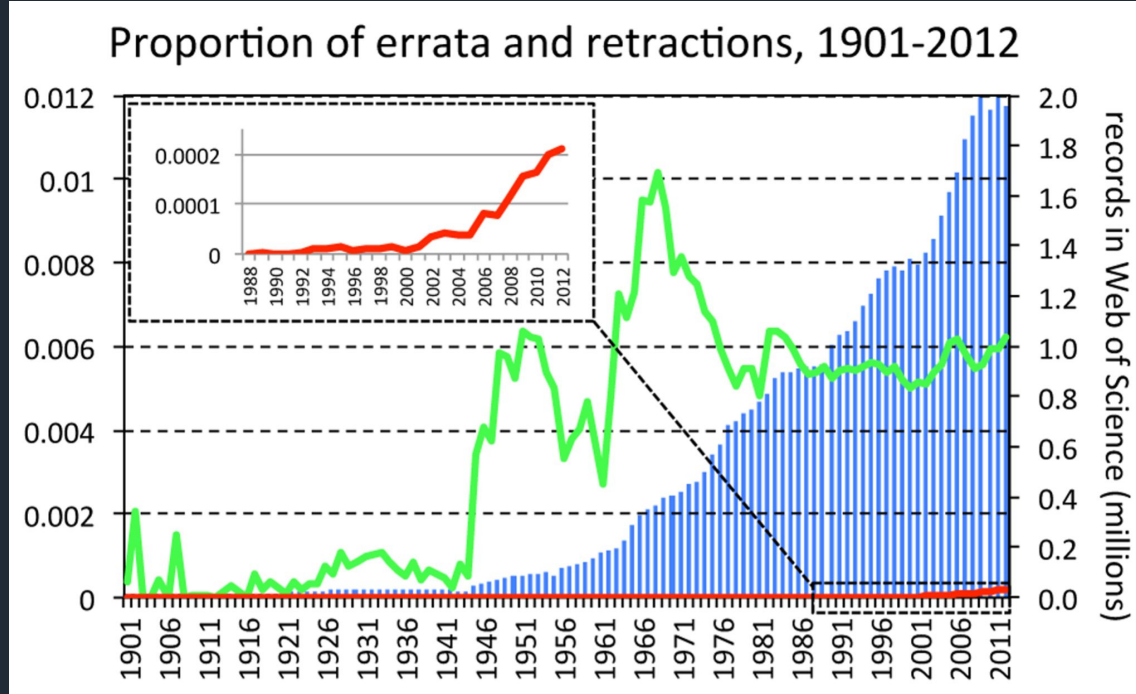
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From: Multiple Publications: The Main Reason for the Retraction of Papers in Computer Science



Recent Growth in Retractions



Bars represent total number of records added each year to the Web of Science database.

Green, proportion of Web of Science records marked as "correction" or "correction, addition," excluding those with "retraction" in the title.

Red, proportion of those that have "retraction" in the title.

Retraction Watch

Ivan Oransky &
Adam Marcus



Aug 2010

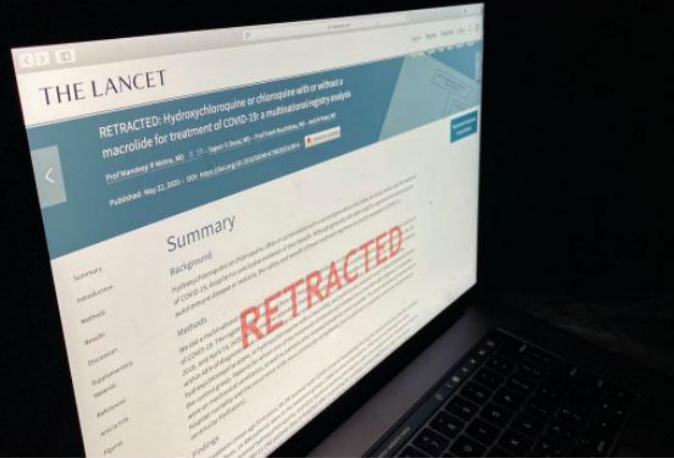
Science

Contents ▾

News ▾

Careers ▾

Journals



Many scientists citing two scandalous COVID papers ignore their retractions

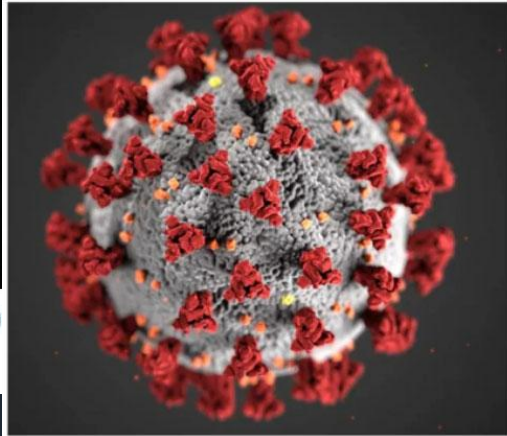
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More than 10,000 research papers were retracted in 2023 – a new record

The number of articles being retracted rose sharply this year. Integrity experts say that this is only the tip of the iceberg.

[nature](#) > NEWS | 12 December 2023 By [Richard Van Noorden](#)

List of retracted COVID-19 papers grows past 70



As Retraction Watch readers may know, as part of keeping our database of retractions up to date, we've been publishing a running list of COVID-





Why Study Retractions?



Understanding the Scientific Process



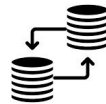
Learning from Mistakes



Developing Critical Thinking



Promoting Ethical Standards of Research



Addressing Replication Crisis



Building Trust in Scientific Literature



Methods

- Data



- Scope

- Retracted Chemistry manuscripts
- 1,292 in total

- Timeline: 2001-2021

- Article type:

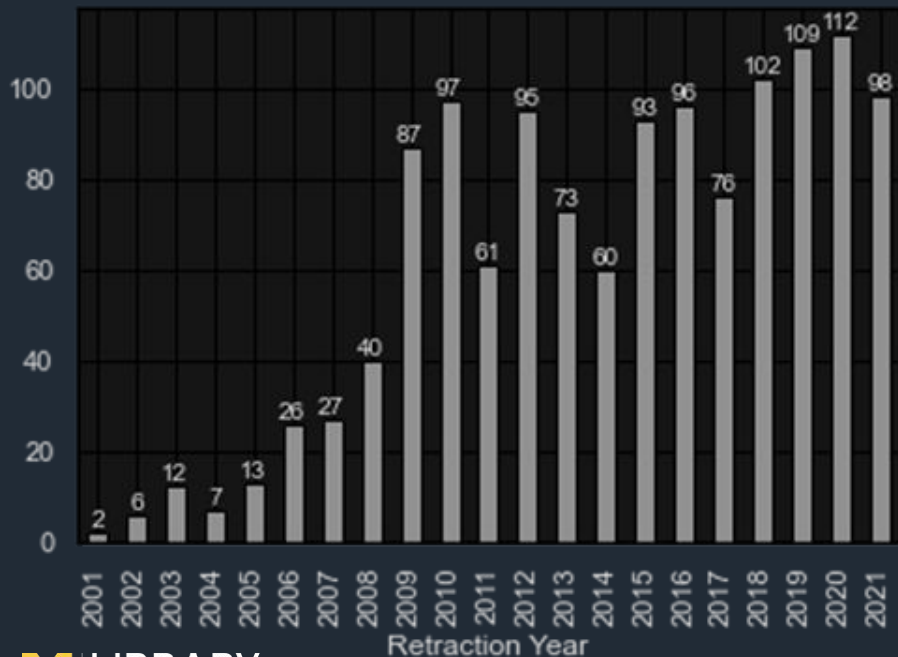
- Journal articles
- Review article (3%)

- Language: English



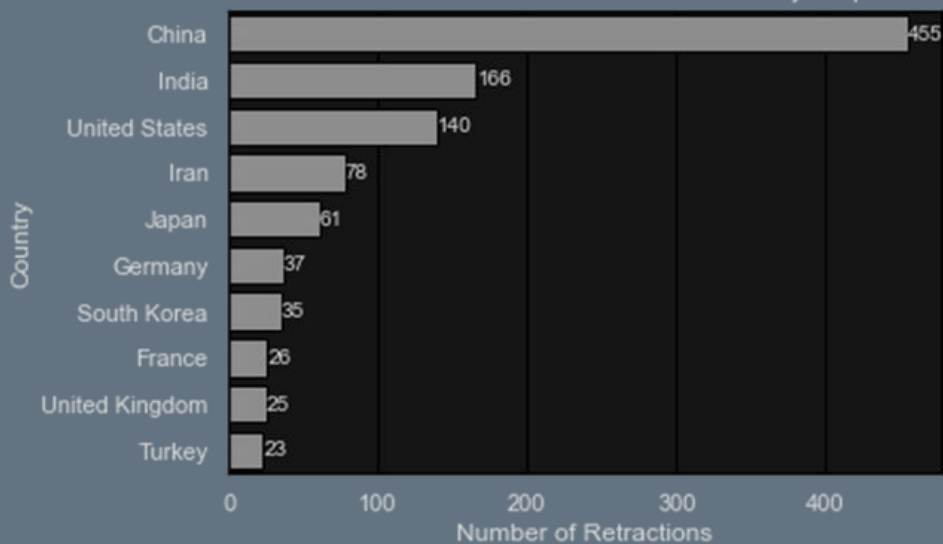
Retractions by Retraction Year

Number of Retractions by Retraction Year



Retractions by Country of Corresponding Author

Number of Retractions Published Each Country - Top 10

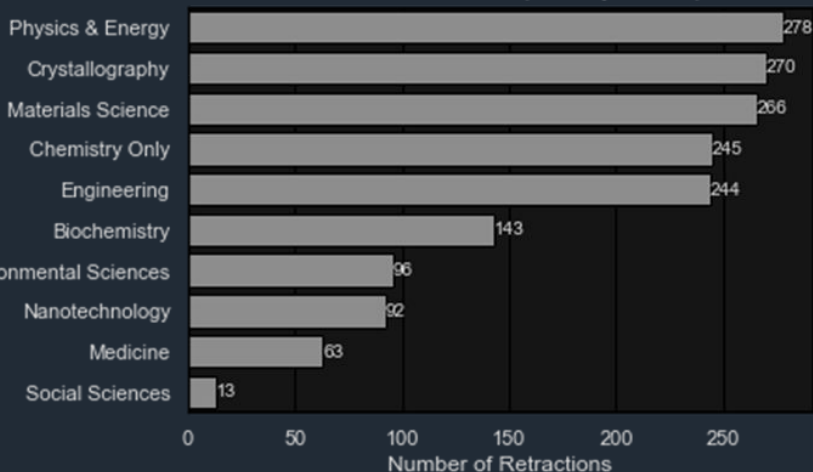


Record ID	Title	Subject	Institution	Journal	Publisher	Country	Author	URLS
0	34845	Transparent	(PHY) Chemistry;(PHY) Materials Science;(PHY) Nanotechnology	Advanced	ACS Applied	American	Germany;India	Bibekananda De;Bri
1	37305	Luminescence	(PHY) Chemistry;(PHY) Nanotechnology;	Department	ACS Applied	American	United States	Vineet Kumar;Vinay
2	34906	Non-thermal	(PHY) Chemistry;(PHY) Materials Science;	University	Polymer Chemistry	Royal Society	France;Spain	Thibault Castagnet;
3	37223	New composite	(PHY) Chemistry;(PHY) Materials Science;	Department	Journal of	Elsevier	Israel	Yaeli S Oren;Viatche
4	34700	The amine	(PHY) Chemistry;	School of	Nature Communications	Springer -	China	Lei Xu;Fu https://re
5	34709	Transition	(PHY) Chemistry;	MOE Key Lab	Chemical	Royal Society	China	Qingmin Li https://re
6	36259	Improved	(PHY) Chemistry;(PHY) Physics;	MOE Key Lab	The Journal	American	China	Yajun Yang;Yanlong
7	34198	A universal	(PHY) Chemistry;(PHY) Materials Science;(PHY) Nanotechnology	School of	Science Advances	American	Singapore;United States	Bu Yuan G https://re
7	34198	A universal	(PHY) Chemistry;(PHY) Materials Science;(PHY) Nanotechnology	School of	Science Advances	American	Singapore;United States	Bu Yuan G https://re
8	35497	Effect of M	(PHY) Chemistry;	Sathyabar	ACS Omega	American	India;Saudi Arabia;Ta	V L Mangesh;Tamizh
9	34244	Optical properties	(PHY) Chemistry;(PHY) Physics;	University	Physica E	Elsevier	Iraq	Hamad Rahman Jap
10	34285	Tunable e	(PHY) Chemistry;(PHY) Physics;	Department	Physica E	Elsevier	Iraq	Ali Obies Muhsen A
11	34288	Novel sup	(PHY) Chemistry;	College of	Tetrahedron	Elsevier	China	Fafu Yang;Yingmei Z
12	37306	Magnetic	(PHY) Chemistry;(PHY) Physics;	Department	ACS Nano	American	China;India;Japan	Zhun Kun Qi;Puneet
13	33357	Inside the	(PHY) Chemistry;(PHY) Physics;	Hubei Pro	ACS Macro	American	China;United States	Zixin Yu;Jie Wang;Zh
14	33358	Integratio	(PHY) Chemistry;(PHY) Nanotechnology;(PHY) Physics;	Department	Journal of	Springer	India;Iran	Aziz Habibi-Yangjeh
14	33358	Integratio	(PHY) Chemistry;(PHY) Nanotechnology;(PHY) Physics;	Department	Journal of	Springer	India;Iran	Aziz Habibi-Yangjeh
15	33342	Monodisp	(PHY) Chemistry;(PHY) Nanotechnology;	Sen Resea	RSC Advances	Royal Society	Turkey	Betul Celik;Yunus Y
16	36589	Synthesis	(PHY) Chemistry;	School of	Materials	IOP Publish	India;United Kingdom	Harminder Singh Sa
17	33351	Visible-light	(BLS) Microbiology;(PHY) Chemistry;	College of	Journal of	Wiley	China	Qiong Wu;Zhaohong
18	33166	Viscoelastic	(PHY) Chemistry;(PHY) Materials Science;(PHY) Nanotechnology	Department	Macromol	Springer	Canada;Malaysia	Mustafa Abu Ghali

Subject

Subject Group

Number of Retractions per Subject Group



Chemistry

Engineering

Crystallography

Materials Science

Nanotechnology

Physics & Energy

Biochemistry

Environmental Sciences

Medicine

Social Sciences

Only (19%)

Reasons

Retraction Watch Database User Guide Appendix B: Reasons

Reason	Description
Author Unresponsive	Author(s) lack of communication after prior contact by Journal, Publisher or other original Authors
Bias Issues or Lack of Balance	Failure to maintain objectivity in the presentation or analysis of information
Breach of Policy by Author	A violation of the Journal, Publisher or Institutional accepted practices by the author
Breach of Policy by Third Party	A violation of the Journal, Publisher or Institutional accepted practices by a person or company/institution not the authors
Cites Retracted Work	A retracted item is used in citations or referencing

<https://retractionwatch.com/retraction-watch-database-user-guide/retraction-watch-database-user-guide-appendix-b-reasons/>

Reason
+Notice - Unable to Access via current resources;+Withdrawal;
+Duplication of Image;+Manipulation of Images;
+Concerns/Issues about Referencing/Attributions;+Fake Peer Review;+Rogue Editor;+Unreliable Results;
+Concerns/Issues About Data;+Concerns/Issues About Results;+Original Data not Provided;
+Concerns/Issues About Data;+Objections by Third Party;+Original Data not Provided;+Unreliable Data;+Unreliable
+Duplication of Image;+Manipulation of Images;
+Duplication of Image;+Investigation by Third Party;+Paper Mill;
+Duplication of Image;+Investigation by Third Party;+Paper Mill;
+Duplication of Image;+Original Data not Provided;
+Concerns/Issues About Image;+Concerns/Issues About Results;+Duplication of Image;
+Error in Analyses;+Error in Data;+Unreliable Results;
+Lack of Approval from Company/Institution;
+Euphemisms for Plagiarism;+Plagiarism of Article;
+Concerns/Issues About Image;+Concerns/Issues about Referencing/Attributions;+Original Data not Provided;+U
+Error in Analyses;+Error in Methods;+Error in Results and/or Conclusions;+Unreliable Results;
+Concerns/Issues About Image;+Duplication of Article;+Duplication of Image;+Unreliable Results;+Upgrade/Upda
+Concerns/Issues About Authorship;+False/Forged Authorship;
+Duplication of Image;+Investigation by Company/Institution;+Manipulation of Images;
+Concerns/Issues About Data;+Concerns/Issues About Results;+Conflict of Interest;+Unreliable Results;
+Duplication of Image;+Unreliable Results;
+Plagiarism of Article;
+Author Unresponsive;+Duplication of Image;+Investigation by Third Party;+Paper Mill;+Unreliable Results;
+Concerns/Issues about Referencing/Attributions;
+Concerns/Issues about Third Party Involvement;+Duplication of Article;+Fake Peer Review;
+Concerns/Issues About Image;+Duplication of Image;
+Author Unresponsive;+Concerns/Issues About Data;+Investigation by Third Party;+Paper Mill;+Unreliable Results
+Author Unresponsive;+Duplication of Article;+Original Data not Provided;
+Concerns/Issues About Data;+Duplication of Image;+Manipulation of Images;+Original Data not Provided;+Unrel
+Date of Retraction/Other Unknown;+Notice - Limited or No Information;+Temporary Removal;+Withdrawal;
+Date of Retraction/Other Unknown;+Notice - Limited or No Information;+Temporary Removal;+Withdrawal;
+Euphemisms for Plagiarism;+Plagiarism of Article;
+Duplication of Image;+Investigation by Company/Institution;+Manipulation of Images;+Original Data not Provid
+Euphemisms for Plagiarism;+Plagiarism of Data;+Plagiarism of Image;
+Plagiarism of Text;+Upgrade/Update of Prior Notice;
+Duplication of Image;+Investigation by Company/Institution;+Manipulation of Images;
+Concerns/Issues About Image;+Duplication of Image;+Investigation by Third Party;+Paper Mill;+Unreliable Resul

Errors and Concerns

Concerns/Issues About Data

Concerns/Issues About Image / Results

Results Not Reproducible

Unreliable Data / Results / Image

Original Data not Provided

Contamination of Cell Lines/Tissues

Contamination of Materials (General)

Contamination of Reagents

Error in Results and/or Conclusions

Error in Analyses/ Methods

Error in Image / Text / Data

Error in Materials (General)

Cites retracted work

Fraud

Euphemisms for Misconduct

Misconduct by Author

Misconduct by Company/Institution

Misconduct by Third Party

Falsification/Fabrication of Data

Falsification/Fabrication of Image

Falsification/Fabrication of Results

Manipulation of Images

Plagiarism

Duplication of Article

Duplication of Image

Duplication of Text

Euphemisms for Duplication

Duplication of Data

Taken from Dissertation/Thesis

Plagiarism of Article

Plagiarism of Text

Euphemisms for Plagiarism

Plagiarism of Data

Plagiarism of Image

Copyright Claims

Concerns/Issues about Referencing/Attributions

Self-plagiarism

Duplication of Article

Duplication of Image

Duplication of Text

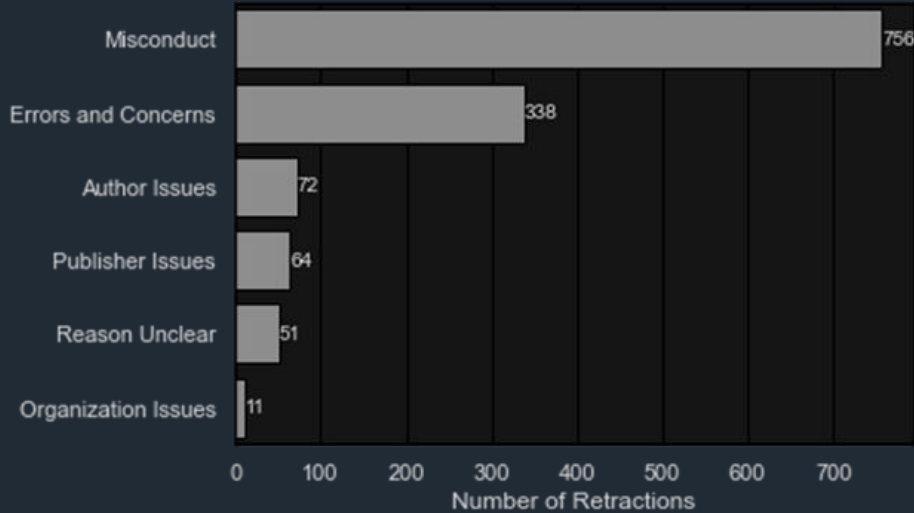
Euphemisms for Duplication

Duplication of Data

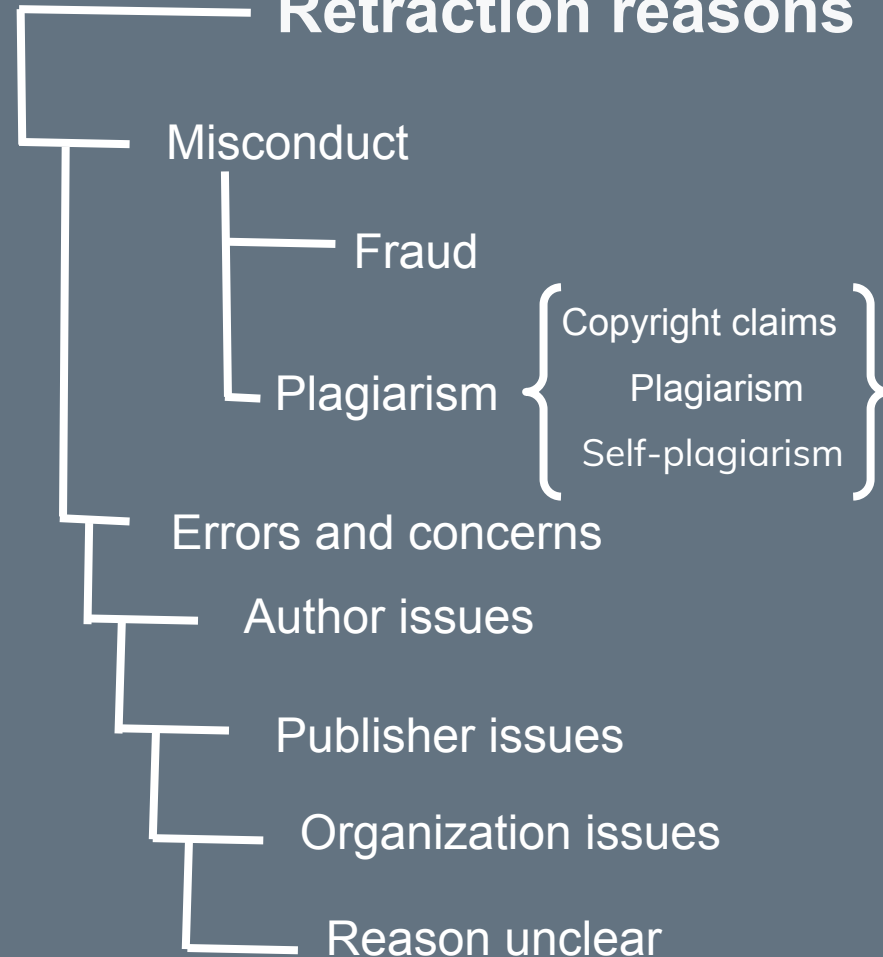
Doing the right thing!

Reasons

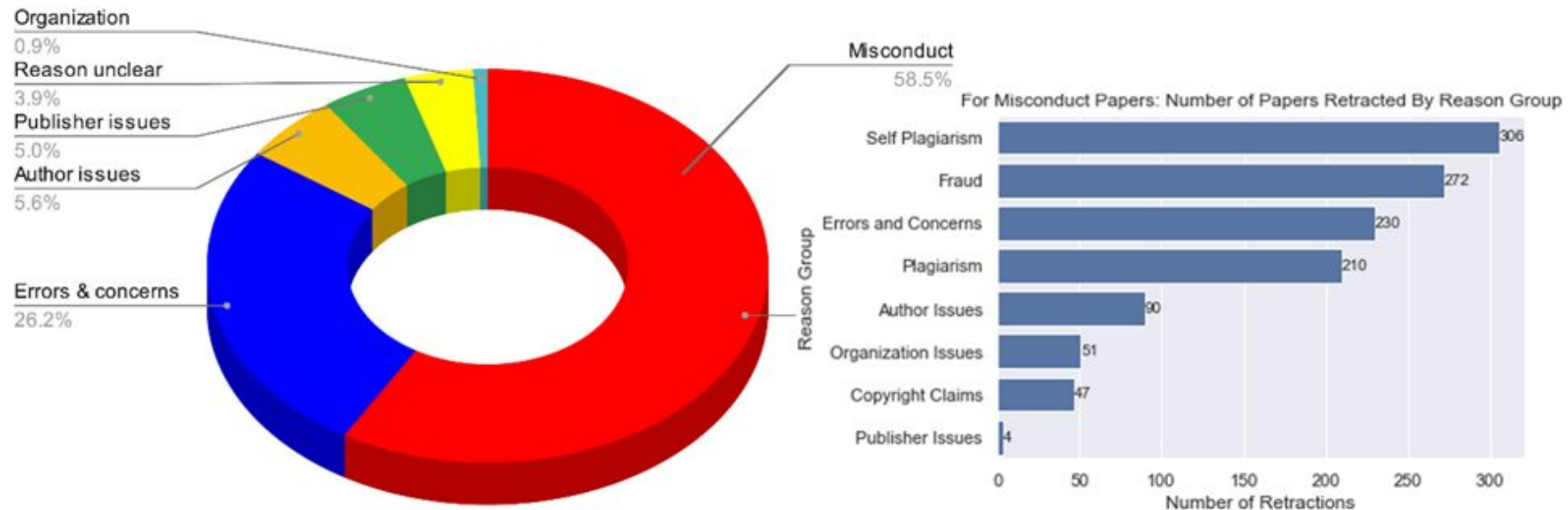
Number of Papers Retracted for Main Reason



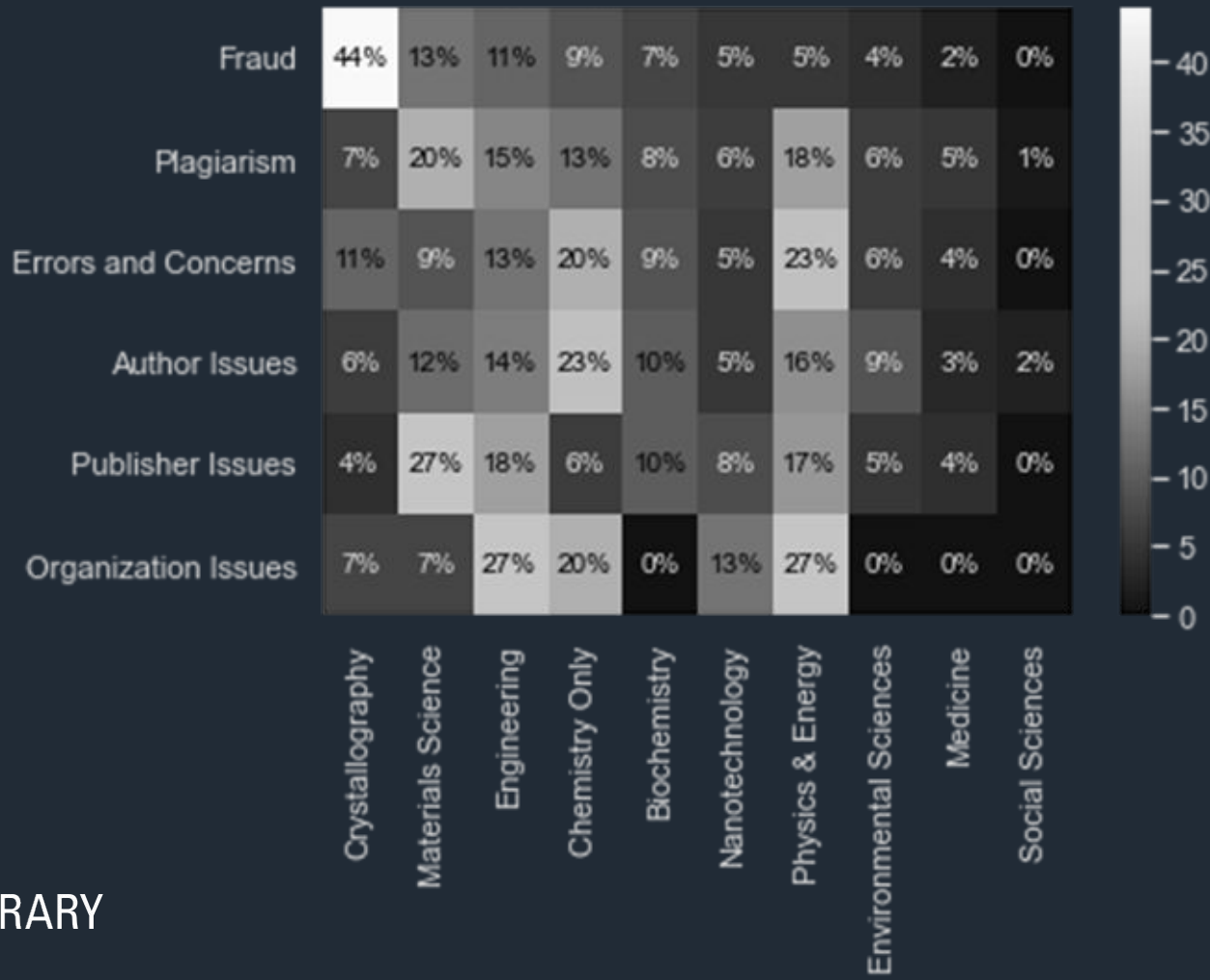
Retraction reasons

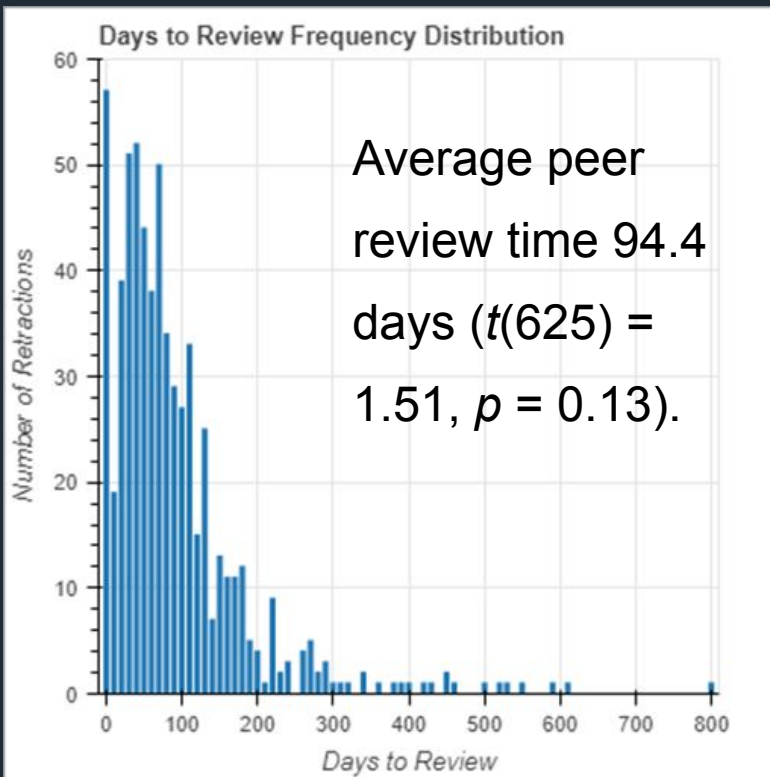


Majority of Chemistry Manuscripts are Retracted due to Misconduct



Percent of Times Subject Appeared for each Main Retraction Reason





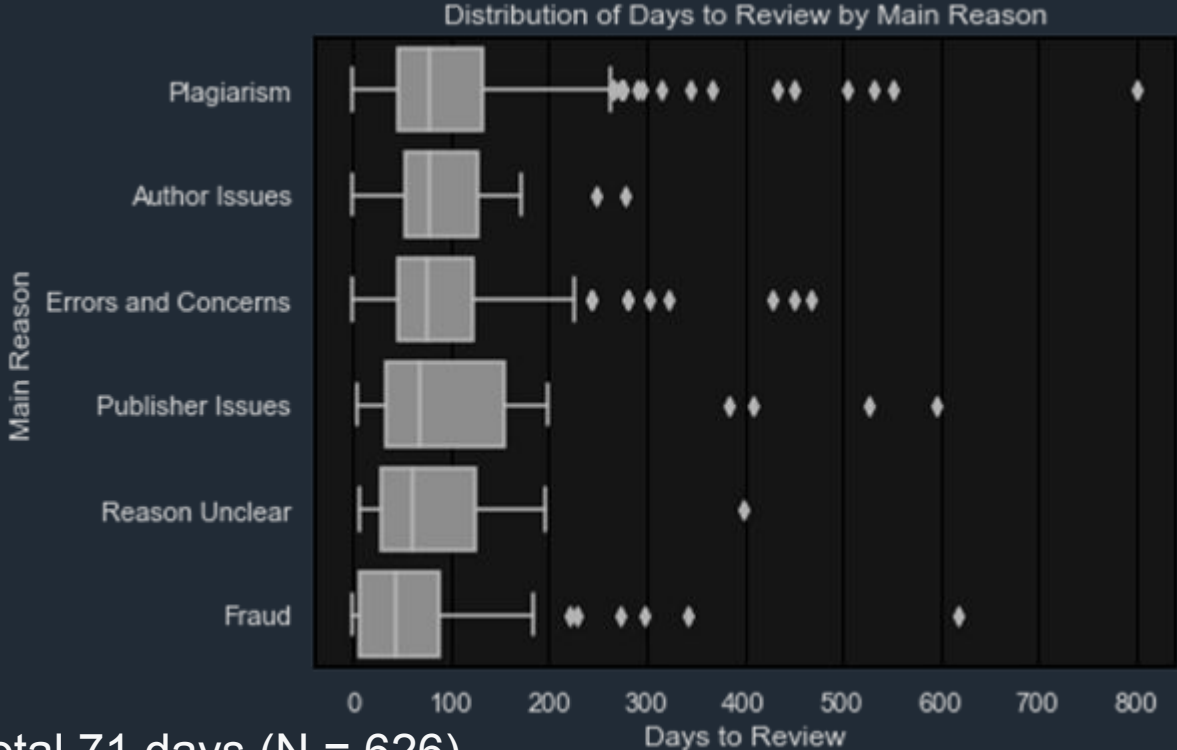
Average peer review time 94.4 days ($t(625) = 1.51, p = 0.13$).



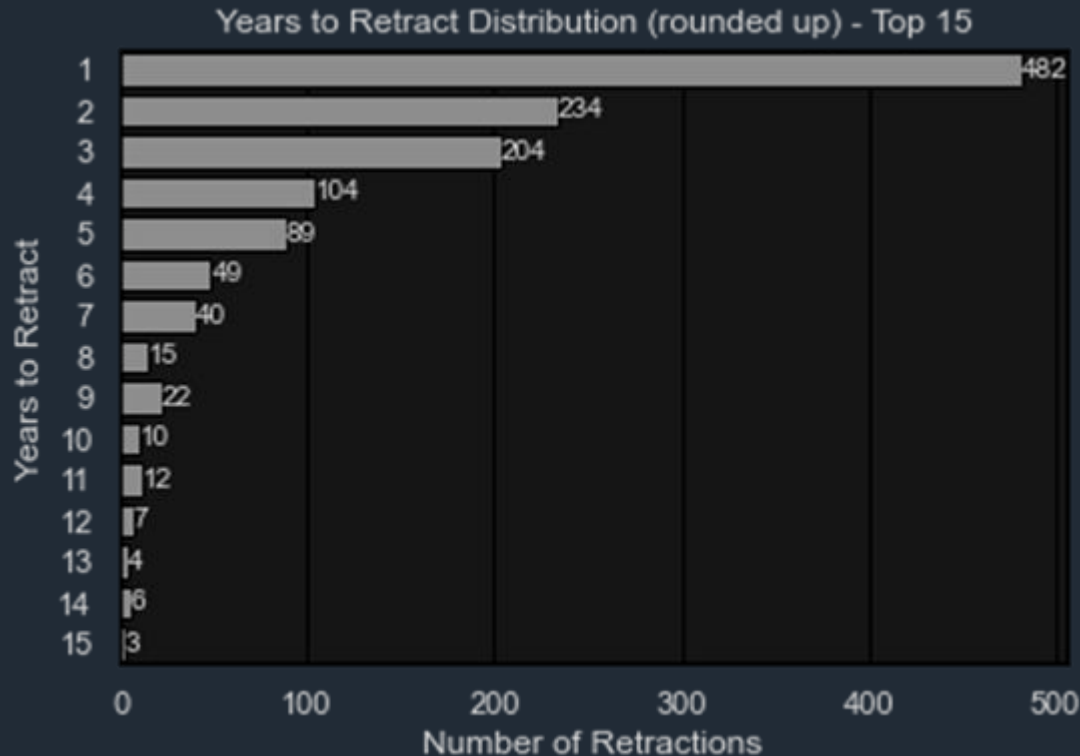
Median Peer-review time / Reason



Median	N
79 days	241
78 days	38
76 days	158
68 days	31
60 days	18
43 days	139



Median Retraction Time 1.7 years



- 37% are retracted within the first year of publication;
- 12% of manuscripts (N = 154) are retracted within the first 3 months of publication;
- 3% (N = 43) were retracted after 10 years.

Retraction time / Reason



Median	N
2.56 years	272
1.61 years	484
1.25 years	338
0.80 years	6
0.75 years	64
0.64 years	72
0.42 years	51
0.13 years	5



Analysis of Retracted Manuscripts in Chemistry

Yulia Sevryugina* (yulias@umich.edu) & Ryan Jimenez




Analysis of Retracted Manuscripts in Chemistry: Errors vs Misconduct



In this Viewpoint we discuss Chemistry manuscripts retracted during the 2001–2021 period (a total of 1292 journal articles retrieved from the Retraction Watch database). We showed that 58.5% of Chemistry manuscripts were retracted due to misconduct; of them, 40.5% of retractions were due to self-plagiarism and 36% due to fraud. Errors and concerns unrelated to misconduct constituted 26% of all retractions. Retracted manuscripts had a median retraction time of 1.7 years and peer-review time of 71 days (but only 43 days for fraudulent manuscripts).

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Thanks! Questions?

Dr. Yulia Sevryugina, Chemistry Librarian - yulias@umich.edu

Peer-review time / Discipline



Median N

98 days 43

96 days 64

92.5 days 94

72 days 95

71 days 137

64 days 63

63 days 106

57.5 days 110

38 days 135

21 days 3

Subject Group

Medicine

Environmental Sciences

Biochemistry

Chemistry Only

Physics & Energy

Nanotechnology

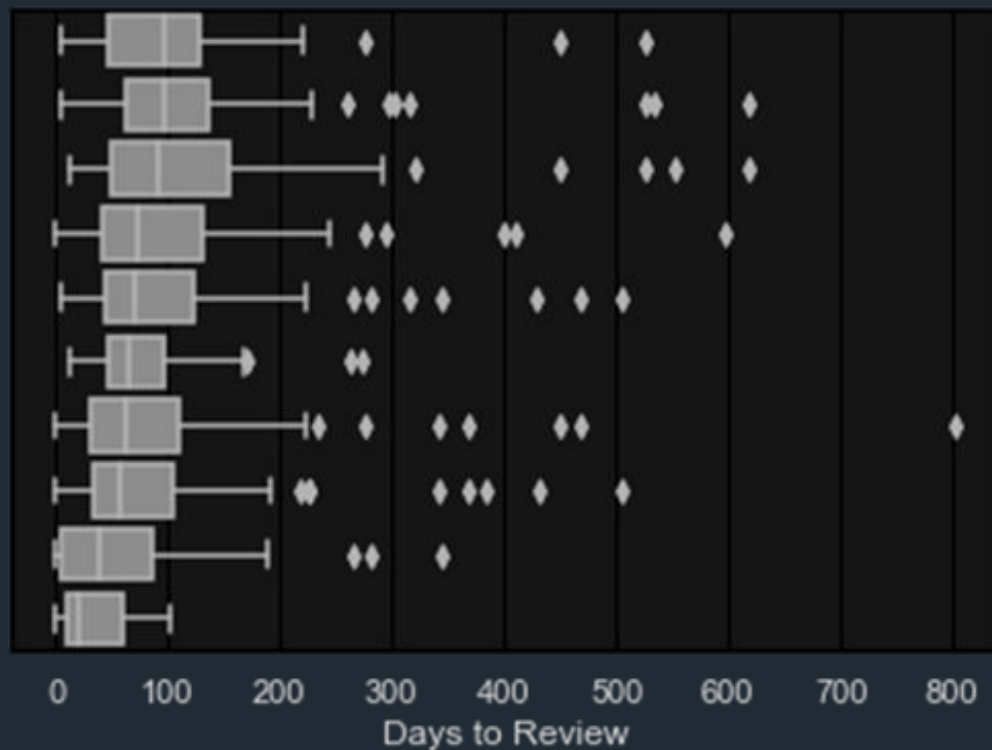
Engineering

Materials Science

Crystallography

Social Sciences

Distribution of Days to Review by Subject Group



Retraction time / Discipline



Median N

2.75 years 13

2.47 years 270

2.12 years 266

1.82 years 92

1.35 years 143

1.28 years 245

1.20 years 244

1.16 years 63

1.16 years 278

1.14 years 96

Subject Group

Social Sciences

Crystallography

Materials Science

Nanotechnology

Biochemistry

Chemistry Only

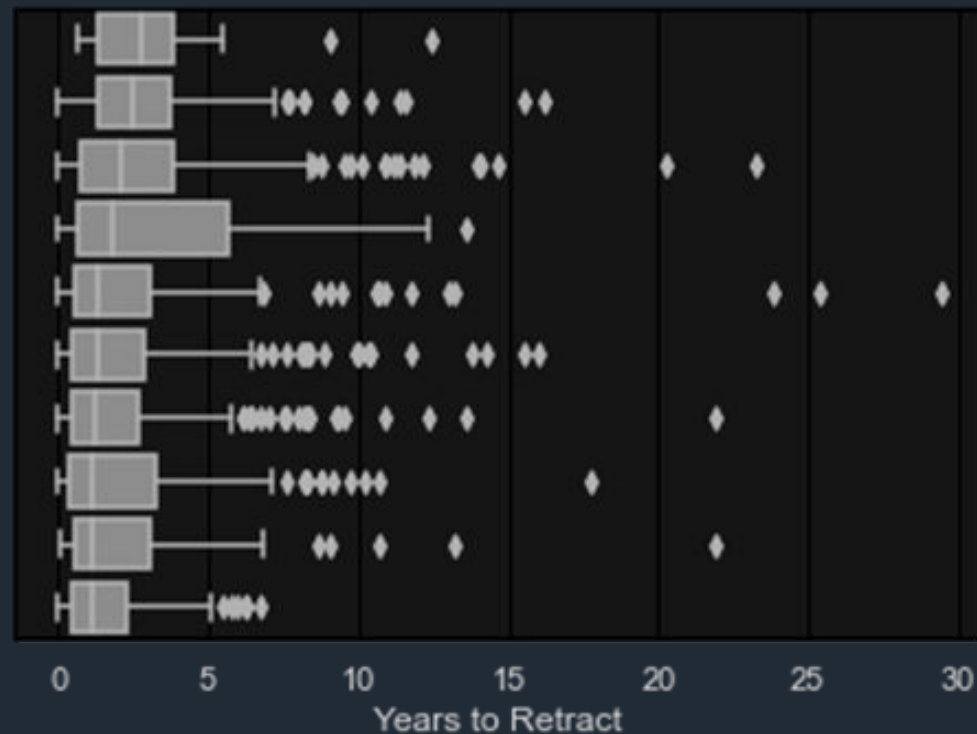
Engineering

Physics & Energy

Medicine

Environmental Sciences

Distribution of Years to Retract by Subject



Journals

